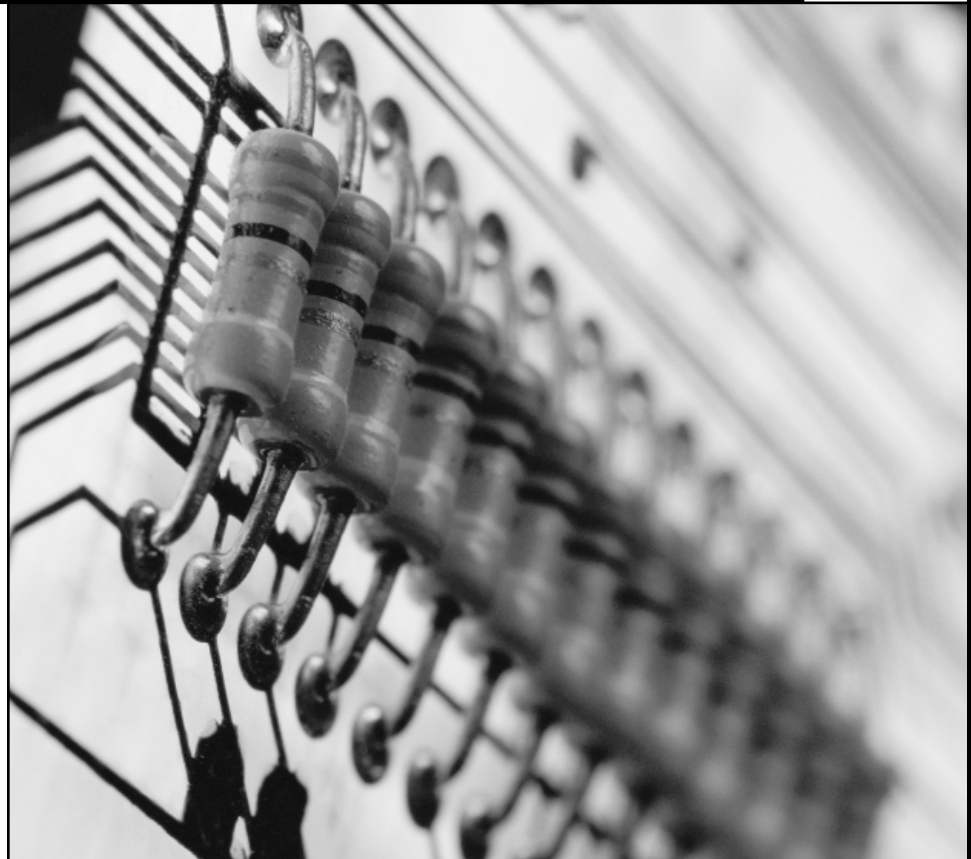


## Electronic Components



## ECA Standards and Engineering Publications



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World Headquarters

15 Inverness Way East

Englewood, CO 80112-5776 USA

tel: 800-854-7179 • 303-397-7956 • fax: 303-397-2740

e-mail: [global@ihs.com](mailto:global@ihs.com) • [www.global.ihs.com](http://www.global.ihs.com)

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## ARCHIVAL DOCUMENTS

### EIA-179

#### **Classification of Tube Testers**

This Standard classifies tube testers into four numbered groups and provides criteria for such groupings.

**Product Code 4** Feb, 1957 **COMMITTEE:JT-32**  
**\$30.00**

### EIA-215

#### **Basic Requirements for Broadcast Microphone Cables**

The cable described in this Standard consists of either two or three conductors of standard, annealed, and tinned copper wire, insulated with synthetic or natural rubber, covered with a cotton wrap and shield, and protected with an outer sheath of neoprene. This Standard was adopted and approved for DoD use on October 9, 1981.

**Product Code 4** Nov, 1958 **COMMITTEE:TR-10**  
**\$30.00**

## AUDIO

### HEADPHONES

### EIA-331

#### **Polarization of Stereophonic Headphones with 3-Contact Plugs**

This Standard is intended to specify the jack and plug wiring for proper polarization and channel reproduction. It is also intended to specify phones marking left and right when they are marked. It covers headphones using a 3-contact plug, and does not apply to amplifier, tuner or other equipment using the jack.

**Product Code 4** (Dec. 1966; Reaffirmed May 1973)  
**COMMITTEE:P-8.5**  
**\$30.00**

## AUTOMATED COMPONENT HANDLING

### REGISTRATION OF NEW TECHNOLOGIES

### EIA-705

#### **Electronic Industries Association - Automated Component Handling Committee - Guidelines and Procedures for Registration of New Technologies for Automated Component Handling for Publication in ACH-2000**

This document defines the means for review and registration of new technologies pertaining to automated handling of electronic components.

**Product Code 4** Sep, 1996 **COMMITTEE: ACH**  
**\$40.00**

### EIA/ACH-2000

#### **Registered New Technologies for Automated Component Handling**

This publication defines those new technologies having been submitted and approved by the EIA Automated Component Handling (ACH) Committee. The registered new technologies strictly are related to any aspect of automated component handling. ACH-2000 is a living document that will be periodically republished as new technologies are added to the document. The process for having a new technology registered in ACH-2000 is found in the guideline document EIA-705.

This publication is a companion to the following ACH publications and is included in the purchase of each at no additional charge: ANSI/EIA-296-E; ANSI/EIA-468-B; ANSI/EIA-481 series (481-1-A, 481-2-A, 481-3), EIA/IS-704 series (IS-704, IS-704-1, IS-704-2, IS-704-2.1); EIA/IS-726; EIA/IS-747; and EIA/IS-763.

**Product Code 4** Dec, 1998 **COMMITTEE: ACH**  
**\$51.00**

### SURFACE MOUNT - TAPING OF COMPONENTS

### EIA-481-1-A

#### **8 mm & 12 mm Taping of Surface Mount Components for Automatic Handling (ANSI/EIA-481-1-90)**

This Standard covers requirements for taping surface mount components. Future documentation will be issued to define requirements for higher taping accuracies for smaller device sizes. This Standard was formulated to provide dimensions and tolerances necessary to tape surface mount components such that they may be automatically handled.

**Product Code 4** Aug, 1994 **COMMITTEE:ACH**  
**\$42.00**

### EIA-481-2-A

#### **16 mm, 24 mm, 32mm, 44mm, and 56mm embossed Carrier Taping of Surface Mount Components for Automatic Handling.(ANSI/EIA-481-2-A-2000)**

This Standard was formulated to provide dimensions and tolerances necessary to tape surface mounted components such that they may be automatically handled.

**Product Code 4** Apr, 2000 **COMMITTEE:ACH**  
**\$42.00**

### EIA-783

#### **Guideline Orientation Standard for Multi-Connection Package (Design Rules for Tape and Reel Orientation)**

The intent of this EIA Guideline is to provide an editorial addition to each subpart of the ANSI/EIA-481 series (481-1-A, 481-2 and 481-3), EIA/IS-704, and EIA/IS-726, pertaining to an orientation standard for multi-connection package (design rules for tape and reel orientation) without necessitating the formal revision of all of these EIA Automated Component Handling (ACH) Committee standards. This guideline will not replace any information contained in ANSI/EIA-481-1-A, 481-2, 481-3, EIA/IS-704 and EIA/IS-726 and is provided for guidance and clarification only.

**Product Code 4** Nov, 1998 **COMMITTEE:ACH**  
**\$32.00**

**AUTOMATED COMPONENT HANDLING, SURFACE MOUNT - TAPING OF COMPONENTS (cont.)**

**EIA-784**

**Guideline for Reel Configuration and Dimensions for Reel Diameters Larger than 360 mm (Utilized in Applications of 16 mm to 56 mm Carrier Taping)**

The intent of this EIA Guideline is to provide and editorial addition to two subparts of the ANSI/EIA 481 series (481-2 and 481-3), pertaining to a guideline for reel configuration and dimensions of reel diameters larger than 360mm (utilized in applications of 16mm to 56mm carrier taping) without necessitating the revision of these EIA Automated Component Handling (AC) publications at the present time.

**Product Code 4 Dec, 1998 COMMITTEE:ACH  
\$33.00**

**EIA/IS-704**

**72 mm through 200 mm Carrier Tapes for Packaging Components for Automatic Handling**

This Standard provides requirements for packaging components for automatic handling.

**Product Code 4 Sep, 1996 COMMITTEE: ACH  
\$Call for Pricing**

**EIA/IS-704-1**

**Adhesively-Sealed Component Packaging**

This addendum to Interim Standard EIA/IS-704 provides requirements for packaging components for automatic handling using adhesively-sealed cover tape and carrier tape.

**Product Code 4 Sep, 1996 COMMITTEE: ACH  
\$Call for Pricing**

**EIA/IS-704-2**

**Mechanically-Interlocked Component Packaging**

This addendum to Interim Standard EIA/IS-704 provides requirements for packaging components for automatic handling using mechanically-interlocking cover tape and carrier tape.

**Product Code 4 Sep, 1996 COMMITTEE: ACH  
\$Call for Pricing**

**EIA/IS-704-2.1**

**Mechanically-Interlocked Component Packaging Flat Carrier**

This attachment to Interim Standard EIA/IS-704-2 provides requirements for packaging components for automatic handling using mechanically-interlocking cover tape and flat carrier tape.

The purpose of this attachment is to provide materials and processes necessary to package components such that they may be automatically handled. The carrier tape is flat carrier punched with hole patterns used to register certain component features.

**Product Code 4 Jul, 1997 COMMITTEE: ACH  
\$Call for Pricing**

**EIA/IS-726**

**8 mm Punched & Embossed Carrier Taping of Surface Mount Components for Automatic Handling of Devices Generally Smaller than 2.0 mm x 1.2 mm**

This Standard covers requirements for taping surface mount components generally smaller than 2.0 x 1.2 mm and requiring high precision taping of automatic handling.

**Product Code 4 Oct, 1997 COMMITTEE:ACH  
\$40.00**

**EIA/IS-747**

**Adhesive Backed Punched Plastic Carrier Taping of Singulated Bare Die and Other Surface Mount Components for Automatic Handling of Devices Generally Less Than 1.0 mm Thick**

This Standard covers requirements for 8mm, 12mm, 16mm, and 24mm taping of surface mount components generally less than 1.0mm thick and requiring high precision taping for automatic handling of devices such as singulated bare die. This Standard provides dimensions and tolerances necessary to tape surface mount components generally less than 1.0mm thick such that they may be automatically handled. This Standard compliments other existing industry standards such as EIA-481-1-A and EIA/IS 726.

**Product Code 4 Dec, 1997 COMMITTEE:ACH  
\$39.00**

**EIA/IS-763**

**Bare Die and Chip Scale Packages Taped in 8 mm & 12 mm Carrier Tape for Automatic Handling**

This Standard covers requirements for punched and embossed carrier taping of components such as silicon dies, bumped flip chip devices, and chip scale packages.

**Product Code 4 Jun, 1998 COMMITTEE:ACH  
\$44.00**

**TAPING OF COMPONENTS**

**EIA-296-F**

**Lead Taping of Components in Axial Lead Configuration for Automatic Handling (ANSI/EIA-296-F-2000)**

This Standard is formulated to provide dimensions and tolerances necessary to tape axial leaded components after manufacture so that they can be automatically handled. Axial leaded components are leaded components with the lead egress concentric with the longitudinal axis centerline of the component body.

**Product Code 4 Apr, 2000 COMMITTEE:ACH  
\$39.00**

**EIA-468-B**

**Lead Taping of Components in the Radial Configuration for Automated Handling**

This standard was formulated to provide dimensions and tolerances necessary to lead tape components such that they may be automatically handled in the radial format. This standard covers the lead taping requirements for components having radial configured leads, provided these components may be taped in accordance with the requirements of this documents.

**Product Code 4 Aug, 1994 COMMITTEE:ACH  
\$42.00**

**CABLES**

**COAXIAL**

**EIA-199-A**

**Solid and Semi-Solid Dielectric Transmission Lines (ANSI/EIA-199-A-72) (R78) (R83)**

This Standard refers to solid and semi-solid dielectric coaxial cable transmission lines consisting of one or two inner conductors. The primary object of the Standard is to insure the uniformity of similar-type coaxial cables obtained from different sources of supply. It is also intended to serve as a guide in the manufacture and application of these cables.

**Product Code 4 Apr, 1983 COMMITTEE:C-83.3  
\$30.00**

## DETAIL SPECIFICATIONS

### PQC71

**Generic Specification "Radio Frequency Cables of Assessed Quality (US)"**

Product Code 4 Jun, 1987 COMMITTEE:IECQ  
\$30.00

### PQC72

**Sectional Specification "Radio Frequency Cables, Flexible, for Operation at a Maximum Center Conductor Temperature of 85 C (US)"**

Product Code 4 Jun, 1987 COMMITTEE:IECQ  
\$30.00

### PQC73

**Blank Detail Specification "Flexible Radio Frequency Cables for Operation at a Maximum Center Conductor Temperature of 85 C, Assessment Level H (US)"**

Product Code 4 Jun, 1987 COMMITTEE:IECQ  
\$30.00

### PQC73/US0001

**Detail Specification "Radio Frequency Cables at a Maximum Center Conductor Temperature of 85 C, Assessment Level H (US)"**

Product Code 4 Jan, 1988 COMMITTEE:IECQ  
\$30.00

### PQC74

**Blank Detail Specification "Flexible Radio Frequency Cable for Operation at a Maximum Center Conductor Temperature of 85 C, Assessment Level U (US)"**

Product Code 4 Jun, 1987 COMMITTEE:IECQ  
\$30.00

### PQC74/US0001

**Detail Specification "Radio Frequency Cables for Operation at a Maximum Center Conductor Temperature of 85 C, Assessment Level U (US)" Commonly described as ETHERNET (a trademark of Xerox Corporation) Trunk Cable.**

Product Code 4 Jan, 1988 COMMITTEE:IECQ  
\$30.00

## CAPACITORS

### ALUMINUM ELECTROLYTIC CAPACITORS

#### EIA-395

**Polarized Aluminum Electrolytic Capacitors for Long Life (Type 1) and for General Purpose Application (Type 2) (ANSI/EIA-395-72) (R78) (R83)**

This Standard is meant to establish uniform requirements for judging the electrical, mechanical, and environmental properties of these two types of capacitors to describe test methods, and to give recommendations for standard ratings and dimensions.

Product Code 4 Oct, 1982 COMMITTEE:P-2.4  
\$59.00

#### EIA-395-1

**Addendum No. 1 to EIA-395 (ANSI/EIA-395-1-75) (R78) (R81)**

This Standard covers Detail No. 5 tubular aluminum electrolytic capacitors with wire terminations at one end style 50.

Product Code 4 Mar, 1981 COMMITTEE:P-2.4  
\$30.00

#### EIA-463-A

**Fixed Aluminum Electrolytic Capacitors for Alternating Current Motor Starting, Heavy Duty (Type 1) and for Standard Duty (Type 2) (ANSI/EIA-463-A-99)**

This Standard covers the requirements for aluminum electrolytic capacitors, non-polarized, sealed in plastic or aluminum cases and which are for the intermittent service starting single phase alternating current induction motors. The capacitors are rated for service in 50 Hz and 60 Hz circuits and may be operated in ambient temperatures.

This standard was adopted and approved for DoD use in November 24, 1980.

Product Code 4 Apr, 1999 COMMITTEE:P-2.4  
\$51.00

#### EIA-815

**Miniature Aluminum Electrolytic Capacitor (Leaded) Qualification Specification**

This specification defines the qualification program for miniature aluminum electrolytic capacitors with leads. Specification sheets can be added, as required, to define specific products or to cover unique/specific requirements. This specification includes requirements with the intention of developing a single set of robust qualification tests that would enable a supplier to leverage test results to satisfy the requirements of multiple OEM customers. The object of this specification program is to insure that components meet a minimum quality and/or reliability level.

Product Code 4 Aug, 1999 COMMITTEE:P-2.4  
\$40.00

CAPACITORS, ALUMINUM ELECTROLYTIC CAPACITORS (cont.)

**EIA/IS-749**

***Rectified Mains Application Expected Wear-Out Lifetime Test***

This test procedure determines the expected wear-out lifetime for aluminum electrolytic capacitors. It provides a measure of the operating time required for parametric changes to cause capacitors to become unusable as filter capacitors on rectified mains applications. While it measures the time till wear-out, it does not indicate failure rate during the operating life. Measurements are to be taken periodically and the measurements are to be taken at the same temperature throughout the test.

**Product Code 4 Jan, 1998 COMMITTEE:P-2.4  
\$38.00**

**QC300301/US0001**

***Detail Specification "Aluminum Electrolyte Capacitors with Non-Solid Electrolyte, SE Type"***

**Product Code 4 Jan, 1988 COMMITTEE:P-2.4  
\$30.00**

**QC300301/US0002**

***Detail Specification "Aluminum Electrolyte Capacitors with Non-Solid Electrolyte, LY Type"***

**Product Code 4 Jan, 1988 COMMITTEE:P-2.4  
\$30.00**

**QC300301/US0003**

***Detail Specification "Fixed Aluminum Electrolyte Capacitors with Non-Solid Electrolyte--SK Type"***

**Product Code 4 Oct, 1990 COMMITTEE:P-2.4  
\$30.00**

**QC300302**

***Blank Detail Specification "Aluminum Electrolyte Capacitors with Solid Electrolyte. Assessment Level E"***

**Product Code 4 Jun, 1985 COMMITTEE:P-2.4  
\$31.00**

**CERAMIC CAPACITORS**

**EIA-198-E**

***Ceramic Dielectric Capacitors Classes I, II, III, and IV (ANSI/EIA-198-E-91) (R97)***

***EIA-198-1-E, Part I: Characteristics and Requirements***

***EIA-198-1-E, Part II: Test Methods***

***EIA-198-1-E, Part III: Individual Specifications***

These documents cover ceramic dielectric capacitors, to provide information and rating data in accordance with the current state-of-the-art, for three mechanical styles and four dielectric classifications.

**Product Code 4 Jan, 1998 COMMITTEE:P-2.1  
\$78.00**

**EIA-198-1-E**

***Ceramic Dielectric Capacitors Classes I, II, III, and IV - Part I: Characteristics and Requirements (ANSI/EIA-198-1-E-97)***

This EIA Standard is a revision and update of EIA-198-D covering ceramic dielectric capacitors. Revision-E has been modified to contain information on new products, specifically low voltage rated and small case size surface mount capacitors. Part I of this standard provides means to characterize ceramic capacitors electrically and mechanically by use of type designations. In addition, this part outlines dielectric classifications, marking specifications, and test sequences.

**Product Code 4 Jan, 1998 COMMITTEE:P-2.1  
\$57.00**

**EIA-198-2-E**

***Ceramic Dielectric Capacitors Classes I, II, III, and IV - Part II: Test Methods (ANSI/EIA-198-2-E-97)***

This standard establishes uniform methods for testing ceramic capacitors, including basic environmental tests to determine resistance to deleterious effects of natural elements, and physical and electrical tests.

**Product Code 4 Jan, 1998 COMMITTEE:P-2.1  
\$124.00**

**EIA-198-3-E**

***Ceramic Dielectric Capacitors Classes I, II, III, and IV - Part III: Individual Specifications (ANSI/EIA-198-3-E-98)***

This EIA Standard is a revision and update of EIA-198-D covering ceramic dielectric capacitors. Revision-E has been modified to contain information on new products, specifically low voltage rated and small case size surface mount capacitors. Detailed changes are listed at the beginning of each section. Individual product specifications have been arranged as stand-alone individual paginated sections of Part III in order to facilitate revision on a case by case basis.

**Product Code 4 Jan, 1998 COMMITTEE:P-2.1  
\$146.00**

**EIA-469-C**

***Standard Test Method for Destructive Physical Analysis of High Reliability Ceramic Monolithic Capacitors (ANSI/EIA-469-B-88)***

This document provides terminology, methods, and criteria for characterizing the internal structural features of monolithic, ceramic dielectric capacitors. Its major objective is the accurate evaluation of the internal physical quality of the chip capacitor element as it relates to the functional reliability of the finished capacitor. This standard also provides needed and useful information pertaining to activities associated with destructive physical analysis (DPA), such as post-decapsulation visual inspection and DPA reporting. In addition, it provides tutorial help for problems inherent in DPA sampling processing.

**Product Code 4 Feb, 1997 COMMITTEE:P-2.1  
\$67.00**

**CAPACITORS, CERAMIC CAPACITORS (cont.)**

**EIA-483**

***Standard Method of Test for Effective Series Resistance (ESR) and Capacitance of Multilayer Ceramic Capacitors at High Frequencies (ANSI/EIA-483-81)***

This Standard is the first of its kind for the measurement of capacitors at high frequencies. Recently, multilayer capacitors have been produced for applications requiring operation in the 100-1000 MHz range. This Standard satisfies the need for capacitor evaluation and device development in performance range. A low ESR - transmission lines have been constructed, and a mathematical system has been devised for employing that in a resonant mode to determine capacitor parameters, and particularly ESR, at the range up to and including microwave frequencies. The capacitor produces accurate reliable data and this test method allows the accuracy and reproducibility of this data with a degree of confidence not possible in the past.

**Product Code 4** Dec, 1990 **COMMITTEE:P-2.1**  
**\$53.00**

**EIA-521**

***Application Guide for Multilayer Ceramic Capacitors - Electrical***

This document covers capacitor classes I-IV. Definition of important terms are included. Factors influencing performance as temperature, voltage (a.c. and d.c), temperature-voltage, aging, and frequency are discussed in detail. Other topics as piezoelectric properties, corona, dielectric absorption, reliability, and applications are described extensively.

**Product Code 4** Nov, 1993 **COMMITTEE:P-2.1**  
**\$46.00**

**EIA-595**

***Visual and Mechanical Inspection Multilayer Ceramic Chip Capacitors***

This document covers the general industry inspection requirements for multilayer ceramic chip capacitors. The devices selected for inspection may be examined under 10 to 20 power magnification to determine compliance with the requirements specified. Sampling plans or lot accept/reject criteria shall be negotiated between the manufacturer and the user/buyer.

**Product Code 4** Dec, 1993 **COMMITTEE:P-2.1**  
**\$42.00**

**EIA/IS-35**

***Two-Pin Dual In-Line Capacitors***

This new Interim Standard covers style DP 2510, both axial and form leaded types. It is intended to replace styles CC2810 and CC2820, which are currently included in EIA-198-C.

**Product Code 4** Feb, 1987 **COMMITTEE:P-2.1**  
**\$30.00**

**EIA/IS-36**

***Chip Capacitors, Multi-Layer (Ceramic Dielectric)***

This new Interim Standard establishes five chips as standard, including new styles CC1206 and CC1825. These will eventually replace the eight styles currently found in EIA-198-C. Test procedure additions and modifications are also included in this Interim Standard.

**Product Code 4** Jan, 1987 **COMMITTEE:P-2.1**  
**\$30.00**

**EIA/IS-37**

***Multiple Layer High Voltage Capacitors (Radial Lead Chip Capacitors)***

EIA/IS-37 adds new Multiple Layer High Voltage Capacitors in both radial lead and chip styles.

**Product Code 4** Mar, 1987 **COMMITTEE:P-2.1**  
**\$30.00**

**EIA/IS-38**

***Radial Lead Capacitors (Conformally Coated)***

EIA/IS-38 eliminates style CC1010 (page 13 of EIA-198-C) and makes other modifications.

**Product Code 4** Mar, 1987 **COMMITTEE:P-2.1**  
**\$30.00**

**EIA/IS-39**

***Ceramic Dielectric Axial Capacitors (Glass Encapsulated)***

EIA/IS-39 adds new Ceramic Dielectric Axial Capacitors (Glass Encapsulated).

**Product Code 4** Mar, 1987 **COMMITTEE:P-2.1**  
**\$30.00**

**EIA/IS-692**

***Ceramic Capacitor Qualification Specification***

The objective of this qualification program is to ensure that the device to be qualified meets a minimum set of qualification requirements

**Product Code 4** May, 1996 **COMMITTEE:P-2.1**  
**\$45.00**

**CB11**

***Guidelines for the Surface Mounting of Multilayer Ceramic Chip Capacitors***

**Product Code 4** Aug, 1986 **COMMITTEE:P-2.1**  
**\$71.00**

**CERAMIC CAPACITORS, DETAIL SPECIFICATIONS**

**PQC43/US0001**

***Detail Specification "Fixed Capacitors of Ceramic Dielectric, Class 1B, Molded Case Multilayer Ceramic, Axial Lead"***

**Product Code 4** Jan, 1986 **COMMITTEE:P-2.1**  
**\$30.00**

**PQC43/US0002**

***Detail Specification "Fixed Capacitors of Ceramic Dielectric, Class 1B, Molded Case Multilayer Ceramic, Radial Lead"***

**Product Code 4** Jan, 1986 **COMMITTEE:P-2.1**  
**\$30.00**

**PQC43/US0003**

***Detail Specification "Fixed Capacitors of Ceramic Dielectric, Class 1B, Molded Case Multilayer Ceramic, Radial Lead"***

**Product Code 4** Sep, 1985 **COMMITTEE:P-2.1**  
**\$30.00**



CAPACITORS, CERAMIC CAPACITORS, DETAIL SPECIFICATIONS (cont.)

PQC43/US0004

*Detail Specification "Fixed Capacitors of Ceramic Dielectric, Class 1B, Molded Case Multilayer Ceramic, Axial Lead"*

Product Code 4 Sep, 1985 COMMITTEE:P-2.1  
\$30.00

PQC45/US0001

*Detail Specification "Fixed Capacitors of Ceramic Dielectric, Class 2 x 1, Molded Case Multilayer Ceramic, Axial Leads"*

Product Code 4 Jan, 1986 COMMITTEE:P-2.1  
\$30.00

PQC45/US0002

*Detail Specification "Fixed Capacitors of Ceramic Dielectric, Class 2 x 1, Molded Case Multilayer Ceramic, Radial Leads"*

Product Code 4 Jan, 1986 COMMITTEE:P-2.1  
\$30.00

PQC45/US0003

*Detail Specification "Fixed Capacitors of Ceramic Dielectric, Class 2 x 1, Molded Case Multilayer Ceramic, Axial Leads"*

Product Code 4 Sep, 1985 COMMITTEE:P-2.1  
\$30.00

PQC45/US0004

*Detail Specification "Fixed Capacitors of Ceramic Dielectric, Class 2 x 1, Molded Case Multilayer Ceramic, Radial Leads"*

Product Code 4 Sep, 1985 COMMITTEE:P-2.1  
\$30.00

QC300601/US0001

*Detail Specification "Fixed Capacitors, Multilayer Ceramic Dielectric, Class 1B, Conformal Insulated Coating, Axial Leads"*

Product Code 4 Jan, 1988 COMMITTEE:P-2.1  
\$30.00

QC300601/US0002

*Detail Specification "Fixed Capacitors, Multilayer Ceramic Dielectric, Class 1B, Conformal Insulated Coating, Radial Leads"*

Product Code 4 Jan, 1988 COMMITTEE:P-2.1  
\$30.00

QC300601/US0003

*Detail Specification "Fixed Capacitors, Ceramic Dielectric, Class 1, Disk Type, Single Form, Radial Terminations"*

Product Code 4 Aug, 1988 COMMITTEE:P-2.1  
\$30.00

QC300701/US0001

*Detail Specification "Fixed Capacitors, Multilayer Ceramic Dielectric, Class 2E4, Conformal Insulated Coating, Axial Leads"*

Product Code 4 Jan, 1988 COMMITTEE:P-2.1  
\$30.00

QC300701/US0002

*Detail Specification "Fixed Capacitors, Multilayer Ceramic Dielectric, Class 2R1, Conformal Insulated Coating, Radial Leads"*

Product Code 4 Jan, 1988 COMMITTEE:P-2.1  
\$30.00

QC300701/US0003

*Detail Specification "Fixed Capacitors, Multilayer Ceramic Dielectric, Class 2R1, Conformal Insulated Coating, Axial Leads"*

Product Code 4 Jan, 1988 COMMITTEE:P-2.1  
\$30.00

QC300701/US0004

*Detail Specification "Fixed Capacitors, Multilayer Ceramic Dielectric, Class 2E4, Conformal Insulated Coating, Radial Leads"*

Product Code 4 Jan, 1988 COMMITTEE:P-2.1  
\$30.00

QC300701/US0005

*Detail Specification "Fixed Capacitors, Ceramic Dielectric, Class 2, Disk Type, Single Form, Radial Terminations"*

Product Code 4 Aug, 1988 COMMITTEE:P-2.1  
\$30.00

FILM DIELECTRIC CAPACITORS

EIA-376

*Fixed Film Dielectric Capacitors in Metallic and Non-Metallic Cases for DC Application (ANSI/EIA-376-71) (R76) (R83) (R90)*

This Standard covers the general requirements for direct current film dielectric, fixed capacitors in metallic and non-metallic cases. Capacitors listed are primarily in entertainment, commercial, and industrial equipment for filtering, bypass, coupling and blocking purposes where dc voltages predominate.

Product Code 4 Nov, 1990 COMMITTEE:P-2.2  
\$44.00

EIA-376-1

*Addendum No. 1 to EIA-376 Parts List Supplement (ANSI/EIA-376-1-72) (R83) (R90)*

Product Code 4 Nov, 1990 COMMITTEE:P-2.2  
\$41.00

EIA-495-A

*Film Dielectric Capacitors with Metallized Paper Electrodes for Alternating Current Applications (ANSI/EIA-495-A-89)*

This Standard describes some of the requirements for film dielectric capacitors oil filled or impregnated, made with two metallized paper electrodes or one metallized paper electrode and one aluminum foil electrode, and sealed in metal cases. They are intended for use in lighting ballasts, ferroresonant transformer power supplies, some power factor correction (with motors) and other general purpose applications. The capacitors are rated for service in 50 Hz to 60 Hz circuits with case temperature range as specified within the document.

Product Code 4 Apr, 1997 COMMITTEE:P-2.2  
\$57.00

**CAPACITORS, FILM DIELECTRIC CAPACITORS (cont.)**

**EIA-580A000**

**Sectional Specification for Fixed Chip Capacitors with Metallized Electrodes and Polyethylene-Terephthalate Dielectric for Use in Electronic Equipment (ANSI/EIA-580A000-91)**

The object of this standard is to prescribe preferred ratings and characteristics and to select from IEC Publication 384-1 (1982), the appropriate quality assessment procedures, tests and measuring methods and to give general performance requirements for this type of capacitor. Test severities and requirements prescribed in detail specifications referring to this sectional specification shall be of equal or higher performance level, because lower performance levels are not permitted.

**Product Code 4** Jan, 1992 **COMMITTEE:P-2.2**  
**\$58.00**

**EIA-580A0AC**

**Detail Specification for Fixed Metallized Polyethylene Terephthalate Film Dielectric DC Capacitors Axial Leaded (ANSI/EIA-580A0AC-98)**

This Specification provides dimensions, ratings, case size, maximum pulse rise time, insulation resistance, and inspection requirements for metallized polyethylene terephthalate film dielectric dc capacitors axial leaded.

**Product Code 4** Jun, 1998 **COMMITTEE:P-2.2**  
**\$42.00**

**EIA-580AA00**

**Blank Detail Specification for Fixed Metallized Polyethylene-Terephthalate Film Dielectric Chip Capacitors for Direct Current Encapsulated (ANSI/EIA-580AA00-91)**

**Product Code 4** Dec, 1991 **COMMITTEE:P-2.2**  
**\$42.00**

**EIA-580BA00**

**Blank Detail Specification: Fixed Metallized Electrode Film Dielectric AC Capacitors (ANSI/EIA-580BA00-97)**

This blank detail specification is a supplementary document to the Sectional Specification and contains requirements for style and layout and minimum content of detail specifications. Detail Specifications not complying with these requirements may not be considered as being in accordance with IEC specifications nor shall they be so described.

**Product Code 4** Oct, 1997 **COMMITTEE:P-2.2**  
**\$39.00**

**METALLIZED FILM CAPACITORS**

**EIA-377**

**Metallized Dielectric Capacitors in Metallic and Non-Metallic Cases for Direct Current Application (ANSI/EIA-377-71) (R83) (R90)**

Capacitors listed in this Standard are used primarily for filtering, bypass, coupling and blocking purposes where the dc voltage predominate. They are characterized by small size and the ability to "clear", or resume functioning within specification limits, following momentary breakdown.

**Product Code 4** Nov, 1990 **COMMITTEE:P-2.2**  
**\$44.00**

**EIA-377-1**

**Addendum No. 1 to EIA-377 Parts List Supplement (ANSI/EIA-377-1-73) (R76) (R83)**

**Product Code 4** Dec, 1990 **COMMITTEE:P-2.2**  
**\$59.00**

**EIA-456-A**

**Metallized Film Dielectric Capacitors for Alternating Current Application (ANSI/EIA-456-A-89)**

This Standard describes the requirements for metallized electrode film dielectric capacitors, dry or Non-PCB liquid filled, and sealed in metal cases or in non-metal cases made of self-extinguishing material. They are intended for use in lighting ballasts, ferroresonant transformer power supplies, some power factor correction, with motors and other general purpose applications. The capacitors are rated for service in 50 Hz to 60Hz circuits at case temperature.

**Product Code 4** Jan, 1989 **COMMITTEE:P-2.2**  
**\$73.00**

**MICA CAPACITORS**

**EIA-153-B**

**Molded and Dipped Mica Capacitors (Wire Lead Styles) (ANSI/EIA-153-B-72) (R78) (R83)**

This Standard outlines electrical, mechanical and environmental requirements for commercial capacitors which have natural mica dielectric and wire terminations. It is a graded specification covering a variety of case sizes, capacitance values, capacitance tolerances, voltage ratings, operating temperature ranges, and temperature coefficient characteristics.

**Product Code 4** Apr, 1983 **COMMITTEE:P-2.1**  
**\$57.00**

**PAPER/FILM CAPACITORS**

**EIA-401**

**Paper, Paper/Film, Film Dielectric Capacitors for Power Semiconductor Applications (ANSI/EIA-401-73) (R79) (R83) (R90)**

This Standard covers the requirements for paper film and film dielectric, oil impregnated external foil for electrode capacitors, hermetically sealed in metal cases, for general purpose application in power semiconductor circuits.

**Product Code 4** Nov, 1990 **COMMITTEE:P-2.2**  
**\$44.00**

**EIA-454**

**Fixed Paper and Film-Paper Dielectric Capacitors with Non-PCB Impregnants for Alternating Current Applications (ANSI/EIA-454-78) (R83) (R90)**

This Standard is a Companion document to EIA-456 and EIA-495 and describes the requirements for paper and film-paper dielectric capacitors with other than polychlorinated biphenyl (PCB) impregnates, hermetically sealed in metal cases for general purpose application on ac voltages. These capacitors are intended for use with motors, high intensity discharge (HID) lighting ballasts, ferro resonant transformer power factor correction, and other applications.

**Product Code 4** Aug, 1990 **COMMITTEE:P-2.2**  
**\$80.00**

**CAPACITORS, PAPER/FILM CAPACITORS (cont.)**

**EIA-479-A**

***Film-Paper, Film Dielectric Capacitors for 50/60 Hz Voltage Doubler Power Supplies (ANSI/EIA-479-A-93)***

This standard describes the requirements for film-paper and film dielectric capacitors impregnated and/or filled with non-PCB oil. They are intended for use in half wave or full wave voltage doubler power supplies of microwave ovens or other equipment operated from 50-60 Hz power lines.

**Product Code 4 May, 1993 COMMITTEE:P-2.2  
\$45.00**

**TANTALUM CAPACITORS**

**EIA/IS-757**

***Visual and Mechanical Inspection for Molded SMT Solid Tantalum Capacitors***

This document covers the general industry inspection requirements for molded surface mount tantalum capacitors with solid electrolyte. The devices selected for inspection shall be examined under 3 power to 10 power magnification to determine compliance with the requirements specified. Sampling plans or lot accept/reject criteria shall be negotiated between the supplier and the customer.

**Product Code 4 Jul, 1998 COMMITTEE:P-2.5  
\$40.00**

**TANTALUM ELECTROLYTIC CAPACITORS**

**EIA-535 Series**

***Fixed Tantalum Capacitors***

**Product Code 4  
\$620.00**

**EIA-535AAAA**

***Fixed Tantalum Capacitors with Solid Electrolyte and Porous Anode with Wire Lead Terminals (ANSI/EIA-535AAAA-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00**

**EIA-535AAAB**

***Fixed Tantalum Capacitors with Solid Electrolyte and Porous Anode with Wire Lead Terminals (ANSI/EIA-535AAAB-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$44.00**

**EIA-535AAAC**

***Fixed Tantalum Capacitors with Solid Electrolyte and Porous Anode with Radial Leads (ANSI/EIA-535AAAC-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00**

**EIA-535AAAD**

***Fixed Tantalum Capacitors with Solid Electrolyte and Porous Anode with Wire Lead Terminals (ANSI/EIA-535AAAD-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00**

**EIA-535AAAE**

***Fixed Tantalum Capacitors with Solid Electrolyte and Porous Anode with Wire Lead Terminals (ANSI/EIA-535AAAE-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00**

**EIA-535AAAF**

***Fixed Tantalum Capacitors with Solid Electrolyte and Porous Anode with Wire Lead Terminals (ANSI/EIA-535AAAF-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00**

**EIA-535ABAA**

***Fixed Tantalum Capacitors with Non-Solid Electrolyte and Porous Anode (ANSI/EIA-535ABAA-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00**

**EIA-535ABAB**

***Fixed Tantalum Capacitors with Non-Solid Electrolyte and Porous Anode (ANSI/EIA-535ABAB-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$44.00**

**EIA-535ABAC**

***Fixed Tantalum Capacitors with Non-Solid Electrolyte and Porous Anode (ANSI/EIA-535ABAC-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00**

**EIA-535ABAD**

***Fixed Tantalum Capacitors with Non-Solid Electrolyte and Porous Anode (ANSI/EIA-535ABAD-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00**

**EIA-535ABAE**

***Fixed Tantalum Capacitors with Non-Solid Electrolyte and Porous Anode (ANSI/EIA-535ABAE-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$44.00**

**EIA-535ACAA**

***Fixed Tantalum Capacitors with Non-Solid Electrolyte and Foil Anode (ANSI/EIA-535ACAA-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00**

**EIA-535ACAB**

***Fixed Tantalum Capacitors with Non-Solid Electrolyte and Foil Anode (ANSI/EIA-535ACAB-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00**

**EIA-535ACAC**

***Fixed Tantalum Capacitors with Non-Solid Electrolyte and Foil Anode (ANSI/EIA-535ACAC-87)***

**Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00**

CAPACITORS, TANTALUM ELECTROLYTIC CAPACITORS (cont.)

**EIA-535ACAD**

*Fixed Tantalum Capacitors with Non-Solid Electrolyte and Foil Anode (ANSI/EIA-535ACAD-87)*

Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00

**EIA-535BAAA**

*Fixed Tantalum Chip Capacitor, Style 1 Protected Standard Capacitance Range (ANSI/EIA-535BAAA-87)*

Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00

**EIA-535BAAB**

*Fixed Tantalum Chip Capacitor, Style 1 Protected Extended Capacitance Range (ANSI/EIA-535BAAB-87)*

Product Code 4 May, 1987 COMMITTEE:P-2.5  
\$30.00

**EIA-535BAAC-A**

*Fixed Tantalum Chip Capacitor Style 1 Protected (molded) (ANSI/EIA-535BAAC-A-98)*

This specification is for fixed tantalum chip capacitor style 1 protected (molded) with polar, nonhermetically sealed chip capacitor with solid electrolyte and porous tantalum anode.

Product Code 4 Nov, 1998 COMMITTEE:P-2.5  
\$51.00

**EIA-535BAAD**

*Fixed Tantalum Chip Capacitor, Style 1 Protected Extended Capacitance Range (ANSI/EIA-535BAAD-90)*

Note: The EIA-535 Series replaces EIA-228 and has been adopted as EIA Specifications under the National Electronic Components Quality Assessment (NECQ) System. The entire EIA-535 Series can be purchased for \$318.00.

Product Code 4 Dec, 1990 COMMITTEE:P-2.5  
\$49.00

**EIA-809**

*Solid Tantalum Capacitor Application Guideline*

Solid electrolytic tantalum capacitors are those devices having a sintered tantalum anode that incorporates a solid electrolyte counter-electrode layer. They are polar devices, having distinct positive and negative terminals, and are offered in a variety of styles that include both molded and conformal-coated versions or radial, axial and surface mount configurations.

Product Code 4 Jun, 1999 COMMITTEE:P-2.5  
\$53.00

**EIA/IS-535BAAE**

*Detail Specification for Low ESR Molded Tantalum Chip*

This specification is for fixed tantalum chip capacitor style 1 protected (molded); polar, nonhermetically sealed chip capacitor with solid electrolyte and porous tantalum anode.

Product Code 4 Dec, 1998 COMMITTEE:P-2.5  
\$39.00

**EIA/IS-717**

*Surface Mount Tantalum Capacitor Qualification Specification*

This specification defines the qualification program for surface mount tantalum capacitors. Specification sheets can be added, as required, to define specific products or to cover unique/specific requirements. This document does not relieve the supplier of their responsibility to their own company's internal qualification program.

Product Code 4 Apr, 1997 COMMITTEE:P-2.5  
\$53.00

TANTALUM ELECTROLYTIC CAPACITORS, DETAIL SPECIFICATIONS

**PQC31**

*Sectional Specification "Fixed Tantalum Chip Capacitors with Solid Electrolyte"*

Product Code 4 Dec, 1984 COMMITTEE:P-2.5  
\$30.00

**PQC32**

*Blank Detail Specification "Fixed Tantalum Chip Capacitors, Assessment Level E"*

Product Code 4 Dec, 1984 COMMITTEE:P-2.5  
\$30.00

**QC300201/US0001**

*Detail Specification "Fixed Tantalum Capacitors with Solid Electrolyte and Porous Anode" Typical construction: Wire lead terminals, hermetically sealed, axial lead, polarized, insulated*

Product Code 4 Mar, 1986 COMMITTEE:P-2.5  
\$30.00

**QC300201/US0002**

*Detail Specification "Fixed Tantalum Capacitors with Solid Electrolyte and Porous Anode with Wire Lead Terminals"*

Includes Amendment No. 1 (March, 1986) No charge  
Product Code 4 Aug, 1984 COMMITTEE:P-2.5  
\$30.00

**QC300201/US0003**

*Detail Specification "Fixed Tantalum Capacitors with Solid Electrolyte and Porous Anode with Radial Leads"*

Product Code 4 Mar, 1986 COMMITTEE:P-2.5  
\$30.00

**QC300201/US0004**

*Detail Specification "Fixed Tantalum Capacitors with Solid Electrolyte and Porous Anode with Wire Lead Terminals"*

Includes Amendment No. 1 (March, 1986)  
Product Code 4 Apr, 1985 COMMITTEE:P-2.5  
\$30.00

**QC300201/US0004-1**

*Amendment No. 1 - No Charge*

Product Code 4 Mar, 1986 COMMITTEE:P-2.5  
\$Call for Pricing

CAPACITORS, TANTALUM ELECTROLYTIC CAPACITORS, DETAIL SPECIFICATIONS (cont.)

**QC300201/US0005**

*Detail Specification "Fixed Tantalum Capacitors with Solid Electrolyte and Porous Anode" Typical construction: Rectangular, nonhermetically sealed, plastic encapsulated, polarized, insulated, radial lead.*

Includes Amendment No. 1 (March, 1986)

Product Code 4 Apr, 1985 COMMITTEE:P-2.5

\$30.00

**QC300201/US0005-1**

*Amendment No. 1 - No Charge*

Product Code 4 Mar, 1986 COMMITTEE:P-2.5

\$Call for Pricing

**QC300201/US0006**

*Detail Specification "Fixed Tantalum Capacitors with Solid Electrolyte and Porous Anode" Typical construction: Rectangular, subminiature, nonhermetically sealed, plastic encapsulated, polarized, insulated, radial lead.*

Includes Amendment No. 1 (March, 1986)

Product Code 4 Apr, 1985 COMMITTEE:P-2.5

\$30.00

**QC300201/US0006-1**

*Amendment No. 1 - No Charge*

Product Code 4 Mar, 1986 COMMITTEE:P-2.5

\$Call for Pricing

**QC300202/US0001**

*Detail Specification "Fixed Tantalum Capacitors with Non-Solid Electrolyte and Porous Anode" Typical construction: Tantalum case, axial lead, hermetically sealed, polarized, insulated.*

Product Code 4 Sep, 1983 COMMITTEE:P-2.5

\$30.00

**QC300202/US0002**

*Detail Specification "Fixed Tantalum Capacitors with Non-Solid Electrolyte and Porous Anode" Typical construction: Silver plated copper alloy case, axial lead, elastomeric seal, polarized, nickel positive, copper negative leads.*

Product Code 4 Jan, 1984 COMMITTEE:P-2.5

\$30.00

**QC300202/US0003**

*Detail Specification "Fixed Tantalum Capacitors with Non-Solid Electrolyte and Porous Anode" Typical construction: Silver case, axial lead, hermetically sealed, polarized, insulated.*

Product Code 4 Jan, 1984 COMMITTEE:P-2.5

\$30.00

**QC300202/US0004**

*Detail Specification "Fixed Tantalum Capacitors with Non-Solid Electrolyte and Porous Anode" Typical construction: Silver case, axial lead, polarized, nickel positive, copper negative lead, case insulated, elastomer seal.*

Product Code 4 Jan, 1984 COMMITTEE:P-2.5

\$30.00

**QC300202/US0005**

*Detail Specification "Fixed Tantalum Capacitors with Non-Solid Electrolyte and Porous Anode" Typical construction: Silver case, axial lead, polarized, nickel positive, copper negative lead, insulated, elastomeric seal.*

Product Code 4 Sep, 1985 COMMITTEE:P-2.5

\$30.00

**QC300203/US0001**

*Detail Specification "Fixed Tantalum Capacitors with Non-Solid Electrolyte and Foil Electrode" Typical construction: Hermetically sealed, axial lead, polar and bipolar plain foil.*

Product Code 4 Feb, 1984 COMMITTEE:P-2.5

\$30.00

**QC300203/US0002**

*Detail Specification "Fixed Tantalum Capacitors with Non-Solid Electrolyte and Foil Electrode" Typical construction: Hermetically sealed, axial lead, polar and bipolar etched and hi-etched foil.*

Product Code 4 Feb, 1984 COMMITTEE:P-2.5

\$30.00

**QC300203/US0003**

*Detail Specification "Fixed Tantalum Capacitors with Non-Solid Electrolyte and Foil Electrode" Typical construction: Non-hermetically sealed, axial lead, polar and bipolar plain foil.*

Product Code 4 Feb, 1984 COMMITTEE:P-2.5

\$30.00

**QC300203/US0004**

*Detail Specification "Fixed Tantalum Capacitors with Non-Solid Electrolyte and Foil Electrode" Typical construction: Non-hermetically sealed, axial lead, polar and bipolar etched and hi-etched foil.*

Product Code 4 Feb, 1984 COMMITTEE:P-2.5

\$30.00

**QC300801/US0001A**

*Detail Specification "Fixed Tantalum Chip Capacitor, Style 1 Protected Standard Capacitance Range, Polar, Nonhermetically Sealed"*

Product Code 4 Mar, 1988 COMMITTEE:P-2.5

\$30.00

**QC300801/US0002**

*Detail Specification "Fixed Tantalum Chip Capacitor, Style 1 Protected Extended Capacitance Range, Polar, Nonhermetically Sealed"*

Includes Amendment No. 1 (Oct., 1986)

Product Code 4 Mar, 1986 COMMITTEE:P-2.5

\$30.00

**QC300801/US0002-1**

*Amendment No. 1 - No Charge*

Product Code 4 Oct, 1986 COMMITTEE:P-2.5

\$Call for Pricing

## COMPONENTS

### DESIGN OF ELECTRONIC COMPONENTS

#### EIA-385

##### **Preferred Values (ANSI/EIA-385-71) (R77) (R83)**

This Standard establishes six series of numbers which may be used as preferred values in the design of electronic equipment, systems of components.

This standard was adopted and approved for DoD use on December 20, 1978.

**Product Code 4** Jul, 1983 **COMMITTEE:EDEC**  
**\$30.00**

### MARKING

#### EIA-327-A

##### **Solvent Resistance of Applied Marking Materials (ANSI/EIA-327-A-76) (R81)**

This Standard establishes test methods to determine the solvent resistance of markings as applied on components and other substrates, excluding electron tubes.

**Product Code 4** Feb, 1981 **COMMITTEE:P-9**  
**\$30.00**

### MECHANICAL OUTLINES OF PASSIVE COMPONENTS

#### PDP-100

##### **Registered and Standard Mechanical Outlines for Electronic Parts**

Contains registered and standard mechanical outlines of passive electronic parts. Also contains surface mount mechanical outlines used for selected resistors, capacitors, inductors, and switches. Periodic updates available by subscription. For full details contact Global Engineering Documents, 800-854-7179 or 303-792-2181. \$150.00 (Includes 1 year of updates; subsequent updates are \$50.00 per year)

**Product Code 4** Sep, 1987 **COMMITTEE:P-4**  
**\$150.00**

### TEST PROCEDURES FOR ELECTRONIC COMPONENTS

#### EIA-186 Series

##### **Standard Test Methods for Passive Electronic Component Parts General Instructions and Index of Tests**

**Product Code 4**  
**\$400.00**

#### EIA-186-E

##### **Standard Test Methods for Passive Electronic Component Parts: General Instructions and Index of Tests (ANSI/EIA-186-E-78) (R83)**

This Standard establishes uniform methods for testing electronic component parts. These test methods provide a number of test conditions of varying degrees of severity so that appropriate test conditions may be selected for any component. Included in this base document are definitions and general instructions, as well as an index of the following test methods which are available individually. The EIA-186-Series sells for \$400.00.

**Product Code 4** Apr, 1983 **COMMITTEE:P-9**  
**\$30.00**

#### EIA-186-1E

##### **Method 1: Humidity (Steady-State)**

This test is intended to evaluate the effect of absorption and diffusion of moisture and moisture vapor on component parts.

**Product Code 4** Oct, 1978 **COMMITTEE:P-9**  
**\$30.00**

#### EIA-186-2E

##### **Method 2: Moisture Resistance (Cycling)**

This test is intended to evaluate in an accelerated manner, the resistance of component parts to deterioration resulting from high humidity and heat conditions typical of tropical environments.

**Product Code 4** Oct, 1978 **COMMITTEE:P-9**  
**\$30.00**

#### EIA-186-3E

##### **Method 3: Humidity (Steady-State Sealed Container)**

This method provides a means of performing humidity testing without the need for specialized humidity test equipment. It is more severe than Method 1.

**Product Code 4** Oct, 1978 **COMMITTEE:P-9**  
**\$30.00**

#### EIA-186-4E

##### **Method 4: Dielectric Test (Withstanding Voltage)**

This dielectric test is performed for the purpose of determining the ability of component parts to withstand a potential at sea level or at a specified altitude.

**Product Code 4** Oct, 1978 **COMMITTEE:P-9**  
**\$30.00**

#### EIA-186-5E

##### **Method 5: Salt Spray (Corrosion)**

The salt spray test is performed for the purpose of determining the adequacy of protective coatings or finishes, and has been widely used to evaluate the resistance of metals to corrosion in marine service or in exposed shore locations.

**Product Code 4** Oct, 1978 **COMMITTEE:P-9**  
**\$30.00**

#### EIA-186-6E

##### **Method 6: Mechanical Robustness of Terminals**

These tests are provided to cover various significant characteristics and are intended to determine the ability of terminals to withstand the usual stresses which may be applied during the assembly or disassembly operations.

**Product Code 4** Oct, 1978 **COMMITTEE:P-9**  
**\$30.00**

COMPONENTS, TEST PROCEDURES FOR ELECTRONIC COMPONENTS (cont.)

**EIA-186-7E**

**Method 7: Vibration Fatigue Test (Low Frequency, 10 to 55 Hz)**

This Vibration fatigue test is performed for the purpose of determining the ability of component parts and their mountings to withstand vibration in the low frequency range of 10 to 55 Hz.

**Product Code 4** Oct, 1978 **COMMITTEE:P-9**  
**\$30.00**

**EIA-186-8E**

**Method 8: Vibration, High Frequency**

This sinusoidal high frequency vibration test is performed for the purpose of determining the effect on component parts of vibration in the frequency range of 10 to 500 Hz or 10 to 2000 Hz as may be encountered in aircraft, missiles, space or automotive vehicles.

**Product Code 4** Oct, 1978 **COMMITTEE:P-9**  
**\$30.00**

**EIA-186-9E**

**Method 9: Solderability**

The purpose of this test standard is to determine the solderability of solid lead wires, terminals, and other terminations which are normally joined by means of soft solder. This Standard incorporates and replaces EIA-178-B (See EIA/IS-49-A for related information)

**Product Code 4** Oct, 1978 **COMMITTEE:P-9**  
**\$30.00**

**EIA-186-10E**

**Method 10: Effect of Soldering**

This test is performed to determine the effect of normal soldering operations on component parts.

**Product Code 4** Oct, 1978 **COMMITTEE:P-9**  
**\$30.00**

**EIA-186-11E**

**Method 11: Thermal Shock in Air**

This test is conducted for the purpose of determining the resistance of a component part to exposure at extremes of high and low temperatures in air, and to the shock of alternate exposures to these extremes.

**Product Code 4** Oct, 1978 **COMMITTEE:P-9**  
**\$30.00**

**EIA-186-12E**

**Method 12: Heat-Life**

This test is performed to determine the effect of storing or operating component parts at elevated temperatures for various time periods.

**Product Code 4** Oct, 1978 **COMMITTEE:P-9**  
**\$30.00**

**EIA-186-13E**

**Method 13: Insulation Resistance Test**

This test is to measure the resistance offered by the insulating members of a component part to an impressed direct voltage tending to produce a leakage of current through or on the surface of these members.

**Product Code 4** Oct, 1978 **COMMITTEE:P-9**  
**\$30.00**

**EIA-186-14E**

**Method 14: Panel Seal Test**

This test is intended to determine the effectiveness of panel seals on electronic components, which are intended for mounting through holes in panels on enclosures.

**Product Code 4** Feb, 1985 **COMMITTEE:P-13**  
**\$30.00**

**CONNECTORS**

**ANALOG AND DIGITAL APPLICATIONS**

**EIA-700D000**

**Sectional Specification for Discrete Contacts of Certified Quality (for Use in dcllow Frequency Analog Applications and in Digital Applications Employing High Speed Data Rates (ANSI/EIA-700D000-97)**

This Sectional Specification was formulated for the purpose of providing a document setting forth engineering requirements, quality requirements and application guidelines as necessary for optimum use of discrete pin and socket contacts, (herein referred to as "contacts") of certified quality. These contacts are intended for use in electronic and electrical applications, for use in direct current and analog or digital applications for frequencies essentially below 3 MHz, and in digital applications requiring higher data frequencies. Utilizing of this document is intended to eliminate misunderstandings or confusion between the manufacturer and buyer with respect to product performance requirements and test procedures. This sectional specification is used in conjunction with the EIA generic specification EIA-700000 and with blank detail and detail specifications. A reference to related IEC documents is contained in annex A to EIA-7000000

**Product Code 4** Jan, 1998 **COMMITTEE:CE-2.0**  
**\$57.00**

**AUDIO CONNECTORS**

**EIA-297-A**

**Cable Connectors for Audio Facilities for Radio Broadcasting**

This Standard applies to 3-contact mating and locking connectors for use in audio circuits. Essentially four types of connectors are covered: male and female connectors for use on cables, and male and female connectors for wall or panel mounting. THIS STANDARD WAS ADOPTED AND APPROVED FOR DoD USE ON OCTOBER 9, 1981.

**Product Code 4** Jun, 1970 **COMMITTEE:CE-2.0**  
**\$30.00**

## CONNECTORS (cont.)

### COAXIAL CONNECTORS

#### EIA-403-A

##### ***Precision Coaxial Connectors for CATV Application (75 Ohms) (ANSI/EIA-403-A-90)***

This Standard describes the requirements for the precision impedance standards to be specified for 75 Ohm coaxial measurements in standards for R.F. connectors. Precisely calibrated adapters shall permit conclusive qualification and testing of the field connectors to be specified in forthcoming EIA P-5.3.1 committee standards documents. The precision connector facilities will also permit conclusive calibration of the various equipment and components employed in the communication industry.

**Product Code 4** Nov, 1990 **COMMITTEE:CE-4.0**  
**\$59.00**

#### EIA-550

##### ***75 Ohm Type FD Connector Interfaces, Rating, and Characteristics (ANSI/EIA-550-89)***

EIA-550 covers electrical, mechanical and environmental requirements for 75 ohm type FD coaxial connectors. The ratings and characteristics apply to FD plugs mated with type FD jacks. When intermated with other than type FD components (e.g. Type F) the ratings and other characteristics may not be met.

**Product Code 4** May, 1989 **COMMITTEE:CE-4.0**  
**\$30.00**

### CONTACT LUBRICANTS

#### CB14

##### ***Contact Lubricants***

The purpose of this document is to review contact lubricants used in signal contact systems for electronics. Factors affecting the use of lubricants will be discussed including those areas requiring further study. Applicable advantages, limitation and cautions are indicated. A bibliography is included if further investigation is desired.

Due to the wide variation of available lubricants (both generic and proprietary), the specific situations briefly discussed herein may not be of issue contingent on the lubricant formulation which may have been designed to resolve a specific problem.

In considering the use of a lubricant, the reader is advised to assess the specific areas of interest and chose a lubricant which best fits the application after proper evaluation techniques have been performed.

**Product Code 4** Jun, 1993 **COMMITTEE:CE-2.0**  
**\$39.00**

### DETAIL SPECIFICATIONS

#### EIA-700AAA

##### ***Detail Specification for 1.27 mm Pitch, Ribbon Contact, Trapezoidal Shaped, Shielded I/O Connector (ANSI/EIA-700AAA-95)***

This Specification covers rectangular shielded connectors with ribbon style contacts on 1.27 x 1.65 mm [.050 x 0.065 in] contact spacing. Connector polarization is achieved by the trapezoidal configuration of the shell. The right-angled fixed connectors with active contacts are soldered to the printed board. The free connectors with stationary contacts use the insulation displacement or compression type of termination for round cable with 0.09 mm<sup>2</sup> (28 AWG) discrete solid or stranded conductors. It is recommended that the user have their cable evaluated by the connector manufacturer for their specific application.

**Product Code 4** Apr, 1996 **COMMITTEE:CE-2.0**  
**\$66.00**

#### EIA-700A0AB

##### ***Detail Specification for 1.27 mm Pitch, 68 Circuit Memory Card Interconnect System (ANSI/EIA-700A0AB-95)***

This Detail Specification is designed as having Horizontal and Vertical Host Connectors (headers) with contacts that independently access electrically isolated contacts in PC Card Connectors (receptacles). The contacts are arranged on a 1.27 mm (0.050 in) by 1.27 mm (0.050 in) grid array. Host connector (header) PCB termination is staggered through hole, staggered 2-row surface mount, or single-in-line surface mount. PC Card connector (receptacle) PCB termination is surface mount in a single row straggle mount, staggered 2-row, or single-in-line configuration.

These connectors are used in conjunction with JEDEC MO-170, 68 Pin Card.

**Product Code 4** Dec, 1995 **COMMITTEE:CE-3.0**  
**\$76.00**

#### EIA-700A0AC

##### ***Detail Specification for 1.00 mm Pitch, 88 Circuit Dram Memory Card Interconnect System (ANSI/EIA-700A0AC-96)***

This specification covers interconnect systems typically used for memory card type devices, specified in PCMCIA PC Card Standard - JEIDA Specific Extensions or JEIDA IC Memory Card Guidelines. The contacts are on 1.00 mm x 1.27 mm (0.039 in x 0.050 in) contact spacing. The host connector (header) is defined as a housing with pin style contacts that are soldered to a printed circuit board. The receptacle, card side connector, is defined as a housing with box style contacts that are soldered to a printed circuit board. Connector polarization is achieved by rectangular shaped protrusions and/or voids in the housing.

**Product Code 4** Aug, 1996 **COMMITTEE:CE-3.0**  
**\$67.00**



CONNECTORS, DETAIL SPECIFICATIONS (cont.)

**EIA-700A0AE**

***Detail Specification for Trapezoidal Connectors with Nonremoveable Ribbon Cable Contacts on 1.27 mm Pitch Double Row Used with Single Connector Attachements (SCA2) (ANSI/EIA-700A0AE-2000)***

This project was conducted in liaison with the SFF Committee as representing the disk drive industry. This specification contains the connector types specified in the single connector attached - 2 (SCA2) document prepared by the SFF Committee. The connectors described in this standard should not be construed as being restricted only to use in the SCA2 application. Utilization of this standard is intended to eliminate misunderstandings or confusion between a manufacturer and user with respect to product performance and testing requirements for this as well as other possible applications.

**Product Code 4** Feb, 2000 **COMMITTEE:CE-1.0**  
**\$87.00**

**EIA-700A0AF**

***Detail Specification for Trapezoidal Shielded Connector 0.8 mm Pitch Used with Very High Density Cable Interconnect (VHDCI) (ANSI/EIA-700A0AF-2000)***

This standard applies to a family of connectors having the following characteristics: (1) Shielded; (2) 68 position; (3) Trapezoidal-shaped mating interface; (4) 0.8 mm pitch spacing of contacts on a double row; and (5) Board-to-board and wire to board applications. This standard establishes uniform specifications, type testing requirements and quality assessment procedures. It is intended to be used in conjunction with sectional specification EIA-700-A000.

**Product Code 4** Jul, 2000 **COMMITTEE:CE-2.0**  
**\$106.00**

**EIA-700AAAB**

***Detail Specification for 1.0 mm, Two-Part Connectors for Use with Parallel Printed Boards (ANSI/EIA-700AAAB-96)***

This specification is applicable to high density, modular two-part connectors, designed for use with printed mezzanine cards that are intended to be installed parallel to host printed boards. The resultant stack height between the mezzanine card and the host boards can vary, depending upon the plug and receptacle combination selected. One or more connectors may be installed on a mezzanine card or host board. Connectors may be positioned end-to-end and/or side-to-side on the boards to make up arrays of connectors to satisfy the needs of different applications.

**Product Code 4** Apr, 1996 **COMMITTEE:CE-2.0**  
**\$59.00**

**EIA-700B000**

***Sectional Specification for Rectangular/Trapezoidal Connectors of Certified Quality (ANSI/EIA-700B000-99)***

This sectional specification was formulated for the purpose of providing a document setting forth engineering requirements, quality requirements and application guidelines as necessary for optimum use of rectangular/trapezoidal connectors, (here in referred to as "connectors") of certified quality. These connectors are intended for use in electronic and electrical applications, for use in direct current and analog or digital applications for frequencies essentially below 3 MHz, and in digital applications requiring higher data rate frequencies. This sectional specification is used in conjunction with the EIA generic specification EIA-7000000 and with blank detail and detail specifications.

**Product Code 4** May, 1999 **COMMITTEE:CE-2.0**  
**\$55.00**

**EIA-700BA00**

***Blank Detail Specification for Rectangular/Trapezoidal Connectors of Certified Quality (ANSI/EIA-700BA00-98)***

This Detail Specification was formulated for the purpose of providing a document setting forth engineering requirements, quality requirements and application guidelines as necessary for optimum use of rectangular and trapezoidal connectors of certified quality. These connectors are intended for use in electronic and electrical applications, for use in direct current and analog or digital applications for frequencies essentially below 3 MHz, and in digital applications requiring higher rate frequencies. Utilization of this document is intended to eliminate misunderstandings or confusion between the manufacturer and buyer with respect to product performance requirements and test procedures.

**Product Code 4** Sep, 1998 **COMMITTEE:CE-2.0**  
**\$79.00**

**EIA-700BAAD**

***Detailed Specification for Shielded Rectangular Connectors for Universal Serial Bus Plus Power Connectors Series "A" (ANSI/EIA-700BAAD-2000)***

This specification is developed for the point-of-sales industry and other such devices for applications requiring Universal Serial Bus (USB) signals with additional power supplied through (4) power pins. The connector(s) described in this standard should not be construed as being restricted only to use in point-of-sale applications. This specification covers rectangular shielded connectors for jacketed cable (discrete wire non-removable contacts) on variable pitch.

**Product Code 4** May, 2000 **COMMITTEE:CE-2.0**  
**\$57.00**

**EIA-700BAAE**

***Detailed Specification for Shielded Rectangular Connectors for Universal Serial Bus Plus Power Connectors Series "B" (ANSI/EIA-700BAAE-2000)***

This specification is developed for the point-of-sales industry and other such devices for applications requiring Universal Serial Bus (USB) signals with additional power supplied through (4) power pins. The connector(s) described in this standard should not be construed as being restricted only to use in point-of-sale applications. This specification covers rectangular shielded connectors for jacketed cable (discrete wire non-removable contacts) on variable pitch.

**Product Code 4** May, 2000 **COMMITTEE:CE-2.0**  
**\$59.00**

**EIA-700C000**

***Sectional Specification for Circular Multicontact Connectors of Assessed Quality (for frequencies essentially below 3 MHz) (ANSI/EIA-700C000-96)***

This sectional specification was formulated for the purpose of providing a document setting forth engineering requirements, quality requirements and application guidelines as necessary for optimal use of circular multicontact connectors of assessed quality. These connectors are intended for use in electronic and electrical applications, for use in direct current and low frequency analog applications, and in digital applications employing high speed data rates.

**Product Code 4** Jan, 1997 **COMMITTEE:CE-2.0**  
**\$50.00**

**CONNECTORS, DETAIL SPECIFICATIONS (cont.)**

**ELECTRICAL CONNECTORS**

**EIA-280-C**

***Solderless Wrapped Electrical Connections (ANSI/EIA-280-C-92)***

This Standard establishes the minimum requirements to produce mechanically and electronically stable solderless wrapped electrical connections made with single, solid, round wire and appropriately designed terminals. Equipment design requirements, such as terminal spacing, are not included in this Standard.

**Product Code 4** May, 1992 **COMMITTEE:CE-2.0**  
**\$55.00**

**EIA-380-A**

***Small Contact Standard for Electrical Connectors (ANSI/EIA-380-A-78)***

This Standard is intended to be a guide for the selection of contact dimensions and tolerances in the early phase of an electrical connector.

**Product Code 4** Jan, 1978 **COMMITTEE:CE-2.0**  
**\$30.00**

**EIA-429**

***Industry Standard for Connectors, Electrical Flat Cable Type (IPC-FC-218B) (ANSI/EIA-429-76) (R91)***

This Standard defines the requirements for multi-contact electrical connectors for use with flexible flat cable, conventional round wire, and printed wiring for commercial applications.

**Product Code 4** May, 1991 **COMMITTEE:CE-2.0**  
**\$30.00**

**EIA-622**

***Glossary of Electrical Connector Related Terms (ANSI/EIA-622-95)***

**Product Code 4** Sep, 1995 **COMMITTEE:CE-2.0**  
**\$76.00**

**EIA-710**

***Requirements Guide for Space Grade Electrical Connectors (ANSI/EIA-710-97)***

This document is designed to be a reference guide and baseline in which minimum requirements are outlined for electrical connectors that will be used in any space environment. This document will be updated as necessary. There are six space environmental categories defined as a means of providing a standard knowledge of space environmental conditions and as a reference for screening and testing. All electrical connectors are included in the scope of this document, and several main categories are defined based on the current usage by the NASA community.

**Product Code 4** Oct, 1997 **COMMITTEE:CE-2.0**  
**\$53.00**

**FIBER OPTICS CONNECTORS**

**QC210101/US0001**

***Fiber Optic Connectors, Type F-SMA***

**Product Code 4** Apr, 1988 **COMMITTEE:IECQ**  
**\$30.00**

**GENERIC SPECIFICATIONS FOR CONNECTORS**

**EIA-7000000-A**

***Generic Specification for Electronic and Electrical Connectors of Certified Quality (for Frequencies Essentially Below 3 MHz) (ANSI/EIA-7000000-A-96)***

This generic specification is applicable to connectors of assessed quality designed for use in direct current and analog and digital applications for frequencies essentially below 3 MHz and in digital applications requiring higher data rate frequencies. This generic specification shall be used in conjunction with the basic specification EIA-364 Electrical Connector Test Procedures.

**Product Code 4** Aug, 1996 **COMMITTEE:CE-2.0**  
**\$59.00**

**PLATING**

**CB12**

***Gold Plating Study Test Report***

**Product Code 4** Sep, 1990 **COMMITTEE:CE-2.0**  
**\$59.00**

**CB13**

***X-Ray Fluorescence for Measuring Plating Thickness***

**Product Code 4** Oct, 1990 **COMMITTEE:CE-2.0**  
**\$30.00**

CONNECTORS (cont.)

PRINTED BOARD AND BACKPLANE CONNECTORS

EIA-616

**2 Millimeter, Two-Part Connectors for Use with Printed Boards and Backplanes (ANSI/EIA-616-96)**

This standard is applicable to modular two-part connectors for printed boards associated with equipment for telecommunication or electronic devices using similar techniques. The standard covers high-density connectors providing modular contact arrangements with signal contacts, power contacts, and options for special contacts (high current/coaxial/optical). Both fixed and free board mounted connectors have module sizes in multiples of 12 mm. Both are end-to-end stackable without loss of contact positions.

**Product Code 4** Oct, 1996 **COMMITTEE:CE-1.0**  
**\$87.00**

EIA/IS-84

**Interim Detail Specification for 2.5 Millimeter, Two-Part Connector for Use with Printed Boards and Backplanes**

This Interim Specification covers a modular two-part connector for printed boards and backplanes. Both (fixed) backplane<sup>1</sup> and (free) board mounted connectors<sup>1</sup> have modular sizes in multiples of 25 mm (.984 in). Both (fixed) backplane and (free) board mounted connectors are end-to-end stackable without loss of contact positions. Contact spacing is on a grid pitch of 2.5 mm X 2.5 mm (.098 in X .098 in).

1 The IEC terminology for Two-Part connectors for printed boards and backplanes refers to "Fixed" and "Free" connectors to describe each of the two parts. In this document the terminology refers to (Fixed) Backplane, and the (Free) Board mounted connector instead to avoid confusion.

**Product Code 4** Apr, 1992 **COMMITTEE:CE-2.0**  
**\$105.00**

EIA/IS-753

**Two-Part High Density Blade and Backplane Tuning Fork Connector**

This specification provides the engineering and performance requirements for a family of high density blade-and-tuning fork contact printed wiring board (PWB) connectors of assessed quality designed for use in electronic and electrical equipment. The object of this specification is: a) to document the dimensional, environmental and performance requirements for the subject connectors. b) to provide a quality assessment system, test procedures, and test sequences for qualification and inspection acceptance. c) to assure mating compatibility of like connectors from qualified suppliers, and d) to eliminate misunderstandings or confusion between the manufacturer and user with respect to product performance requirements and test procedures.

**Product Code 4** Feb, 1998 **COMMITTEE:CE-2.0**  
**\$152.00**

TESTING PROCEDURES FOR CONNECTORS

EIA-364 Series

**Note: All connector test procedures published in EIA-364 and its Addenda have been revised and are listed separately by Test Procedure Number and an alphabetical revision letter designation.**

**Product Code 4**  
**\$2,800.00**

EIA-364-C

**Electrical Connector/Socket Test Procedures Including Environmental Classifications (ANSI/EIA-364-C-94)**

This standard establishes a recommended minimum test sequence and test procedures for electrical connectors and sockets. This standard also includes administrative details and guidelines for connector/socket qualification and an annex for pertinent technical information.

**Product Code 4** Dec, 1994 **COMMITTEE:CE-2.0**  
**\$45.00**

EIA-364-B-1

**Insulating Material Batch Acceptance Tests (ANSI/EIA-354-B-93). This is an addendum to EIA-364-C.**

This is an addendum to EIA-364-B that establishes recommended test sequences and test procedures for electrical connectors according to environmental classification. It is intended that the classifications will provide a guide to developing or establishing test sequences that assure proper evaluation of each classification.

**Product Code 4** Jun, 1993 **COMMITTEE:CE-2.0**  
**\$31.00**

EIA-364-01B

**TP-01B Acceleration Test Procedure for Electrical Connectors**

This standard establishes test methods to determine the ability of an electrical connector and sockets to withstand a specified acceleration force without damage detrimental to its specified performance.

**Product Code 4** May, 2000 **COMMITTEE:CE-2.0**  
**\$36.00**

EIA-364-02C

**TP-02C Air Leakage Test Procedure for Electrical Connectors (ANSI/EIA-364-02C-99)**

This test procedure details a standard method to determine the integrity of the seal of the shell, insert, and contact interfaces in an electrical connector. The Air leakage test may be conducted as one of the tests in a sequential test plan, and after or during the exposure of the test sample to a specified temperature. Basically, this procedure consists of establishing a pressure differential between the front end rear faces of a mounted connector and measuring the degree of leakage through the seals of the test sample by means of a detection device located on the low pressure side of the test sample. Leakage may be determined by either the hermetic seal or environmental seal test methods as specified herein.

**Product Code 4** Jun, 1999 **COMMITTEE:CE-2.0**  
**\$39.00**

CONNECTORS, TESTING PROCEDURES FOR CONNECTORS (cont.)

**EIA-364-03B**

***TP-03B Altitude Immersion Test Procedure for Electrical Connectors (ANSI/EIA-364-03B-99)***

The object of this test is to demonstrate the ability of the connector-to-wire and interface area seals of a mated connector assembly to perform satisfactory during and subsequent to simulated rapid descents from high altitude with attendant moisture condensation.

**Product Code 4 Jun, 1999 COMMITTEE:CE-2.0  
\$38.00**

**EIA-364-04**

***TP-04 Normal Force Test Procedure for Electrical Connectors (ANSI/EIA-364-04-88)***

This procedure determines the magnitude of normal force being generated by a contact system at any given deflection within its normal operating levels. This data and its relationship to contact pressure allows the electrical integrity and stability of the contact interface to be evaluated in proper perspective when integrated with other monitored attributes. The procedure described herein is considered a destructive test and is not intended for acceptance testing.

**Product Code 4 Mar, 1988 COMMITTEE:CE-2.0  
\$30.00**

**EIA-364-05B**

***TP-05B, Contact Insertion, Release and Removal Force Test Procedure for Electrical Connectors (ANSI/EIA-364-05B-98)***

This standard establishes a test method to determine the forces required to insert contacts into and remove contacts from their normal position in a connector.

**Product Code 4 May, 1998 COMMITTEE:CE-2.0  
\$38.00**

**EIA-364-06B**

***TP-06B Contact Resistance Test Procedure for Electrical Connectors (ANSI/EIA-364-06B-2000)***

This standard establishes test methods to determine the resistance of mated connector contacts attached to lengths of wire by measuring the voltage drop across the contacts while they are carrying a specified current.

**Product Code 4 May, 2000 COMMITTEE:CE-2.0  
\$38.00**

**EIA-364-07B**

***TP-7B, Contact Axial Concentricity Test Procedure for Electrical Connectors (ANSI/EIA-364-07B-98)***

This standard establishes a test method to determine the straightness of contacts by measuring a total indicator reading (TIR) value. Axial Concentricity can be measured after crimping to determine axial deformation.

**Product Code 4 May, 1998 COMMITTEE:CE-2.0  
\$38.00**

**EIA-364-08B**

***TP-08B, Crimp Tensile Strength Test Procedure for Electrical Connectors (ANSI/EIA-364-08B-98)***

This standard establishes a test method to determine the tensile strength of a crimped contact to conductor joint. The values obtained give an indication of the relative strength of the joints. Unless otherwise specified in the referencing document, this is a destructive test.

**Product Code 4 May, 1998 COMMITTEE:CE-2.0  
\$38.00**

**EIA-364-09C**

***TP-09C Durability Test Procedure for Electrical Connectors and Contacts (ANSI/EIA-364-09C-99)***

The object of this test procedure is to detail a uniform test method for determining the effects caused by subjecting electrical connectors to the conditioning action of mating and unmating, simulating the expected life of the connectors. Durability cycling with a gauge is intended only to produce mechanical stress. Durability performed with mating components is intended to produce both mechanical and wear stress.

**Product Code 4 Jun, 1999 COMMITTEE:CE-2.0  
\$39.00**

**EIA-364-10A**

***TP-10A Fluid Immersion Test Procedure for Electrical Connectors (ANSI/EIA-364-10A-2000)***

This standard establishes test methods to determine the ability of an electrical connector or connector assembly to resist degradation due to exposure to specific fluids with which the connector assembly may come into contact during its service life.

**Product Code 4 Aug, 2000 COMMITTEE:CE-2.0  
\$38.00**

**EIA-364-11A**

***TP-11A Resistance to Solvents Test Procedure for Electrical Connectors and Sockets (ANSI/EIA-364-11A-99)***

This procedure is to simulate the ability of connector materials to withstand solvents which may be used to clean components as well as to determine marking and color code integrity.

**Product Code 4 Apr, 1999 COMMITTEE:CE-2.0  
\$33.00**

**EIA-364-12**

***TP-12 Restricted Entry Test Procedure for Electrical Contacts for Electrical Connectors (ANSI/EIA-364-12-88)***

This test is intended to determine the ability of socket contacts, classified as restricted entry types, to prevent the insertion of an oversized pin.

**Product Code 4 Sep, 1988 COMMITTEE:CE-2.0  
\$30.00**

**EIA-364-13B**

***TP-13B Mating and Unmating Forces Test Procedure for Electrical Connectors (ANSI/EIA-364-13B-98)***

This standard establishes a method to determine the forces required to make and unmate electrical connectors or protective caps with connectors (ANSI/EIA-364-13B-98)

**Product Code 4 Dec, 1998 COMMITTEE:CE-2.0  
\$36.00**

**EIA-364-14B**

***TP-14B Ozone Exposure Test Procedure for Electrical Connectors (ANSI/EIA-364-14B-99)***

The object of this test procedure is to detail the ability of connectors to withstand the effects of controlled amounts of ozone and still maintain effective environmental protection.

**Product Code 4 Apr, 1999 COMMITTEE:CE-2.0  
\$38.00**

CONNECTORS, TESTING PROCEDURES FOR CONNECTORS (cont.)

**EIA-364-15**

***TP-15 Contact Strength Test Procedure for Electrical Connectors (ANSI/EIA-364-15-84)***

The object of this test procedure is to establish the methods to be followed in determining pin contact strength for contact sizes 20 and smaller when subjected to a defined bending stress (or moment).

**Product Code 4** Mar, 1984 **COMMITTEE:CE-2.0**  
**\$30.00**

**EIA-364-16**

***TP-16 Stripping Force Test Procedure for Solderless Wrapped Electrical Connectors (ANSI/EIA-364-16-88)***

The object of this test is to determine the force required to move a solderless wire wrapped connection along the post parallel to the axis of the post.

**Product Code 4** Nov, 1988 **COMMITTEE:CE-2.0**  
**\$30.00**

**EIA-364-17B**

***TP-17B Temperature Life with or without Electrical Load Test Procedure for Electrical Connectors (ANSI/EIA-364-17B-99)***

The object of this test is to detail a standard test method to assess the ability of an electrical connector to withstand elevated temperatures with or without electrical loading.

**Product Code 4** Jun, 1999 **COMMITTEE:CE-2.0**  
**\$39.00**

**EIA-364-18A**

***TP-18A Visual and Dimensional Inspection Procedure for Electrical Connectors (ANSI/EIA-364-18A-84)***

The object of this test procedure is to detail standard methods for the visual examination and dimensional inspection of connectors in order to determine whether the connectors conform to the applicable specification and detail documents not covered by performance requirements. This procedure complements visual inspection as listed in other detail test procedures.

**Product Code 4** Nov, 1984 **COMMITTEE:CE-2.0**  
**\$30.00**

**EIA-364-19**

***TP-19 Connectors, Electrical, Torsional Insert Retention (ANSI/EIA-364-19-88)***

This test is intended to determine the ability of the insert retaining system to withstand the torsional stresses likely to be encountered during normal usage. Typical damage resulting from this test might be: (a) cracked or broken inserts, and (b) inserts permanently displaced within connector shells.

**Product Code 4** Dec, 1988 **COMMITTEE:CE-2.0**  
**\$30.00**

**EIA-364-20B**

***TP-20B Withstanding Voltage Test Procedure for Electrical Connectors, Sockets and Coaxial Contacts (ANSI/EIA-364-20B-99)***

The object of this test procedure is to detail a test method to prove that a given electrical connector can operate safely at its rated voltage and withstand momentary overpotentials due to switching, surges and other similar phenomena.

**Product Code 4** Apr, 1999 **COMMITTEE:CE-2.0**  
**\$40.00**

**EIA-364-21C**

***TP-21C, Insulation Resistance Test Procedure for Electrical Connectors (ANSI/EIA-364-21C-2000)***

This standard applies to electrical connectors, sockets and coaxial contacts. The object of this test procedure is to detail a standard method to assess the insulation resistance.

**Product Code 4** May, 2000 **COMMITTEE:CE-2.0**  
**\$38.00**

**EIA-364-22B**

***TP-22B, Simulated Life Test Procedure for Electrical Connectors (ANSI/EIA-364-22B-2000)***

This standard establishes test methods to determine the adequacy of a connector or socket to perform its operational function on land (general and heavy duty), aircraft, marine or underwater for the representative time period of application. This method shall not be used prior to low level measurement per EIA-364-23.

**Product Code 4** Mar, 2000 **COMMITTEE:CE-2.0**  
**\$37.00**

**EIA-364-23B**

***TP-23B Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets (ANSI/EIA-364-23B-2000)***

The object of this test procedure is to detail a standard method to measure the electrical resistance of two current carrying members in mutual contact. This test procedure specifies test voltages that will not disturb insulating films on the contacting surface nor cause asperity melting. This procedure addresses the effect of thermal EMF s, a source of measurement error.

**Product Code 4** Dec, 2000 **COMMITTEE:CE-2.0**  
**\$38.00**

**EIA-364-24B**

***TP-24B Maintenance Aging Test Procedure for Electrical Connectors (ANSI/EIA-364-24B-98)***

This standard establishes a test method to assess the ability of a component to withstand stresses caused by repeated insertion and extraction of contacts during maintenance. This test procedure applies only to connector assemblies containing removable contacts and is to be used where a connector is to be stressed in the area of contact retention and conductor sealing.

**Product Code 4** May, 1998 **COMMITTEE:CE-2.0**  
**\$38.00**

**EIA-364-25C**

***TP-25C Probe Damage Test Procedure for Electrical Connectors (ANSI/EIA-364-25C-98)***

This standard establishes a test method to be followed for probe damage testing, intended primarily for round socket contacts in electrical connectors and possibly applicable to other type contacts as well. The purpose of this test is to simulate a form of field abuse of contacts during test by inserting probes into connector sockets contacts.

**Product Code 4** May, 1998 **COMMITTEE:CE-2.0**  
**\$39.00**

CONNECTORS, TESTING PROCEDURES FOR CONNECTORS (cont.)

**EIA-364-26B**

***TP-26B Salt Spray Test Procedure for Electrical Connectors, Contacts and Sockets (ANSI/EIA-364-26B-99)***

The object of this test procedure is to detail a standard test method to assess the effects of a controlled salt laden atmosphere on electrical connector components, finishes and mechanisms.

**Product Code 4** Apr, 1999 **COMMITTEE:CE-2.0**  
**\$40.00**

**EIA-364-27B**

***TP-27B, Mechanical Shock (Specified Pulse) Test Procedure for Electrical Connectors (ANSI/EIA-364-27B-1996)***

The object of this test procedure is to detail a standard method to assess the ability of electrical components to withstand specified severities of mechanical shock.

**Product Code 4** Jun, 1996 **COMMITTEE:CE-2.0**  
**\$41.00**

**EIA-364-28D**

***TP-28D, Vibration Test Procedure for Electrical Connectors and Sockets (ANSI/EIA-364-28D-99)***

This test procedure details a method to assess the ability of electrical connector components to withstand specified severities of vibration. The object of this test is to determine the effects of vibration within the predominant or random vibration frequency ranges and magnitudes that may be encountered during the life of the connector.

**Product Code 4** Jul, 1999 **COMMITTEE:CE-2.0**  
**\$48.00**

**EIA-364-29B**

***TP-29B Contact Retention Test Procedure for Electrical Connectors (ANSI/EIA-364-29B-98)***

This standard establishes a test method to impose axial forces on the connector contacts to determine the ability of the connector to withstand forces that tend to displace contacts from their proper location within the connector insert and resist contact pullout. The object of this test procedure is to detail a standard method to assess the ability of the contact retaining system to withstand the axial mechanical stresses likely to be encountered during normal usage.

**Product Code 4** Apr, 1998 **COMMITTEE:CE-2.0**  
**\$38.00**

**EIA-364-30**

***TP-30 Capacitance Test Procedure for Electrical Connectors (ANSI/EIA-364-30-87)***

The object of this test is to detail a standard method to determine the capacitance between conductive elements of an electrical connector. The capacitance test may be conducted as one of the tests in a sequential test plan, as a base line and after exposure to any environment.

**Product Code 4** Oct, 1987 **COMMITTEE:CE-2.0**  
**\$30.00**

**EIA-364-31B**

***TP-31B Humidity Test Procedure for Electrical Connectors and Sockets (ANSI/EIA-364-31B-2000)***

This standard established test methods for the evaluation of connectors and sockets as they are influenced by the effects of high humidity and heat. This is an accelerated environmental test, accomplished by continuous exposure of the specimen to high relative humidity at various temperatures. Measurements made under high humidity conditions may reflect the peculiar conditions under which the readings were made, and should be compared only to initial readings when careful analysis indicates that such comparison is valid and applicable.

**Product Code 4** May, 2000 **COMMITTEE:CE-2.0**  
**\$43.00**

**EIA-364-32C**

***TP-32C Thermal Shock (Temperature Cycling) Test Procedure for Electrical Connectors and Sockets (ANSI/EIA-364-32C-2000)***

This test is conducted for the purpose of determining the resistance of a given electrical connector to exposure at extremes of high and low temperatures and to the shock of alternate exposures to these extremes, simulating the worst probable conditions of storage, transportation and application.

**Product Code 4** May, 2000 **COMMITTEE:CE-2.0**  
**\$40.00**

**EIA-364-33**

***TP-33 Inductance of Electrical Connectors (ANSI/EIA-364-33-90)***

The object of this test is to detail a standard method for measuring inductance of electrical connector contact terminals at a measurement range of 100 nanohenrys to 100 millihenrys. Reference EIA-364-69 Test Procedure for Inductance Measurements between 10 nanohenrys and 100 nanohenrys.

**Product Code 4** May, 1990 **COMMITTEE:CE-2.0**  
**\$30.00**

**EIA-364-35B**

***TP-35B Insert Retention Test Procedure for Electrical Connectors (ANSI/EIA-364-35B-98)***

This standard establishes a method to determine the ability of an insert to withstand axial forces in electrical connectors.

**Product Code 4** Dec, 1998 **COMMITTEE:CE-2.0**  
**\$32.00**

**EIA-364-36A**

***TP-36A, Test Procedure for Determination of Gas-Tight Characteristics for Electrical Connectors, Sockets and/or Contact Systems (ANSI/EIA-364-36A-96)***

The objective of this standard is to evaluate the integrity of contacting surfaces (at the mating and/or termination areas) by assessment of the gas tight characteristics of the contacting surfaces. The gas tight characteristic simulates the ability of contacting surfaces to prevent harsh environments from penetrating between them and forming oxides and/or films that will degrade electrical performance.

**Product Code 4** May, 1996 **COMMITTEE:CE-2.0**  
**\$34.00**

CONNECTORS, TESTING PROCEDURES FOR CONNECTORS (cont.)

**EIA-364-37B**

***TP-37B Contact Engagement and Separation Force Test Procedure for Electrical Connectors (ANSI/EIA-364-37B-98)***

This standard establishes test methods which, when required by the referencing document, shall be used for measuring the engagement and separation forces on contacts. The object of this test procedure is to detail standard test methods to measure the force required to fully engage or separate standard test pins, blades, or mating components with individual contacts.

**Product Code 4** May, 1998 **COMMITTEE:CE-2.0**  
**\$39.00**

**EIA-364-38B**

***TP-38B Cable Pull-Out Test Procedure for Electrical Connectors (ANSI/EIA-364-38B-99)***

The object of this test procedure is to detail a standard method to determine the holding effect of a connector cable clamp without causing any detrimental effects upon the cable or connector components when the cable is subjected to inadvertent axial tensile loads.

**Product Code 4** Jul, 1999 **COMMITTEE:CE-2.0**  
**\$38.00**

**EIA-364-39B**

***TP-39B Hydrostatic Test Procedure for Electrical Connectors, Contacts and Sockets (ANSI/EIA-364-39B-99)***

The object of this test is to detail a standard test method to assess the ability of unmated receptacles and wired mated harness to withstand hydrostatic pressures that are encountered in the undersea environment.

**Product Code 4** Aug, 1999 **COMMITTEE:CE-2.0**  
**\$39.00**

**EIA-364-40B**

***TP-40B Crush Test Procedure for Electrical Connectors (ANSI/EIA-364-40B-98)***

This standard establishes a test method to determine the ability of a connector to withstand a load such as might be encountered when run over by a wheeled vehicle. The test should only be performed on connectors designed to meet the requirements.

**Product Code 4** May, 1998 **COMMITTEE:CE-2.0**  
**\$38.00**

**EIA-364-41C**

***TP-41C Cable Flexing Test Procedure for Electrical Connectors (ANSI/EIA-364-41C-99)***

The object of this test is to determine the effectiveness of circular jacketed cable to plug seal, or flat cable to plug seal to withstand strain under repeated alternating cable-flexing stresses as experienced in use with cable strain-relief design electrical connectors.

**Product Code 4** Jun, 1999 **COMMITTEE:CE-2.0**  
**\$39.00**

**EIA-364-42B**

***TP-42B Impact Test Procedure for Electrical Connectors (ANSI/EIA-364-42B-99)***

The object of this test procedure is to determine the ability of a connector to withstand impacts of the type that might be encountered when a connector is dropped to the floor. This test should only be performed on connectors designed to meet such requirements.

**Product Code 4** Apr, 1999 **COMMITTEE:CE-2.0**  
**\$38.00**

**EIA-364-43B**

***TP-43B Cable Clamping (Bending Moment) Test Procedure for Electrical Connectors (ANSI/EIA-364-43B-2000)***

This standard establishes test methods to determine the ability of connectors to withstand stress resulting from loads applied to rear accessory hardware such as might be experienced with cables hanging from plugs mated to wall-mounted receptacles.

**Product Code 4** Jul, 2000 **COMMITTEE:CE-2.0**  
**\$39.00**

**EIA-364-44A**

***TP-44A, Corona Test Procedure for Electrical Connectors (ANSI/EIA-364-44A-98)***

The object of this test is to detail a standard test method to determine the ability of fan electrical connectors to operate with an acceptable level of partial discharge at working voltages up to the extinction voltage.

**Product Code 4** Mar, 1998 **COMMITTEE:CE-2.0**  
**\$41.00**

**EIA-364-45A**

***TP-45A, Firewall Flame Test Procedure for Electrical Connectors (ANSI/EIA-364-45A-2000)***

This standard establishes test methods to determine the ability of a mated electrical firewall connector to resist specified flame and vibration during a 20 minute exposure by preventing the flame from breaching the firewall through the connector, and providing specified electrical performance for the first 6 minutes of the 20 minute exposure.

**Product Code 4** May, 2000 **COMMITTEE:CE-2.0**  
**\$40.00**

**EIA-364-46A**

***TP-46A Microsecond Discontinuity Test Procedure for Electrical Connectors, Contacts and Sockets (ANSI/EIA-364-46A-98)***

The object of this procedure is to define a method of detecting a discontinuity of one microsecond or longer in a mated electrical connector. This procedure shall not be used for durations less than one microsecond.

**Product Code 4** Oct, 1998 **COMMITTEE:CE-2.0**  
**\$33.00**

**EIA-364-47**

***TP-47 Conductor Unwrap Test Procedure for Solderless Wrapped Electrical Contacts (ANSI/EIA-364-47-88)***

The object of this test is to determine if excessive damage or deformation of the conductor in a solderless wrapped connection has occurred as a result of the wrapping process.

**Product Code 4** Dec, 1988 **COMMITTEE:CE-3.0**  
**\$30.00**

**EIA-364-48**

***TP-48 Test Procedure for Metallic Coating Thickness Measurements of Contacts (ANSI/EIA-364-48-90)***

The object of this test is to detail standard methods of measurement of metallic coating thickness on electrical contact surfaces. Note: This procedure may involve hazardous materials, operations and equipment. This procedure does not purport to address all safety problems associated with its use or all regulatory requirements. It is the responsibility of the user of this procedure to establish appropriate safety and health practices and to determine the applicability of regulatory limitations before its use.

**Product Code 4** Oct, 1990 **COMMITTEE:CE-2.0**  
**\$44.00**

CONNECTORS, TESTING PROCEDURES FOR CONNECTORS (cont.)

**EIA-364-50A**

***TP-50A Dust (Fine Sand) Test Procedure for Electrical Connectors (ANSI/EIA-364-50A-98)***

This standard establishes a test method to ascertain the ability of fully wired connector assemblies to resist the effects of a dry dust (fine sand) laden atmosphere. The object of this test is to simulate the effect of sharp edged dust particles, (up to 150 micrometers in size) which may penetrate into cracks, bearings, and joints.

**Product Code 4 Jul, 1998 COMMITTEE:CE-2.0  
\$36.00**

**EIA-364-51**

***TP-51 Ice Resistance of Mated Connectors, Test Procedure for Electrical Connectors (ANSI/EIA-364-51-83) (R90)***

The object of this test is to ascertain the ability of mated electrical connectors to resist the effects of ice build-up due to water splashing or brief immersion in water, where water is free to drain off of the connector surfaces.

**Product Code 4 Apr, 1990 COMMITTEE:CE-2.0  
\$30.00**

**EIA-364-52**

***TP-52 Test Procedures for Solderability of Contact Terminations Used in Connectors/Sockets (ANSI/EIA-364-52-93)***

Due to the development of high-pin-count type connectors and sockets, it has become increasingly difficult to evaluate solderability using the connector as the test specimen. This procedure describes a method for performing solderability testing of "loose contacts" by the solder dip technique, which is the preferred method of test for these components.

**Product Code 4 Aug, 1993 COMMITTEE:CE-2.0  
\$38.00**

**EIA-364-53B**

***TP-53B Nitric Acid Vapor Test, Gold Finish Test Procedure for Electrical Connectors and Sockets (ANSI/EIA-364-53B-2000)***

This standard establishes test methods to determine the magnitude of porosity as well as other surface defects inherent in application of gold contact finishes. It is the intent that the defined method be used as an evaluation technique for the acceptability of gold contact finishes. The method described herein has been selected on the basis of simplicity of equipment, setup and operation. This procedure applies only to gold finishes with or without underplates applied to copper or nickel base alloy contacts. This test procedure does not apply to gold flash, equal to less than 0.25 micrometer (10 microinches), over palladium or palladium alloy systems.

**Product Code 4 May, 2000 COMMITTEE:CE-2.0  
\$43.00**

**EIA-364-54A**

***TP-54A Magnetic Permeability Test Procedure for Electrical Connectors, Contacts, and Sockets (ANSI/EIA-364-54A-99)***

This standard applies to electrical connectors, contacts, and sockets. The object of this test is to detail a standard method to determine whether the magnetic permeability of a test item is below a specified value.

**Product Code 4 May, 1999 COMMITTEE:CE-2.0  
\$36.00**

**EIA-364-55**

***TP-55 Current Cycling Test Procedure for Electrical Connectors (ANSI/EIA-364-55-85)***

The object of this test procedure is to detail a uniform test method for determining the electrical current cycling characteristics of mated electrical contacts or conductor-to-contact terminations.

**Product Code 4 Feb, 1985 COMMITTEE:CE-2.0  
\$30.00**

**EIA-364-56A**

***TP-56A Resistance to Soldering Heat Test Procedure for Electrical Connectors (ANSI/EIA-364-56A-91)***

This test is performed for the purpose of determining whether connectors can withstand the effects of the heating and/or environment to which they will be subjected during the soldering of their terminations by solder dip, soldering iron, solder wave, or reflow soldering techniques. The heat and/or environment of soldering may affect the electrical characteristics of the connector and may cause damage to the materials making up the connector. It may also result in loosening of terminations, softening or distortion of insulation materials, opening of solder seals, weakening of mechanical joints, etc.

**Product Code 4 Apr, 1991 COMMITTEE:CE-2.0  
\$40.00**

**EIA-364-58**

***TP-58 Temperature Life with Mechanical Loading for Connectors with Removable Contacts (Static Mechanical Load at Temperature) (ANSI/EIA-364-58-87)***

The object of this test is to detail a standard test method to assess the ability of an electrical connector to withstand a static mechanical load at elevated temperature.

**Product Code 4 Mar, 1987 COMMITTEE:CE-2.0  
\$30.00**

**EIA-364-59**

***TP-59 Low Temperature Test Procedure for Electrical Connectors (ANSI/EIA-364-59-88)***

The intent of this test is to assess the ability of electrical connectors to be exposed to low ambient temperature for a specified length of time.

**Product Code 4 Dec, 1988 COMMITTEE:CE-2.0  
\$30.00**

**EIA-364-60**

***TP-60 General Methods for Porosity Testing of Contact Finishes for Electrical Connectors (ANSI/EIA-364-60-88)***

The purpose of this procedure is to determine the magnitude of porosity as well as other surface defects inherent in application of noble metal contact finishes. It is the intent that the defined methods be used as an evaluation technique for the acceptability of noble metal contact finishes. This procedure applies to noble metal finishes with or without underplates applied to copper or nickel base alloy contacts. Noble metal platings include gold, gold alloys, palladium and palladium alloys with and without gold flash overplate. The following procedures are described herein: Nitric Acid Vapor Test, Sulphur Dioxide Test, Electrographic Dye Transfer Paper Test, and Electrographic Gel Bulk Test.

**Product Code 4 Sep, 1988 COMMITTEE:CE-2.0  
\$49.00**



CONNECTORS, TESTING PROCEDURES FOR CONNECTORS (cont.)

**EIA-364-62**

***TP-62 Electrical Connector Test Procedure, Terminal Strength (ANSI/EIA-364-62-89)***

The object of this test is to detail a standard method to assess the ability of the terminals of an electrical connector to withstand the mechanical stresses likely to be applied during normal assembly operations. Test methods for printed circuit terminals and solderless wrap terminals are included in this specification.

**Product Code 4** Jul, 1989 **COMMITTEE:CE-3.0**  
**\$30.00**

**EIA-364-65A**

***TP-65A, Mixed Flowing Gas (ANSI/EIA-364-65A-98)***

This specification covers the test procedure for producing environmentally related corrosive atmospheres to determine the reaction to plated or unplated surfaces when exposed to different concentrations of flowing gas mixtures. Samples that are to be evaluated may be mated or unmated connectors, components, or experimental materials. They are placed in an environmentally controlled Chamber that is monitored by a gas analyzing system for controlled concentrations of the gas mixture. Corrosion rates are monitored by copper and, unless otherwise specified, silver, control coupons placed in the chamber for each test. These control coupons are removed and analyzed using coulometric reduction for factors related to amount and type of corrosive product growth to confirm corrosivity control level. Methods are based upon those developed by W. H. Abbott, Battell Columbus Laboratories, for the Environmental Studies Group.

**Product Code 4** Jan, 1998 **COMMITTEE:CE-2.0**  
**\$42.00**

**EIA-364-66A**

***TP-66A EMI Shielding Effectiveness Test Procedure for Electrical Connectors (ANSI/EIA-364-66A-2000)***

This standard establishes test methods for the measurement of the EMI Shielding Effectiveness of electrical connectors over the frequency range of 1.0 to 10.0 GHz using the "Mode-Stirred" technique. The procedure applies to both circular and rectangular connectors.

**Product Code 4** May, 2000 **COMMITTEE:CE-2.0**  
**\$55.00**

**EIA-364-68**

***TP-68 Actuating Mechanism Test Procedure for Electrical Connectors (ANSI/EIA-364-68-90)***

The object of this test is to detail a standard test method to assess the strength of the actuating mechanism of a connector release mechanism. The actuating mechanism test may be conducted as one of the tests in a sequential test plan, as a base line and after exposure to an environment.

**Product Code 4** May, 1990 **COMMITTEE:CE-2.0**  
**\$30.00**

**EIA-364-69**

***TP-69 Low Level Inductance Measurement for Electrical Contacts of Electrical Connectors (ANSI/EIA-364-69-89)***

This test procedure applies to the measurement of inductance values over the range of 10 to 100 nanohenrys. The procedure defines the method used to perform the measurement of the self inductance of connector pin and socket assemblies. The measurement is made on mated contacts removed (isolated) from the connector. Tests of printed circuit board sockets will require the use of special adapters which have been evaluated prior to the measurement.

**Product Code 4** Jun, 1989 **COMMITTEE:CE-2.0**  
**\$30.00**

**EIA-364-70A**

***TP-70A Temperature Rise Versus Current Test Procedure for Electrical Connectors and Sockets (ANSI/EIA-364-70A-98)***

This standard establishes the test procedure for temperature rise measurements on electromechanical Components carrying current. This document applies to wire sizes 6 AWG or smaller. Two methods are included: temperature rise at specified current and temperature rise as a function of current.

**Product Code 4** May, 1998 **COMMITTEE:CE-2.0**  
**\$48.00**

**EIA-364-71A**

***TP-71A Solder Wicking (Wave Solder Technique) Test Procedure for Electrical Connectors and Sockets (ANSI/EIA-364-71A-99)***

Test to determine whether a connector can be wave soldered to a printed wiring board without sustaining damage caused by solder wicking onto the contact surfaces or other areas that might alter its operating characteristics.

**Product Code 4** Apr, 1999 **COMMITTEE:CE-2.0**  
**\$38.00**

**EIA-364-75**

***TP-75, Lightning Strike Test Procedure for Electrical Connectors (ANSI/EIA-364-75-97)***

This procedure determines the capability of a connector pair to conduct the electrical current induced by a lightning strike. The results derived may be used to determine whether the contacts within the inserts will be adequately protected from flashover and whether the connector shells will adequately conduct lightning bulk currents.

**Product Code 4** Jun, 1997 **COMMITTEE:CE-2.0**  
**\$38.00**

**EIA-364-78**

***TP-78 Cavity-to-Cavity Leakage Bonding Integrity Test Procedure for Electrical Connectors (ANSI/EIA-364-78-91)***

This test procedure is intended to provide a technique for evaluating the sealing integrity of the contact cavity walls of an environmentally sealed electrical connector by detecting leakage between a given contact cavity and those adjacent to it. This technique is suitable for application at the onset of a series of environmental tests (e.g., qualification or periodic inspection) to evaluate the soundness of the product before the start of test.

**Product Code 4** Sep, 1991 **COMMITTEE:CE-2.0**  
**\$32.00**

**EIA-364-79**

***TP-79 Insert Bond Strength Test Procedure for Electrical Connectors (ANSI/EIA-364-79-98)***

Application of this insert bond evaluation procedure is limited to qualification of periodic inspection testing and generally is a test group of its own. This standard provides a technique for evaluating the strength of a bond between one or more components: example - a grommet seal bonded to a connector insert.

**Product Code 4** Aug, 1998 **COMMITTEE:CE-2.0**  
**\$36.00**

CONNECTORS, TESTING PROCEDURES FOR CONNECTORS (cont.)

**EIA-364-81**

***TP-81, Combustion Characteristics of Connector Housings, Connector Assemblies and Sockets (ANSI/EIA-364-81-94)***

This procedure details a test procedure that may be used to characterize the resistance of connector/socket housings including composite housings in their as molded condition with and without contacts relative to flammability for a particular application. This test is classified as a destructive test and is not recommended for sample lengths less than 1.0 inch (25.4 mm).

**Product Code 4 Jun, 1994 COMMITTEE:CE-2.0  
\$36.00**

**EIA-364-82**

***TP-82 Corrosivity of Plastics (Connector/Socket Housing) (ANSI/EIA-364-82-93)***

The object of this procedure is intended to determine whether a plastic connector/socket housing generates corrosive elements when in contact with metallic parts or components. Said corrosiveness may be a result of: a) additives and/or filler material contained within the plastic formulation. b) inadequate cure or post-cure of the material that can result in outgassing of the material. The object is also to determine whether corrosive elements are outgassing or leaching out from the plastic housing, resulting in the existence of potential failure mechanisms.

**Product Code 4 Nov, 1993 COMMITTEE:CE-2.0  
\$32.00**

**EIA-364-83**

***TP-83 Shell-to-Shell and Shell-to-Bulkhead Resistance Test Procedure for Electrical Connectors (ANSI/EIA-364-83-99)***

This test procedure applies to mated plugs and receptacles or mated plugs and receptacles mounted to a bulkhead with conductive shells and/or mounting flange.

**Product Code 4 Aug, 1999 COMMITTEE:CE-2.0  
\$36.00**

**EIA-364-85**

***TP-85, General Test Procedure for Assessing Wear and Mechanical Damage Testing of Contact Finishes for Electrical Connectors (ANSI/EIA-364-85-96)***

The purpose of this procedure is to determine the presence of mechanical damage, wear-through, and other gross defects in the contact finish. Most contact finishes are intended to be protective, and the presence of gross defects in the finish indicates a serious reduction of such protection.

**Product Code 4 Jun, 1996 COMMITTEE:CE-2.0  
\$51.00**

**EIA-364-86**

***TP-86, Polarizing/Coding Key Overstress Test Procedure for Electrical Connectors and Sockets (ANSI/EIA-364-86-96)***

The objective of this test procedure is to determine the effectiveness of polarization/coding keys when a connector pair is misregistered (improperly mated).

**Product Code 4 Jun, 1996 COMMITTEE:CE-2.0  
\$32.00**

**EIA-364-87**

***TP-87, Nanosecond-Event Detection for Electrical Connectors, Contacts and Sockets (ANSI/EIA-364-87-96)***

The object of this procedure is to define methods for detecting events that can be as short as 1 nanosecond.

The methods are for detection of sample failure events resulting from short-duration large resistance fluctuations, or voltage variations that may result in improper triggering of high-speed digital circuits.

Nanosecond-duration event detection is considered necessary based on application susceptibilities to noise. This technique is not capable of measuring the duration of an event.

**Product Code 4 Jan, 1997 COMMITTEE:CE-2.0  
\$46.00**

**EIA-364-88**

***TP-88, Residual Magnetism for Electrical Connectors (ANSI/EIA-364-88-95)***

The object of this test procedure is to detail a standard test method to measure the residual magnetism of a connector after exposure to a specified magnetic field.

Connectors with a relative magnetism of 2 MU as determined by EIA-364-54 can satisfy the nonmagnetism requirements in most applications. Residual magnetism should only be required in the magnetic field constraints as associated with space flight applications warrant such stringent requirements.

**Product Code 4 Nov, 1995 COMMITTEE:CE-2.0  
\$32.00**

**EIA-364-89**

***TP-89, Test Procedures for Electrical Connectors for Space Applications (ANSI/EIA-364-89-95)***

**Product Code 4 Aug, 1995 COMMITTEE:CE-2.0  
\$30.00**

**EIA-364-90**

***TP-90 Crosstalk Ratio Test Procedure for Electrical Connectors, Sockets, Cable Assemblies or Interconnect Systems. (ANSI/EIA-364-90-2000)***

This standard describes test methods for measuring the magnitude of the electromagnetic coupling between driven and quiet lines of an interconnection assembly. Both time domain (method A) and frequency domain methods (method B), single-ended and differential transmission, and insertion and reference fixture techniques are described.

**Product Code 4 Jan, 2000 COMMITTEE:CE-2.0  
\$44.00**

**EIA-364-91**

***TP-91, Dust Test for Electrical Connectors and Sockets (ANSI/EIA-364-91-96)***

The object of this test is to determine the susceptibility of a connector/socket system to the potential degradation mechanism of a dust/fiber environment common to an office or manufacturing area.

This method may be used as a preconditioning test whereby the test sample is exposed to a heavy concentration of dust and then exposed to a subsequent environment or as a "stand alone" test.

**Product Code 4 Sep, 1996 COMMITTEE:CE-2.0  
\$38.00**

CONNECTORS, TESTING PROCEDURES FOR CONNECTORS (cont.)

**EIA-364-92**

***TP-92, Wire Bending Test Procedure for Insulation Displacement Contacts (IDC) for Electrical Connectors (ANSI/EIA-364-92-97)***

The object of this test procedure is to assess the ability of an insulation displacement connection to withstand the mechanical stress caused by bending the connected wire or ribbon cable in a specified manner.

**Product Code 4** Apr, 1997 **COMMITTEE:CE-2.0**  
**\$36.00**

**EIA-364-93**

***TP-93, Repeated Wire Connection and Disconnection Test Procedure for Insulation Displacement Contacts (IDC) for Electrical Connectors (ANSI/EIA-364-93-97)***

The object of this test procedure is to assess the ability of a reusable displacement termination to withstand a specified number of connections and disconnections.

**Product Code 4** Jul, 1997 **COMMITTEE:CE-2.0**  
**\$32.00**

**EIA-364-94**

***TP-94 Transverse Extraction Force Test Procedure for Insulation Displacement Contacts (IDC) for Electrical Connectors (ANSI/EIA-364-94-97)***

The object of this test procedure is to determine the force necessary to remove the wire within the connection slot of accessible insulation displacement termination along the longitudinal axis of the termination.

**Product Code 4** Jun, 1997 **COMMITTEE:CE-2.0**  
**\$36.00**

**EIA-364-95**

***TP-95 Full Mating and Mating Stability Test Procedure for Electrical Connectors (ANSI/EIA-364-95-99)***

**Product Code 4** Apr, 1999 **COMMITTEE:CE-2.0**  
**\$39.00**

**EIA-364-97**

***TP-97 Housing Panel Retention Test Procedure for Electrical Connectors (ANSI/EIA-364-97-97)***

This specification covers the test procedure for determining the mechanical retention of the panel locking feature housings when installed in panels.

**Product Code 4** Jun, 1997 **COMMITTEE:CE-2.0**  
**\$36.00**

**EIA-364-98**

***TP-98, Housing Locking Mechanism Strength Test Procedure for Electrical Connectors (ANSI/EIA-364-98-97)***

This specification describes a test procedure for determining the mechanism retention strength of the locking retention features of mated plastic connector housings.

**Product Code 4** Jun, 1997 **COMMITTEE:CE-2.0**  
**\$33.00**

**EIA-364-99**

***TP-99 Gage Location and Retention Test Procedure for Electrical Connectors (ANSI/EIA-364-99-99)***

The object of this test procedure is to determine the ability of a connector to comply with specified location and retention measurements through the use of location and retention test gages.

**Product Code 4** Jun, 1999 **COMMITTEE:CE-2.0**  
**\$36.00**

**EIA-364-100**

***TP-100 Marking Permanence Test Procedure for Electrical Connectors and Sockets (ANSI/EIA-364-100-99)***

This standard establishes a method of determining the marking permanence of electrical Connectors and sockets. The object of this test procedure is to determine the ability of a connector or socket to withstand solvents that may be used to clean components as well as to determine marking and color code integrity.

**Product Code 4** Apr, 1999 **COMMITTEE:CE-2.0**  
**\$38.00**

**EIA-364-101**

***TP-101 Attenuation Test Procedure for Electrical Connectors, Sockets, Cable Assemblies or Interconnect Systems. (ANSI/EIA-364-101-2000)***

This standard is applicable to electrical connectors, sockets, cable assemblies or interconnect systems. This standard describes one time and two frequency domain methods to measure attenuation as a function of frequency.

**Product Code 4** May, 2000 **COMMITTEE:CE-2.0**  
**\$43.00**

**EIA-364-102**

***TP-102 Rise Time Degradation Test Procedure for Electrical Connectors, Sockets, Cable Assemblies or Interconnection Systems (ANSI/EIA-364-102-98)***

This standard is applicable to electrical connectors, sockets, cable assemblies, or interconnection systems. It describes a method for measuring the effect of specimen has on the rise time of a signal passing through it.

**Product Code 4** Dec, 1998 **COMMITTEE:CE-2.0**  
**\$40.00**

**EIA-364-103**

***TP-103 Propagation Delay Test Procedure for Electrical Connectors, Sockets, Cable Assemblies or Interconnection Systems (ANSI/EIA-364-103-98)***

This standard is applicable to electrical connectors, sockets, cable assemblies or interconnection systems. The object of this standard is to describe a method for measuring the time it takes for a digital signal to propagate from one specified point to a second specified point.

**Product Code 4** Feb, 1999 **COMMITTEE:CE-2.0**  
**\$40.00**

**EIA-364-104A**

***TP-104A Flammability Test Procedure for Electrical Connectors (ANSI/EIA-364-104A-2000)***

This standard establishes test methods to determine the connector's resistance to burning when exposed to a flame. Burning resistance is defined as the ability to not support or propagate combustion after an ignition source is removed. This test evaluates the time it takes for the flame of a burning connector to extinguish after the removal of the applied flame, and the possibility of the spreading of burning, as caused by burning droplets and after-glow. This test does not simulate any actual service application. It is intended to test a connector in a condition that can readily be duplicated in any test laboratory.

**Product Code 4** Sep, 2000 **COMMITTEE:CE-2.0**  
**\$38.00**

**EIA-364-105**

***TP-105 Altitude - Low Temperature Test Procedure for Electrical Connectors (ANSI/EIA-364-105-99)***

This standard establishes a method to simulate actual service usage by inducing low temperatures, and applying the test voltage at simulated altitudes.

**Product Code 4** Apr, 1999 **COMMITTEE:CE-2.0**  
**\$36.00**

**CONNECTORS, TESTING PROCEDURES FOR CONNECTORS (cont.)**

**EIA-364-106**

***TP-106, Standing Wave Ratio (SWR) Test Procedure for Electrical Connectors (ANSI/EIA-364-106-2000)***

This standard establishes test methods to evaluate existing standing wave ratio (SWR) of connectors, coaxial, radio frequency (RF). Measured SWR shall not exceed that specified over the frequency range specified.

**Product Code 4** May, 2000 **COMMITTEE:CE-2.0**  
**\$39.00**

**EIA-364-107**

***TP-107, Eye Pattern and Jitter Test Procedures for Electrical Connectors, Sockets, Cable Assemblies or Interconnect Systems. (ANSI/EIA-364-107-2000)***

This standard is applicable to electrical connectors, sockets, cable assemblies, or interconnection systems. This standard describes methods for measuring an eye pattern response and jitter in the time domain.

**Product Code 4** May, 2000 **COMMITTEE:CE-2.0**  
**\$44.00**

**EIA-364-108**

***TP-108, Impedance, Reflection Coefficient, Return Loss, and VSWR Measured in the Time and Frequency Domain Test Procedure for Electrical Connectors, Sockets, Cable Assemblies or Interconnect Systems. (ANSI/EIA-364-108-2000)***

This procedure applies to interconnect assemblies, such as electrical connectors, and cable assemblies. The object is to describe test methods to measure impedance, reflection coefficient, return loss, and voltage standing wave ratio (VSWR) in the time and frequency domains.

**Product Code 4** Jul, 2000 **COMMITTEE:CE-2.0**  
**\$63.00**

**CRT DIMENSIONS**

**EIA-743**

***Usable Screen Dimensions for Monochrome Display Tubes (ANSI/EIA-743-99)***

This document describes the calculation of usable screen dimensions for monochrome display tubes.

**Product Code 4** Aug, 1999 **COMMITTEE: JT-6**  
**\$42.00**

**DELAY LINES**

**EIA-242**

***Definitions for Electromagnetic Delay Lines (ANSI/EIA-242-72) (R78) (R86)***

The definitions in this Standard are to be used to describe electromagnetic delay lines used in pulse circuitry.

**Product Code 4** Mar, 1986 **COMMITTEE:P-3**  
**\$30.00**

## DOCUMENTATION

### EIA-773

#### **Check List for Document Development and Revision (ANSI/EIA-773-2000)**

This document is intended to aid in the development and/or revision of EIA standards. This is not meant to be an all-inclusive document and can be subject to reconsideration.

**Product Code 4** May, 2000 **COMMITTEE:CE-3.0**  
**\$33.00**

## FILTERS

### EIA-416

#### **Filters, Radio Interference (ANSI/EIA-416-74) (R81)**

This Standard covers the general requirements of current-carrying filters, alternating-current and direct-current, for use primarily in the reduction of broadband radio interference.

**Product Code 4** Mar, 1981 **COMMITTEE:P-3**  
**\$30.00**

## FUSE

### EIA/IS-722

#### **Low Voltage Supplemental Fuse Qualification Specification (May 1997)**

This specification defines the qualification program for low voltage, supplemental fuses. Fuses covered will be limited to axial-leaded, radial-leaded and surface mount configurations having a current rating of no greater than 60 A, maximum voltage rating of 600 VAC/DC and interrupting rating of 10,000 A maximum. This document does not relieve the suppliers of their responsibility to maintain their own company's internal qualification program and the fuses shall continue to meet all applicable requirements of UL 248-14 / CSA-C22.2 No. 248.14.

**Product Code 4** May, 1997 **COMMITTEE:P-14**  
**\$55.00**

### EIA/IS-772

#### **User's Application Guide to Fuses**

This guide has been prepared to aid the circuit and system designer in the selection of supplemental fuses. Traditionally, these have been fuses which interrupt the primary equipment power source when an overcurrent condition develops in a device or product. This guide will cover only fuses intended for electronic applications.

**Product Code 4** Aug, 1998 **COMMITTEE:P-14**  
**\$44.00**

## INDUCTORS

### AUDIO INDUCTORS

### EIA-175

#### **Audio Inductors**

This Standard covers iron core inductors for use in electronic equipment in which long life, reliability and continuity of operation are essential and which are employed for frequency discrimination elements or for filters other than power application. It also covers those characteristics of transformers which are otherwise covered by EIA-174.

**Product Code 4** Nov, 1982 **COMMITTEE:P-3**  
**\$30.00**

### AUDIO TRANSFORMERS

### EIA-174

#### **Audio Transformers for Electronic Equipment**

This Standard covers iron core transformers for use in electronic the equipment in which long life, reliability and continuity of operation are essential, which are required to transform voltages with fidelity over a designated frequency band and operate between specified impedances.

**Product Code 4** Nov, 1982 **COMMITTEE:P-3**  
**\$30.00**

### CERAMIC MULTILAYER

### EIA/IS-759

#### **Multilayer Chip Inductor Qualification Specification**

This specification defines the qualification program for surface mount multilayer chip inductors. This specification includes requirements with the intention of developing a single set of robust qualification tests that would enable a supplier to leverage test results to satisfy the requirements of multiple OEM customers.

**Product Code 4** Apr, 1998 **COMMITTEE:P-3**  
**\$44.00**

### CHARGING INDUCTORS

### EIA-181

#### **Iron Core Charging Inductors**

This Standard covers iron core charging reactors for use in radar transmitters and similar equipment where long life, reliability and continuity of operation are essential.

**Product Code 4** Nov, 1982 **COMMITTEE:P-3**  
**\$30.00**

### CORES

### EIA-217-A

#### **Wound Cut Cores (ANSI/EIA-217-A-72) (R78) (R83)**

This Standard provides data material, dimensions and usage, and mechanical tolerances for 60 and 400 Hz wound cut cores for transformers.

**Product Code 4** Sep, 1983 **COMMITTEE:P-3**  
**\$30.00**

**INDUCTORS, CORES (cont.)**

**EIA-260**

***Tape-Wound Toroidal Cores (ANSI/EIA-260-72) (R78) (R83)***

This Standard provides nominal thickness, standard core sizes and standard case sizes for tape-wound toroidal cores and test performance standards.

**Product Code 4 Sep, 1983 COMMITTEE:P-3  
\$30.00**

**EIA-393**

***Core Laminations, Vertical and Horizontal Channel Frames for Transformers for Radio and TV Receivers (ANSI/EIA-393-72) (R78) (R83)***

This Standard provides dimensions of core laminations, and for vertical and horizontal channel frames for radio and TV broadcast power transformers.

**Product Code 4 Aug, 1983 COMMITTEE:P-3  
\$30.00**

**FILTERS**

**EIA-197-A**

***Power Filter Inductors for Electronic Equipment (ANSI/EIA-197-A-73) (R79) (R86)***

This Standard covers iron-core, power filter inductors for use in electronic equipment where long life, reliability and continuity of operation are essential.

**Product Code 4 Mar, 1986 COMMITTEE:P-3  
\$30.00**

**MOUNTING DIMENSIONS**

**EIA-314**

***Envelope and Mounting Dimensions for Encapsulated Transformers and Inductors (Using Cores Listed in Table 1 of EIA-217-A)***

This Standard establishes the maximum envelope dimensions and nominal mounting dimensions for encapsulated transformers and inductors using cores listed in EIA-217-A. It also establishes formulate from which these dimensions are developed.

**Product Code 4 Nov, 1982 COMMITTEE:P-3  
\$30.00**

**OUTPUT TRANSFORMERS**

**EIA-183**

***Output Transformers for Radio Broadcast Receivers***

This Standard provides definitions and standard tests for mechanical and electrical characteristics of output transformers for radio broadcast receivers, including reflected load impedance, frequency response, copper efficiency, dielectric tests, and winding polarity.

**Product Code 4 Nov, 1982 COMMITTEE:P-3  
\$30.00**

**POWER TRANSFORMERS**

**EIA-180**

***Power Transformers for Electronic Equipment***

This Standard covers iron core, power transformer up to 10 KVA for use in electronic equipment where long life, reliability and continuity are essential.

**Product Code 4 Nov, 1982 COMMITTEE:P-3  
\$30.00**

**PULSE TRANSFORMERS**

**EIA-176**

***Pulse Transformers for Radar Equipment***

This Standard covers iron core pulse transformers for use in radar transmitters and similar equipment where long life, reliability and continuity of operation are essential.

**Product Code 4 Nov, 1982 COMMITTEE:P-3  
\$30.00**

**SHIELDS**

**EIA-369**

***Midget I.F. Shields (.75-Inch, Square)***

This Standard provides dimensions and mounting details for .75 inch square I.F. shields.

**Product Code 4 Nov, 1982 COMMITTEE:P-3  
\$30.00**

**SURFACE MOUNT**

**EIA/IS-760**

***Surface Mount Wirewound Inductor Qualification Specification***

This specification defines the qualification program for surface mount wound inductors. This specification includes requirements with the intention of developing a single set of robust qualification tests that would enable a supplier to leverage test results to satisfy the requirements of multiple OEM customers.

**Product Code 4 Apr, 1998 COMMITTEE:P-3  
\$44.00**

**IPDs**

**EIA-800**

***Integrated Passive Device (IPD) Chipscale Package Design Guidelines***

This document is intended to facilitate a common industry direction with regard to IPD chipscale packaging. It is not intended to document special product designs that are supplier-customer unique.

**Product Code 4 Mar, 1999 COMMITTEE:P-10  
\$33.00**

**EIA-850**

***ECA Component Registration - Integrated Passive Devices Product Registrations***

This document outlines the process and document submission requirements for manufacturers of an integrated passive device (IPD) to register their product. Registration is for the purposes of improving communication, encouraging other suppliers to register their company IPD's as additional sources to the originating supplier and encouraging the usage of the registered IPD products to industry users.

**Product Code 4 Apr, 2000 COMMITTEE: P-10  
\$40.00**

IPDs (cont.)

**CB16**

***Integrated Passive Device (IPD) Definitions***

This Components Bulletin provides integrated passive device definitions

**Product Code 4** Feb, 1999 **COMMITTEE:P-10**

**\$36.00**

**LOCAL AREA NETWORKS (LAN)**

**EIA/IS-43 Series**

***Cable for LAN Twisted Pair Data Communications***

**Product Code 4**

**\$350.00**

**EIA/IS-43**

***Omnibus Specification-Local Network Twisted Pair Data Communications Cable***

This Omnibus Specification relates to Local Area Network Twisted Pair Cable constructed of insulated copper conductor pairs in a single PVC or fluorocarbon jacket. The cable is intended for use with local area networks, such as token ring networks and other systems employing similar technology as a total building wiring system. This Interim Standard was adopted for use in the U.S. National Electronic Components Quality Assessment System (NECQ-System).

**Product Code 4** Sep, 1987 **COMMITTEE:P-7**

**\$57.00**

**EIA/IS-43AA**

***Cable for LAN Twisted Pair Data Communications-Detail Specification for Type 1, Outdoor Cable***

**Product Code 4** Sep, 1988 **COMMITTEE:P-7**

**\$59.00**

**EIA/IS-43AB**

***Cable for LAN Twisted Pair Data Communications-Detail Specification for Type 1, Non-Plenum Cable***

**Product Code 4** Sep, 1988 **COMMITTEE:P-7**

**\$30.00**

**EIA/IS-43AC**

***Cable for LAN Twisted Pair Data Communications-Detail Specification for Type 1, Riser Cable***

**Product Code 4** Sep, 1988 **COMMITTEE:P-7**

**\$30.00**

**EIA/IS-43AD**

***Cable for LAN Twisted Pair Data Communications-Detail Specification for Type 1, Plenum Cable***

**Product Code 4** Sep, 1988 **COMMITTEE:P-7**

**\$30.00**

**EIA/IS-43AE**

***Cable for LAN Twisted Pair Data Communications-Detail Specification for Type 2, Non-Plenum Cable***

**Product Code 4** Sep, 1988 **COMMITTEE:P-7**

**\$44.00**

**EIA/IS-43AF**

***Cable for LAN Twisted Pair Data Communications-Detail Specification for Type 2, Plenum Cable***

**Product Code 4** Sep, 1988 **COMMITTEE:P-7**

**\$44.00**

**EIA/IS-43AG**

***Cable for LAN Twisted Pair Data Communications-Detail Specification for Type 6, Office Cable***

**Product Code 4** Sep, 1988 **COMMITTEE:P-7**

**\$30.00**

**EIA/IS-43AH**

***Cable for LAN Twisted Pair Data Communications-Detail Specification for Type 8, Undercarpet Cable***

**Product Code 4** Sep, 1988 **COMMITTEE:P-7**

**\$30.00**

**EIA/IS-43AJ**

***Cable for LAN Twisted Pair Data Communications-Detail Specification for Type 9, Plenum Cable***

EIA's IS-43 Series covers Local Area Networks employing token ring network or similar technology as a total building wiring system. The Series--used in the National Electronic Components Quality Assessment System (NECQ-System): insures compatibility between cable types for systems using multiple types and promotes uniformity of LAN cable constructions; establishes test methods for characterizing geometric, mechanical, environmental, and transmission properties of Local Area Network Cable constructed of insulated copper conductor pairs in a single PVC or fluorocarbon jacket; and prescribes preferred ratings and characteristics of LAN cable. The Series is specified for data transmission rates up to 16M-bits-per-second and can be purchased for 163.00.

**Product Code 4** Sep, 1988 **COMMITTEE:P-7**

**\$30.00**

**MAGNETIC FIELD POLARITY**

**EIA-348**

***Magnetic Field Polarity, Including Definitions and Determination of Polarity***

Since some electrical or electronic devices may be destroyed if the magnetic field polarity is incorrectly determined, it is important that disagreement or confusion be avoided. The purpose of this Standard is to eliminate confusion by providing definitive statements of the conventions involved in determining the polarity of a magnetic field and by describing basic practical methods that may be used with necessary precautions.

**Product Code 4** (Mar. 1968; Reaffirmed Sep. 1979)

**COMMITTEE:JT-6**

**\$24.00**

**PHONOGRAPHS**

**RUMBLE**

**EIA-386**

***Recommended Measurement Method for Phonograph Rumble (ANSI/EIA-386-72) (R78)***

The purpose of this Standard is to describe a method of phonograph rumble measurement for the purposes of correlation and specification on a laboratory basis. The measurement reflects the electrical effect, not necessarily the aural annoyance value, of phonograph rumble.

**Product Code 4** Feb, 1978 **COMMITTEE:P-8.2**

**\$30.00**

PHONOGRAPHS (cont.)

TURNTABLES

**EIA-356**

**Standard on Definitions and Terminology in Connection with Record Changers and Manual Phonographs**

This Standard covers definitions of terms that are generally referred to between manufacturers and users and defines accepted nomenclature for commonly applied component and operating descriptions as related to automatic record changers and manual phonographs.

**Product Code 4** Jul, 1973 **COMMITTEE:P-8.2**

**\$30.00**

**PRINTED CIRCUIT (WIRING) BOARDS**

CERAMIC BASED CIRCUIT BOARDS

**EIA-161**

**Unit Standards for Ceramic-Based Printed Circuits (ANSI/EIA-161-72) (R77) (R83)**

These unit standards give physical and electrical specifications of Ceramic-Based Printed Circuits which have been standardized. These units are named and issued a standard identification number. The physical specifications include maximum overall size, lead length and size, lead number and sequence, EIA identification number and manufacturer's identification. The electrical specifications include circuit schematic component values and tolerances, component rating, the connections to lead wires and terminations, and additional information required for test not covered in EIA-162.

**Product Code 4** Aug, 1983 **COMMITTEE:P-9**

**\$30.00**

**EIA-162**

**Test Standard for Ceramic-Based Printed Circuits (ANSI/EIA-162-72) (R77) (R83)**

This Standard describes the standard test procedures to be used for ceramic-based printed circuits. It specifically covers type A unit, but may be used as far as applicable for type B units.

**Product Code 4** Aug, 1983 **COMMITTEE:P-9**

**\$30.00**

RF COILS

**EIA/IS-48**

**Axial Lead Fixed Radio Frequency (RF) Coils**

This new Interim Standard covers industrial grade RF coils which are intended as simple inductive elements in RF circuits. They are primarily intended for machine packaging, insertion and soldering on printed wiring boards.

**Product Code 4** Jul, 1988 **COMMITTEE:P-3**

**\$70.00**

TESTING

**EIA-213**

**Test Point Locations for Printed Wiring Assemblies (ANSI/EIA-213-72) (R77) (R83)**

This Standard establishes systems of preferred locations for test points on printed wiring assemblies. It is to serve as a guide in the coordination of equipment design and is to be used in the design of printed wiring boards, test connectors, and testing equipment.

**Product Code 4** Aug, 1983 **COMMITTEE:P-9**

**\$30.00**

**EIA-216**

**Standard Method of Test for Adhesion of Printed Wiring (ANSI/EIA-216-72) (R77) (R83)**

This Standard is intended for determining the following characteristics of printed wiring boards: (a) resistance to pull-off of leads before and after soldering of component leads; (b) resistance to peel or stripping of conductors at standard room temperature before and after solder dipping and at elevated temperatures; and (c) resistance of large conductor areas to blistering of solder dipping.

**Product Code 4** Aug, 1983 **COMMITTEE:P-9**

**\$30.00**

**EIA-251-A**

**Test to Determine the Temperature as a Function of Current in Printed Conductors (ANSI/EIA-251-A-71) (R83)**

This Standard covers a procedure for comparatively determining the effects of printed conductor materials, conductor cross sections, substrate materials, and processes on the temperature-dc current characteristics of printed wiring boards. A standard test sample is recommended and defined.

**Product Code 4** Aug, 1983 **COMMITTEE:P-9**

**\$30.00**

WIRING

**EIA-208**

**Definition and Register, Printed Wiring (ANSI/EIA-208-72) (R77)**

This Standard delineates a method of measuring the roughness of edges of printed wiring patterns on printed wiring boards. Straight edges, curved edges, and parallel edged curved conductor patterns are included. The Standard also delineates a method of measuring the departure from intended positions of printed wiring board circuit patterns on printed wiring boards. A method of specifying edge cross-section shape is given as well.

**Product Code 4** Aug, 1983 **COMMITTEE:P-9**

**\$30.00**



PRINTED CIRCUIT (WIRING) BOARDS (cont.)

WIRING BOARDS

EIA-406

**General Document for Connectors, Electric, Printed Wiring Board (IPC-C-405-A) (ANSI/EIA-406-73) (R79) (R90)**

This Standard is the result of a cooperative effort with members of the Institute for Interconnecting and Packaging Electronic Components (IPC) and EIA. The document defines the recommended requirements for multi-contact electric connectors for the purpose of adapting electric conductors to printed wiring boards, and for the purpose of interconnecting one printed wiring board to another.

**Product Code 4** May, 1990 **COMMITTEE:CE-2.0**  
**\$30.00**

CB2

**Contamination of Printed Wiring Boards**

**Product Code 4** Jun, 1959 **COMMITTEE:P-9**  
**\$30.00**

QUALITY

APPROVAL AGENCIES

CB8

**List of Approval Agencies, U.S. and Other Countries, Impacting Electronic Components and Equipment**

**Product Code 4** Aug, 1981 **COMMITTEE:EIA**  
**\$30.00**

QUARTZ CRYSTALS

EIA-417-A

**Crystal Outlines (ANSI/EIA-417-A-91)**

This Standard establishes the external dimensions of envelopes for the encapsulation of quartz resonators in their sealed or closed configuration. To the extent found feasible the outlines are arranged in "families", with all outlines within a family sharing a single major defining character. A family can consist of a single embodiment or of a substantial number. Provision is made for a family to grow as needs develop.

**Product Code 4** Apr, 1991 **COMMITTEE:P-11**  
**\$73.00**

EIA-512

**Standard Methods for Measurement of the Equivalent Electrical Parameters of Quartz Crystal Units, 1 kHz to GHz (ANSI/EIA-512-85)**

The methods described in EIA-512 make use of standard coaxial terminations, standard calibrated mismatched terminations, coaxial air-lines, and short-circuit terminations of both calibrated of the instrument/test fixture error terms, and for verification of instrument performance. These coaxial standards designed for 50 ohm systems, are readily available and can be standardized in terms of national standards of impedance over very wide frequency ranges.

**Product Code 4** Apr, 1985 **COMMITTEE:P-11**  
**\$66.00**

EIA-512-1

**Standard Methods for Measurement of the Equivalent Electrical Parameters of Quartz Crystal Units, 1 kHz to GHz (ANSI/EIA-512-1-90)**

This Standard assists EIA-512 users in making "real world" crystal measurements; even users who buy "complete" measurement systems, including equipment, fixtures, and software, must still be aware of how to make accurate measurements and how to verify system performance. This guide provides the needed information. EIA-512-1 supplements EIA-512, which is referenced frequently; having EIA-512 readily available is recommended.

**Product Code 4** Dec, 1990 **COMMITTEE:P-11**  
**\$105.00**

EIA-699

**Test Method for the Visual Inspection of Quartz Crystal Resonator Blanks (ANSI/EIA-699-97)**

This document provides nomenclature, methods, and criteria for characterizing acceptable quartz resonator blanks. Its major objective is to aid in the evaluation of the crystal blank through visual inspection of quartz crystal resonator blanks for the purpose of contributing to the complete evaluation of a product.

**Product Code 4** Feb, 1997 **COMMITTEE:P-11**  
**\$38.00**

CB6-A

**Guide for the Use of Quartz Crystal Units for Frequency Control**

**Product Code 4** Oct, 1987 **COMMITTEE:P-11**  
**\$67.00**

HOLDER OUTLINES AND PIN CONNECTORS

EIA-192-A

**Holder Outlines and Pin Connections for Quartz Crystal Units (ANSI/EIA-192-A-69) (R75) (R81)**

This Standard provides quartz crystal holder outlines, dimensions, and pin connections for gasket sealed plastic and ceramic bodied holders, for glass and metal hermetic envelopes derived from vacuum tubes, and for some hermetic metal envelopes developed for crystals.

**Product Code 4** Feb, 1981 **COMMITTEE:P-4**  
**\$57.00**

## RACKS AND PANELS

### EIA-310-D

#### ***Cabinets, Racks, Panels, and Associated Equipment (ANSI/EIA/310-D-92)***

EIA-310 has now become a two part, fully metric document. This was done to conform to Public Law on US adoption of the Metric System of measures and to enhance the competitive position of US manufacturers in the global marketplace. Part One retains the sizes from the previous document expressed in metric dimensions. Part Two is presented in "hard metric" dimensions without regard to the old system. One interesting aspect is the relationship between the old and the new requirements for 483mm (19 in) panels. The general dimensional fit of existing panels into Part Two compliant hardware requires changing only the mounting hole spacing. All other dimensions are compatible. It is the intent of the US Navy to adopt the revised standard for use by the Department of Defense. The adoption notice will include a requirement that Part Two be used for all new equipment, using the standard for both development and procurement.

**Product Code 4 Sep, 1992 COMMITTEE:CE-5.0**  
**\$43.00**

## RELAYS

### EIA-407-A

#### ***EIA/NARM Standard: Testing Procedures for Relays for Electrical and Electronic Equipment (ANSI/EIA-407-A-78) (R85)***

This Standard provides procedures for inspecting and testing electromagnetic relays for the applicable mechanical, electrical, and environmental requirements of individual relay specifications. The Standard is intended for relays that reform general switching functions in military and commercial systems.

**Product Code 4 Apr, 1983 COMMITTEE:P-12**  
**\$77.00**

### EIA-421-A

#### ***EIA/NARM Standard for Dry Reed Switches (ANSI/EIA-421-A-83)***

This Standard applies to dry reed switches, magnetically actuated, with hermetically sealed contacts. The Standard provides the procedure to be used for inspecting, testing and rating various switch types as defined in the individual Detail Specifications. EIA-421-A was designed to assist manufacturers in understanding those global concerns that are impacting markets, particularly in the third world countries where IEC Standards are predicted to play a dominate role. It is hoped those who use this Standard will find their improved understanding of this technology will lead to specifying reed contacts for future applications.

**Product Code 4 Mar, 1983 COMMITTEE:P-12**  
**\$73.00**

### EIA-436

#### ***EIA/NARM Standard for Dry Reed Relays for Circuit Board Mounting (ANSI/EIA-436-76) (R85)***

This Standard applies to relays that utilize magnetically actuated dry reed switches or perform the switching function. This document is intended to help standardize dry reed relay packaging testing, and rating methods. If this Standard is used properly, it should yield interchangeable relay packages, correlative test methods, standard acceptance and rejection criteria, and relays with comparable switch ratings. Relays conforming to this Standard are suitable for use in electrical and electronic equipment where application is within the stated limits of operation.

**Product Code 4 Apr, 1983 COMMITTEE:P-12**  
**\$67.00**

### EIA-443

#### ***EIA/NARM Standard for Solid-State Relay Service (ANSI/EIA-443-79)***

This Standard establishes a standard reference for determining and defining parameters needed to specify ac Solid State Relays (HSSR) which employ a single isolated input and are designed for switching of ac lines with maximums of 500 Hz frequency, 300 VAC in voltage and 50 amperes in current. It also develops uniform methods and techniques for measuring these parameters.

**Product Code 4 Apr, 1979 COMMITTEE:P-12**  
**\$86.00**

### EIA-473

#### ***EIA/NARM Standard Definitions and Terminology for Relays for Electronic Equipment (ANSI/EIA-473-81)***

This Standard includes solid state relay definitions and IEC definitions. Members of the electronic industry shall find this Standard useful in dealing with overseas customers as well as users of relays within the U.S. The material also takes into account the expanding role of solid state relays in electronic equipment.

**Product Code 4 Mar, 1981 COMMITTEE:P-12**  
**\$59.00**

### EIA-513

#### ***EIA/NARM Standard: Low Profile Relays for Circuit Board Mounting (ANSI/EIA-513-86)***

This Standard applies to armature-type, circuit board mounted relays permitting board center spacings of less than 1 inch. These relays generally are classed in the load range of 0 to 2 amperes. This Standard is intended to help define standard packages, footprints, and test conditions so as to promote interchangeability. Relays conforming to this Standard are suitable for use in electrical and electronic equipment where application is within the stated limits of operation.

**Product Code 4 Oct, 1986 COMMITTEE:P-12**  
**\$95.00**

## RESISTORS

### COMPOSITION RESISTORS

#### EIA-172-B

##### **Fixed Composition Resistors (ANSI/EIA-172-B-74) (R80) (R88)**

This Standard covers insulated, fixed resistors having a composition resistance element and capable of full load operation at an ambient temperature of 70°C. It describes minimum limits of performance observed in commercially available products.

Product Code 4 Oct, 1988 COMMITTEE:P-1  
\$44.00

### FILM RESISTORS

#### EIA-452

##### **Fixed Film Resistors, High Resistance/High Voltage (ANSI/EIA-452-78) (R83) (R90)**

This Standard describes requirements for a fixed film type resistor distinguished, in general, by high resistance values and the ability to operate at high voltage levels.

Product Code 4 Mar, 1990 COMMITTEE:P-1  
\$59.00

#### EIA/IS-34

##### **Leaded Surface Mount Resistor Networks, Fixed Film**

This new Interim Standard covers the general requirements for cermet or metal film type resistor networks, primarily intended for incorporation into electrical/electronic circuits.

Product Code 4 Jan, 1987 COMMITTEE:P-1  
\$66.00

### GENERAL

#### EIA/IS-703

##### **General Resistor Stress Test Qualification Specification**

This specification defines the qualification program for resistors. The objective of this qualification program is to ensure that the device to be qualified meets a minimum set of qualification requirements

Product Code 4 Sep, 1996 COMMITTEE: P-1  
\$57.00

### NON-WIREWOUND RESISTORS, DETAIL SPECIFICATIONS

#### QC400101/US0001

##### **Detail Specification "Fixed Low Power Non-Wirewound Resistors of Assessed Quality"**

Product Code 4 Mar, 1986 COMMITTEE:P-1  
\$30.00

#### QC400101/US0002

##### **Detail Specification "Fixed Low Power Non-Wirewound Resistors, Insulated, Standard Film"**

Product Code 4 Jan, 1988 COMMITTEE:P-1  
\$30.00

#### QC400101/US0003

##### **Detail Specification "Fixed Low Power Non-Wirewound Resistors, Insulated, Carbon Film"**

Product Code 4 Jan, 1988 COMMITTEE:P-1  
\$30.00

### RESISTOR NETWORKS, DETAIL SPECIFICATIONS

#### QC400401/US0001

**Detail Specification "Fixed Resistor Networks with Individually Measurable Resistors all of Equal Value and Equal Dissipation, Single-In-Line with all Resistors Connected"** Typical construction: Thick film circuit, N = 4 to 12, Stability class 1%

Product Code 4 Jan, 1984 COMMITTEE:P-1  
\$30.00

#### QC400401/US0002

**Detail Specification "Fixed Resistor Networks with Individually Measurable Resistors all of Equal Value and Equal Dissipation, Single-In-Line with Isolated Resistors"** Typical construction: Thick film circuit, N = 4 to 12, Stability class 1%

Product Code 4 Jun, 1984 COMMITTEE:P-1  
\$30.00

#### QC400401/US0003

**Detail Specification "Fixed Resistor Networks with Individually Measurable Resistors all of Equal Value and Equal Dissipation, Dual-In-Line with all Resistors Connected"** Typical construction: Thick film circuit, N = 14 or 16, Stability class 1%

Product Code 4 Jun, 1984 COMMITTEE:P-1  
\$30.00

#### QC400401/US0004

**Detail Specification "Fixed Resistor Networks with Individually Measurable Resistors all of Equal Value and Equal Dissipation, Dual-In-Line with Isolated Resistors"** Typical construction: Thick film Circuit, N = 14 or 16, Stability class 1%

Product Code 4 Jun, 1984 COMMITTEE:P-1  
\$30.00

### SURFACE MOUNT RESISTORS

#### EIA-575

##### **Resistors, Rectangular, Surface Mount, General Purpose (ANSI/EIA-575-90)**

This Standard covers general purpose rectangular leadless discrete fixed resistors with temperature coefficients of 100 PPM/°C and greater and resistance tolerances of 1% and 5% for use in surface mounting applications using soldering techniques.

Product Code 4 Aug, 1990 COMMITTEE:P-1  
\$41.00

**RESISTORS, SURFACE MOUNT RESISTORS (cont.)**

**EIA-576**

**Resistors, Rectangular, Surface Mount, Precision (ANSI/EIA-576-90)**

This Standard covers precision, rectangular, leadless, discrete fixed resistors with temperature coefficients of 50 PPM/oC, and lower and resistance tolerances of 1.0%, 0.5%, 0.25% and 0.1% for use in surface mounting applications using soldering techniques.

**Product Code 4 Aug, 1990 COMMITTEE:P-1**  
**\$41.00**

**VARIABLE RESISTORS**

**EIA-322**

**Wirewound Power-Type Rheostats (ANSI/EIA-322-68) (R73) (R79) (R86) (R88)**

This Standard covers linear-wound variable resistors used as rheostats and as potentiometers (variable voltage-dividers) having a resistance element of wire, wound on an insulating form shaped in an arc, so that a contact bears uniformly on the resistance element when adjusted by a contact shaft.

**Product Code 4 Oct, 1988 COMMITTEE:P-1**  
**\$55.00**

**CB4**

**Effect of the Wire Diameter on Wirewound Resistor Reliability**

**Product Code 4 Feb, 1965 COMMITTEE:P-1**  
**\$30.00**

**WIREWOUND RESISTORS**

**EIA-155-B**

**Fixed Wirewound Power Resistors (ANSI/EIA-155-B-172-76) (R81) (R88)**

This Standard covers fixed wirewound power type resistors with initial tolerances of 1% and 5% of 3 styles and 24 power ratings. Standard ratings, tolerances and test requirements are included.

**Product Code 4 Oct, 1988 COMMITTEE:P-1**  
**\$30.00**

**EIA-229-A**

**Fixed, Wirewound, Precision Resistors (ANSI/EIA-229-A-68) (R79)**

This Standard covers fixed precision wire-wound resistors of +/- 1% accuracy or better and various wattage ratings. Classes suitable for various applications are defined.

**Product Code 4 Oct, 1988 COMMITTEE:P-1**  
**\$30.00**

**WIREWOUND RESISTORS, DETAIL SPECIFICATIONS**

**QC400201/US0001**

**Detail Specification "Fixed Power Resistors with Axial Leads, Wirewound, with Vitreous Enamel Coating, Insulated, Stability Class 5%"**

**Product Code 4 Aug, 1986 COMMITTEE:P-1**  
**\$30.00**

**QC400201/US0002**

**Detail Specification "Fixed Power Wirewound Resistors, Insulated, Stability Class 0.5%"**

**Product Code 4 Dec, 1986 COMMITTEE:P-1**  
**\$30.00**

**QC400201/US0003**

**Detail Specification "Fixed Power Wirewound Resistors, Insulated, Stability Class 5%"**

**Product Code 4 Dec, 1986 COMMITTEE:P-1**  
**\$30.00**

**QC400201/US0004**

**Detail Specification "Fixed Power Wirewound Resistors, Insulated Heat Sink Resistors with Rigid Termination"**

**Product Code 4 Dec, 1986 COMMITTEE:P-1**  
**\$30.00**

**SMALL FORM FACTOR**

**EIA-740**

**Specification for Small Form Factor 88.9 mm (3.5 in) Disk Drives**

The purpose is to define the external characteristics of small form factor disk drives so that products from different vendors may be used in the same mounting configurations. It provides specifications on external dimensions, connectors, connector placement, mounting holes and interface pinouts to assist manufacturers in the systems integration of small form factor disk drives.

**Product Code 4 Jul, 1999 COMMITTEE:CE-3.0**  
**\$44.00**

**SOCKETS**

**EIA-540 Series**

**Sockets - Detail Specifications for Chip Carriers and Electronic Equipment**

**Product Code 4**  
**\$Call for Pricing**

**BALL GRID ARRAY**

**EIA-540B0AA**

**Detail Specification for Production Ball Grid Array (BGA) Sockets with 1.27 mm (0.050 in) Spacing for Use in Electronic Equipment (ANSI/EIA-540B0AA-97)**

This specification covers interconnect systems typically used for production ball grid array (BGA) devices. The contacts are on 1.27 mm (0.050 in) contact spacing. The purpose of this detail specification is to provide all information required for the identification and assessment of the ball grid array (BGA) socket.

**Product Code 4 Jan, 1998 COMMITTEE:CE-3.0**  
**\$63.00**

## SOCKETS, BALL GRID ARRAY (cont.)

### EIA-540H000

#### **Sectional Specification for Burn-In Sockets Used with Ball Grid Array Devices for Use in Electronic Equipment (ANSI/TIA/EIA-540H000-97)**

This Sectional Specification relates to the burn-in sockets for Ball Grid Array (BGA) devices of assessed quality. The purpose of this specification is to provide a means of interchangeability between qualified devices and compatibility between the board and the BGA device and to provide standard socket test methods, gauges, and performance requirements  
**Product Code 4** Jan, 1998 **COMMITTEE:CE-3.0**  
**\$44.00**

### EIA-540HA00

#### **Blank Detail Specification for Burn-In Sockets Used with Ball Grid Array Devices for Use in Electronic Equipment (ANSI/EIA-540HA00-2000)**

The objective of this Blank Detail Specification is to provide all information required for the identification and quality assessment of the burn-in socket for ball grid array devices.

**Product Code 4** May, 2000 **COMMITTEE:CE-3.0**  
**\$44.00**

### EIA-540HAAA

#### **Detail Specification for Burn-In Sockets Used with Ball Grid Array Devices for Use in Electronic Equipment (ANSI/EIA-540HAAA-2000)**

The objective of this Detail Specification is to provide all information required for the identification and quality assessment of the burn-in socket for ball grid array devices described in EIA-540HAAA.

**Product Code 4** Jun, 2000 **COMMITTEE:CE-3.0**  
**\$51.00**

### EIA/IS-701

#### **Production Ball Grid Array (BGA) Socket Test Specification**

This specification defines a qualification test sequence for production ball grid array (BGA) socket assemblies.

**Product Code 4** Jul, 1996 **COMMITTEE:CE-3.0**  
**\$64.00**

## BATTERY HOLDERS

### EIA-540J000

#### **Sectional Specification for Battery Holders for Use in Electronic Equipment (ANSI/EIA-540J000-2000)**

This Sectional Specification relates to battery holders of assessed quality. The purpose of this specification is to provide a means of interchangeability between qualified devices and compatibility between the board and the battery holder and to provide standard test methods, gauges and performance requirements.

**Product Code 4** May, 2000 **COMMITTEE:CE-3.0**  
**\$42.00**

### EIA-540J0AA

#### **Detail Specification for Cylindrical Battery Holders, Standard Profile, for Use in Electronic Equipment (ANSI/EIA-540J0AA-2000)**

The objective of this Detail Specification is to provide all information required for the identification and quality assessment of the battery holders described in EIA-540J0AA.

**Product Code 4** May, 2000 **COMMITTEE:CE-3.0**  
**\$40.00**

## CHIP CARRIER SOCKETS

### EIA-540A000-A

#### **Sectional Specification for Sockets for Chip Carriers for Use in Electronic Equipment (ANSI/EIA-540A000-A-90) (R97)**

Provides a means of assuring interchangeability between devices, compatibility between circuit boards and the chip carriers, and also provides standard test methods, gauges, and performance requirements. It describes chip carrier sockets of assessed quality. EIA-5400000, a Generic Socket Specification, is related to this Sectional Specification for chip carrier sockets.

**Product Code 4** Aug. 1990 **COMMITTEE:CE-3.0**  
**\$57.00**

## CHIP CARRIER SOCKETS, DETAIL SPECIFICATIONS

### EIA-540AA00

#### **Blank Detail Specification for Chip Carrier Sockets for Leadless Type A, B, or D Chip Carriers for Use in Electronic Equipment (ANSI/EIA-540AA00-91)**

The purpose of this specification is to provide all information required for the identification and quality assessment of chip carriers sockets for leadless type A, B and D chip carriers.

**Product Code 4** Oct, 1991 **COMMITTEE:CE-3.0**  
**\$45.00**

### EIA-540AAAA

#### **Detail Specification for Chip Carrier Sockets for Leadless Type A [1.27 mm (0.050 in)] Spacing Chip Carriers for Use in Electronic Equipment (ANSI/EIA-540AAAA-90)**

The object of this Detail Specification is to provide all information required for the identification and quality assessment of the Chip Carrier Sockets for Leadless Type A Packages (CCS/LLA described within the document. The Chip Carrier Sockets of assessed quality covered by EIA-540AAAA have the following specifications: rated current not exceeding 1 ampere; rated voltage not exceeding 250 volts (rms); and maximum enclosure dimensions including cover and latching hardware as illustrated within the document. The information, contained within EIA-540AAAA or by reference to the document, is complete and sufficient for inspection purposes.

**Product Code 4** Aug, 1990 **COMMITTEE:CE-3.0**  
**\$49.00**

**SOCKETS, CHIP CARRIER SOCKETS, DETAIL SPECIFICATIONS (cont.)**

**EIA-540AB00**

**Blank Detail Specification for Chip Carrier Sockets for Plastic Quad Flat Packages for Use in Electronic Equipment (ANSI/EIA-540AB00-91)**

The purpose of this specification is to provide all information required for the identification and quality assessment of chip carrier sockets for plastic quad flat packages.

**Product Code 4** Oct, 1991 **COMMITTEE:CE-3.0**  
**\$45.00**

**EIA-540ABAA**

**Detail Specification for Chip Carrier Sockets for Plastic Quad Flat Pack 0.635 mm (0.025 in) Lead Spacing (Gullwing) (ANSI/EIA-540ABAA-91)**

The object of this specification is to provide all information required for the identification and quality assessment of the Chip Carrier Sockets for Plastic Quad Flat Packages (PQFP) with lead spacing on 0.635 mm (0.025 in) and "gullwing" shaped leads.

**Product Code 4** Mar, 1991 **COMMITTEE:CE-3.0**  
**\$43.00**

**EIA-540AC00**

**Blank Detail Specification for Chip Carrier Sockets for Plastic Chip Carrier (PCC) Packages with "J" Type Leads for Use in Electronic Equipment (ANSI/EIA-540AC00-91)**

The purpose of this specification is to provide all information required for the identification and quality assessment of chip carrier sockets for plastic chip carrier packages with "J" type leads.

**Product Code 4** Oct, 1991 **COMMITTEE:CE-3.0**  
**\$45.00**

**EIA-540ACAA**

**Detail Specification for Plastic Chip Carrier (PCC) Family 1.27 mm (0.050 in) Lead Spacing (ANSI/EIA-540ACAA-91)**

The object of this Detail Specification is to provide all information required for the identification and quality assessment of the Chip Carrier Sockets for Plastic Chip Carrier (PCC) Family with lead spacing on 1.27 mm (0.050 in) centers and "J" shaped leads.

**Product Code 4** Oct, 1991 **COMMITTEE:CE-3.0**  
**\$43.00**

**EIA-540G000**

**Sectional Specification for Burn-In Sockets for Use in Electronic Equipment (ANSI/EIA-540G000-93)**

This Sectional Specification relates to burn-in sockets of assessed quality. The purpose of this Specification is to provide a means of assuring interchangeability between devices and compatibility between the board and the chip carrier and to provide standard socket test methods, gauges and performance requirements.

**Product Code 4** Sep, 1993 **COMMITTEE:CE-3.0**  
**\$43.00**

**EIA-540GA00**

**Blank Detail Specification for Burn-In Sockets for Chip Carrier Packages with Molded Carrier Rings for Use in Electronic Equipment (ANSI/EIA-540GA00-93)**

The object of this specification is to provide all information required for the identification and quality assessment of the Burn-In Sockets for Chip Carrier Packages with Molded Carrier Rings.

**Product Code 4** Sep, 1993 **COMMITTEE:CE-3.0**  
**\$42.00**

**EIA-540GAAA**

**Detail Specification for Burn-In Sockets for Chip Carrier Packages with Molded Carrier Rings for Use in Electronic Equipment (ANSI/EIA-540GAAA-93)**

The object of this detail specification is to provide all information required for the identification and quality assessment of the Burn-In Sockets for Chip Carrier Packages that are defined by EIA/JEDEC Publication 95, MO-094. The sockets have solder tail leads.

**Product Code 4** Oct, 1993 **COMMITTEE:CE-3.0**  
**\$41.00**

**GENERAL SOCKETS**

**EIA-540E000**

**Sectional Specification for Round-Style Sockets for Use in Electronic Equipment (ANSI/EIA-540E000-92) (R99)**

The object of this Specification is to define:

- a) A unified numbering system to be used for round-style sockets standardized by the Electronic Industries Association (EIA).
- b) Functional levels and standard test methods and gauges for use in the examination of these sockets.
- c) Appropriate reference dimensions of the mating devices and board layout to establish intermatability and interchangeability criteria.

Test severities and performance requirements prescribed in Detail Specifications referring to the Sectional Specification shall be equal to or greater than those specified herein; degradations are not permitted.

**Product Code 4** May, 1999 **COMMITTEE:CE-3.0**  
**\$42.00**

**IN-LINE PACKAGE SOCKETS, DETAIL SPECIFICATIONS**

**EIA-540D000-A**

**Sectional Specification for In-Line Package Sockets for Use in Electronic Equipment (ANSI/EIA-540D000-A-91)**

This Sectional Specification relates to the plug-in sockets designed for in-line electronic packages of assessed quality. The purpose of these sockets is to provide interchangeable devices for use on panel boards, printed circuit boards, etc. to mate with microelectronic components.

**Product Code 4** Oct, 1991 **COMMITTEE:CE-3.0**  
**\$48.00**

SOCKETS, IN-LINE PACKAGE SOCKETS, DETAIL SPECIFICATIONS (cont.)

**EIA-540DA00**

**Blank Detail Specification for Dual In-Line Sockets for Use in Electronic Equipment (ANSI/EIA-540DA00-91)**

The object of this specification is to provide all information required for the identification and quality assessment of Dual In-Line Package Sockets for the NECQ quality system.

**Product Code 4** Feb, 1991 **COMMITTEE:CE-3.0**  
**\$45.00**

**EIA-540DAAA-A**

**Detail Specification for Dual-In-Line 2 Piece Contact Socket for Use in Electronic Equipment (ANSI/EIA-540DAAA-A-91)**

The object of this detail specification is to provide all information required for the identification and quality assessment of dual in-line package sockets for the NECQ system, using Sectional Specification EIA-540D000 as a base.

**Product Code 4** Nov, 1994 **COMMITTEE:CE-3.0**  
**\$45.00**

**EIA-540DAAB**

**Detail Specification for Flexible Carrier 2 Piece Dual In-Line Sockets for Use in Electronic Equipment (ANSI/EIA-540DAAB-91)**

This Detail Specification describes Dual-In-Line Sockets of assessed quality having working voltage not to exceed 250 volts (rms) and current not to exceed 2 amperes per pin.

**Product Code 4** Jul, 1991 **COMMITTEE:CE-3.0**  
**\$43.00**

**EIA-540DB00**

**Blank Detail Specification for Decoupling Capacitor Dual In-Line Package Sockets (ANSI/EIA-540D00-92) (R99)**

The object of this specification is to provide all information required, using Sectional Specification EIA-540D000 as a base, for the identification and quality assessment of Decoupling Capacitor Dual In-Line Package Sockets within the NECQ Quality System. The information contained herein or by reference is complete and sufficient for inspection purposes.

**Product Code 4** May, 1999 **COMMITTEE:CE-3.0**  
**\$41.00**

**EIA-540DBAA**

**Detail Specification for Decoupling Capacitor Dual In-Line Package Sockets for Use in Electronic Equipment (ANSI/EIA-540DBAA-94) (R99)**

The object of this detail specification is to provide all information required for the identification and quality assessment of decoupling capacitor dual in-line package sockets for the NECQ system, using Sectional Specification EIA-540D000 as a base.

**Product Code 4** May, 1999 **COMMITTEE:CE-3.0**  
**\$42.00**

INTEGRATED CIRCUIT (IC) SOCKETS

**EIA-5400000-A**

**Generic Specification for Sockets for Use in Electronic Equipment (ANSI/EIA-5400000-A-96)**

The objective of this generic specification is to establish a uniform quality assessment system, a uniform qualification test sequence, a uniform numbering system and to provide consistency in sectional specifications for electromechanical sockets.

**Product Code 4** Aug, 1996 **COMMITTEE:CE-3.0**  
**\$48.00**

LAND GRID ARRAY

**EIA-540B0AE**

**Detail Specification for Production Land Grid Array (LGA) Socket for Use in Electronic Equipment (ANSI/EIA-540B0AE-2000)**

This specification covers interconnect systems typically used for production land grid array (LGA) devices.

**Product Code 4** Jun, 2000 **COMMITTEE:CE-3.0**  
**\$57.00**

MULTI-PACKAGE SOCKETS, SPECIFICATIONS

**EIA-540F000**

**Sectional Specification for Multi-Package Module Sockets for Use in Electronic Equipment (ANSI/EIA-540F000-91)**

The objectives of this Specification are to define: A unified numbering system to be used with Multi-package Module carrier sockets standardized by the Electronic Industries Association (EIA); functional levels and standard test methods and gauges for use in the examination of these sockets; and, appropriate reference dimensions of the mating devices and board layout to establish intermateability and interchangeability criteria.

**Product Code 4** Nov, 1991 **COMMITTEE:CE-3.0**  
**\$43.00**

**EIA-540FA00**

**Blank Detail Specification for Multi-Package Module Sockets for Use in Electronic Equipment (ANSI/EIA-540FA00-92)**

A supplementary document to EIA-540F000 "Sectional Specification for Multi-Package Module Sockets for Use in Electronic Equipment", it contains requirements for style and layout of Multi-Package Module Sockets.

**Product Code 4** Apr, 1992 **COMMITTEE:CE-3.0**  
**\$42.00**

**EIA-540FAAA**

**Detail Specification for Multi-Package 100 Mil Pitch, Vertical Mounting Format Module Sockets for Use in Electronic Equipment (ANSI/EIA-540FAAA-92) (R98)**

The object of this Detail Specification is to provide all information required using Sectional Specification EIA-540F000 as a base, for the identification and quality assessment of Multi-Package Module Sockets for the NECQ quality system.

**Product Code 4** Nov, 1998 **COMMITTEE:CE-3.0**  
**\$42.00**

**SOCKETS, MULTI-PACKAGE SOCKETS, SPECIFICATIONS (cont.)**

**EIA-540FAAB**

**Detail Specification for Multi-Package 100 Mil Pitch, Angled Mounting Format Module Sockets for Use in Electronic Equipment (ANSI/EIA-540FAAB-92) (R98)**

This Detail Specification applies to sockets for Multi-Package Modules, angled mounting, 2.54 mm (0.100 in) pad pitch, having 2.54 mm (0.100 in) lead spacing.

The object of this Detail Specification is to provide all information required using Sectional Specification EIA-540F000 as a base, for the identification and quality assessment of Multi-Package Module Sockets for the NECQ quality system.

**Product Code 4 Nov, 1998 COMMITTEE:CE-3.0**

**\$42.00**

**EIA-540FAAC**

**Detail Specification for Multi-Package 50 Mil Pitch, Vertical Mounting Format Module Sockets for Use in Electronic Equipment (ANSI/EIA-540FAAC-92)**

This Detail Specification applies to sockets for Multi-Package Modules, vertical mounting, 1.27 mm (0.050 in) pad pitch, having 1.27 mm (0.050 in) lead spacing.

The object of this Detail Specification is to provide all information required using Sectional Specification EIA-540F000 as a base, for the identification and quality assessment of Multi-Package Module Sockets for the NECQ quality system.

**Product Code 4 Jun, 1992 COMMITTEE:CE-3.0**

**\$42.00**

**EIA-540FAAD**

**Detail Specification for Multi-Package 50 Mil Pitch, Angled Mounting Format Module Sockets for Use in Electronic Equipment (ANSI/EIA-540FAAD-92)**

This Detail Specification applies to sockets for Multi-Package Modules, angled mounting, 1.27 mm (0.050 in) pad pitch, having 1.27 mm (0.050 in) lead spacing.

The object of this Detail Specification is to provide all information required using Sectional Specification EIA-540F000 as a base, for the identification and quality assessment of Multi-Package Module Sockets for the NECQ quality system.

**Product Code 4 Jun, 1992 COMMITTEE:CE-3.0**

**\$42.00**

**PIN GRID ARRAY SOCKETS, SPECIFICATIONS**

**EIA-540AD00**

**Blank Detail Specification for Adaptor Carrier Quad Flat Pack to Pin Grid Array Sockets for Use in Electronic Equipment (ANSI/EIA-540AD00-91)**

The purpose of this specification is to provide all information required for the identification and quality assessment of adapter carrier quad flat pack to pin grid array sockets.

**Product Code 4 Oct, 1991 COMMITTEE:CE-3.0**

**\$43.00**

**EIA-540ADAA**

**Detail Specification for Adaptor Carrier Quad Flatpack to Pin Grid Array Sockets for Use in Electronic Equipment (ANSI/EIA-540ADAA-92) (R98)**

The object of this Detail Specification is to provide all information required, using Sectional Specification EIA-540A000 as a base, for the identification and quality assessment of Quad Flatpack Carrier with solder land areas for attaching surface mount devices. The surface mount device having 1.0 mm (0.039 in), 0.8 mm (0.031 in), 0.65 mm (0.0256 in), 0.5 mm (0.0197 in) or 0.4 mm (0.0157 in) lead pitches. Termination pins on carrier formatted on 2.54 mm X 2.54 mm (0.100 in x 0.100 in) grid for interfacing directly to a printed wiring board or plugging into pin grid array sockets.

**Product Code 4 Nov, 1998 COMMITTEE:CE-3.0**

**\$42.00**

**EIA-540B000**

**Sectional Specification: Sockets for Pin Grid Array Devices with 2.54 mm x 2.54 mm (0.1in x 0.1in) Spacing for Use in Electronic Equipment (ANSI/EIA-540B000-89)**

EIA-540B000 relates to the sockets for Pin Grid Array devices of assessed quality. The purpose of this Specification is to provide a means of interchangeability between qualified devices and compatibility between the board and the Pin Grid Array device.

**Product Code 4 Apr, 1989 COMMITTEE:CE-3.0**

**\$59.00**

**EIA-540BA00**

**Blank Detail Specification: Sockets for Pin Grid Array Devices with 2.54 mm x 2.54 mm (0.1 in x 0.1 in) Spacing for Use in Electronic Equipment (ANSI/EIA-540BA00-90)**

The object of this Blank Detail Specification is to provide all information required for the identification and quality assessment of the Pin Grid Array Socket described within the document by EIA. The information, contained, in EIA-540BA00 or by reference to the Specification, is complete and sufficient for inspection purposes.

**Product Code 4 Oct, 1990 COMMITTEE:CE-3.0**

**\$44.00**

**EIA-540BAAA-A**

**Detail Specification for Mechanically Actuated (Zero and Low Insertion Force) Sockets for Pin Grid Array Devices with 2.54 mm x 2.54 mm (0.1 in x 0.1 in) Spacing for Use in Electronic Equipment (ANSI/EIA-540BAAA-A-96)**

The pin grid array (PGA) sockets of assessed quality covered by this detail specification have a working voltage not exceeding 250 volts (rms) and a current rating not exceeding 1 ampere per pin.

**Product Code 4 Aug, 1996 COMMITTEE:CE-3.0**

**\$59.00**



**SOCKETS, PIN GRID ARRAY SOCKETS, SPECIFICATIONS (cont.)**

**EIA-540BAAB**

**Detail Specification for Non-Mechanically Actuated Sockets for Pin Grid Array Devices with 2.54 mm x 2.54 mm (0.1 in x 0.1 in) Spacing for Use in Electronic Equipment (ANSI/EIA-540BAAB-90)**

The object of this Detail Specification is to provide all information required for the identification and quality assessment of Pin Grid Array Sockets described in the document. Pin Grid Array Sockets of Assessed Quality covered by EIA-540BAAB have the following specifications: working voltage not exceeding 250 volts (rms); current not exceeding 1 ampere per pin; and maximum enclosure dimensions as shown in the document.

**Product Code 4 Oct, 1990 COMMITTEE:CE-3.0**

**\$44.00**

**EIA-540BAAC**

**Detail Specification for Non-Mechanically Actuated Flexible Carrier Sockets for Pin Grid Array Devices for Use in Electronic Equipment (ANSI/EIA-540BAAC-91)**

The object of this specification is to provide all information required for the identification and quality assessment of Pin Grid Array Sockets for the NECQ quality system, using Sectional Specification EIA-540B000 as a base.

**Product Code 4 Feb, 1991 COMMITTEE:CE-3.0**

**\$44.00**

**RELAY SOCKETS, SPECIFICATIONS**

**EIA-540C000**

**Sectional Specification, Sockets for Relays for use in Electronic Equipment (ANSI/EIA-540C000-88) (R96)**

This Sectional Specification covers sockets, for plug-in relays, of assessed quality. The purpose of EIA-540C000 is to provide a means of assuring interchangeability between these devices, compatibility between these sockets and their associated relays, and to provide standard socket test methods and performance requirements.

**Product Code 4 Nov, 1996 COMMITTEE:CE-3.0**

**\$57.00**

**EIA-540CA00**

**Blank Detail Specification on Relay Sockets (ANSI/EIA-540CA00-1989) (R96)**

The object of this Detail Specification is to provide all information required for the identification and quality assessment of the relay socket described herein under the EIA system. The information contained herein, or by reference, is complete and sufficient for inspection purposes.

**Product Code 4 Nov, 1996 COMMITTEE:CE-3.0**

**\$30.00**

**EIA-540CAAA**

**Detail Specification on Relay Socket - 10 A for Balanced Armature Relay (ANSI/EIA-540CAAA-89) (R96)**

EIA-540CAAA describes relay sockets of assessed quality having the following characteristics: The ability to mate with 10 ampere-rated hermetically sealed relays; A rated voltage not to exceed 250 volts (rms) at sea level; The ability to withstand airborne type environments.

**Product Code 4 Nov, 1996 COMMITTEE:CE-3.0**

**\$30.00**

**EIA-540CAAB**

**Detail Specification on Relay Sockets - 5 A for Balanced Armature Relay (ANSI/EIA-540CAAB-1989) (R96)**

This Specification covers relay sockets, of assessed quality, having the ability to mate with 5 ampere rated hermetically sealed relays, with a rated voltage not exceeding 250 volt (rms) at sea levels; and the ability to withstand airborne type environments.

**Product Code 4 Nov, 1996 COMMITTEE:CE-3.0**

**\$30.00**

**EIA-540CAAC-A**

**Detail Specification for 2 Pole, 10 A Relay Sockets**

The relay sockets, of assessed quality, covered by this detail specification have: A) The ability to mate with a DPDT 10 ampere-rated hermetically sealed relay. B) A rated voltage not to exceed 250 volts (rms) at sea level. C) The ability to withstand airborne-type environments. The object of this detail specification is to provide all information required for the identification and quality assessment of the relay socket described herein under the EIA system.

**Product Code 4 Nov, 1998 COMMITTEE:CE-3.0**

**\$42.00**

**EIA-540CAAD-A**

**Detail Specification for 2 Pole, 5 A Relay Sockets (ANSI/EIA-540CAAD-A-99)**

The purpose of this specification is to provide all information required for the identification and quality assessment of 2 pole, 5 A relay sockets.

**Product Code 4 Aug, 1999 COMMITTEE:CE-3.0**

**\$43.00**

**EIA-540CAAE-A**

**Detail Specification for 3 Pole, 10 A Relay Sockets (ANSI/EIA-540CAAE-99)**

The purpose of this specification is to provide all information required for the identification and quality assessment of 3 pole, 10 A relay sockets.

**Product Code 4 Aug, 1999 COMMITTEE:CE-3.0**

**\$43.00**

**ROUND STYLE SOCKETS**

**EIA-540EA00**

**Blank Detail Specification for Round Style Sockets (ANSI/EIA-540EA00-97)**

The object of this detail specification is to provide all information required for the identification and quality assessment of round style package sockets for the NECQ quality system using the sectional specification EIA-540E000 as a base. The information contained in EIA-540EA00 is complete and sufficient for inspection purposes.

**Product Code 4 Jun, 1997 COMMITTEE:CE-3.0**

**\$48.00**

**SOCKETS, ROUND STYLE SOCKETS (cont.)**

**EIA-540EAAA**

***Detail Specification for Round Style Sockets (ANSI/EIA-540EAAA-97)***

The object of this detail specification is to provide all information required for the identification and quality assessment of round style package sockets for the NECQ quality system using the sectional Specification EIA-540E000 as a base.

**Product Code 4 Jun, 1997 COMMITTEE:CE-3.0  
\$48.00**

**SMALL FORM FACTOR**

**EIA-674**

***Specification for Small Form Factor 45.7 mm (1.8 in) Disk Drives (ANSI/EIA-674-96)***

This standard defines the dimensions of 45.7 mm (1.8 in) small form factor disk drives.

The purpose of this standard is to define the external characteristics of small form factor disk drives so that products from different vendors may be used in the same mounting configurations.

The standard provides specifications on external dimensions, connectors, connector placement, mounting holes and interface pinouts to assist manufacturers in the systems integration of small form factor disk drives.

**Product Code 4 Oct, 1996 COMMITTEE:CE-3.0  
\$44.00**

**EIA-675**

***Specification for Small Form Factor 33.0 (1.3 in) Disk Drives (ANSI/EIA-675-96)***

This standard defines the dimensions of 33.0 mm (1.3 in) small form factor disk drives.

The purpose of this standard is to define the external characteristics of small form factor disk drives so that products from different vendors may be used in the same mounting configurations.

The standard provides specifications on external dimensions, connectors, connector placement, mounting holes and interface pinouts to assist manufacturers in the systems integration of small form factor disk drives.

**Product Code 4 Oct, 1996 COMMITTEE:CE-3.0  
\$43.00**

**EIA-676**

***Specification for Small Form Factor 45.7 mm (1.8 in) Disk Drives, 15 mm (0.59 in) High (ANSI/EIA-676-96)***

This standard defines the dimensions of 45.7 mm (1.8 in) drives that are 15 mm (0.59 in) high.

The purpose of this standard is to define the external characteristics of small form factor disk drives so that products from different vendors may be used in the same mounting configurations.

The standard provides specifications on external dimensions, connectors, connector placement, mounting holes and interface pinouts to assist manufacturers in the systems integration of small form factor disk drives.

**Product Code 4 Oct, 1996 COMMITTEE:CE-3.0  
\$41.00**

**EIA-677**

***Specification for Small Form Factor Power Connector Pin Dimensions (ANSI/EIA-677-97)***

This standard defines the pin dimensions of the 4-pin pin-and-socket connector commonly used to provide power to small form factor disk drives.

**Product Code 4 Jun, 1997 COMMITTEE:CE-3.0  
\$39.00**

**EIA-720**

***EIA Specification for Small Form Factor 63.5 mm (2.5 in) Disk Drives (ANSI/EIA-720-97)***

This specification defines the dimensions and interconnections of 63.5 mm (2.5 in) small form factor disk drives. The purpose of this specification is to define the external characteristics of small form factor disk drives so that products from different vendors may be used in the same mounting configurations. It also provides specifications on external dimensions, connectors, connector placement, mounting holes and interface pinouts to assist manufacturers in the systems integration of small form factor disk drives.

**Product Code 4 Jan, 1998 COMMITTEE:CE-3.0  
\$44.00**

**TESTING, QUALITY AND RELIABILITY**

**CB5**

***Recommended Test Procedure for Semiconductor Thermal Dissipating Devices***

**Product Code 4 Jul, 1969 COMMITTEE:CE-3.0  
\$30.00**

**CB5-1**

***Addendum to Bulletin CB5***

**Product Code 4 May, 1971 COMMITTEE:CE-3.0  
\$30.00**

## SOLDER, SOLDERING

### EIA-654

#### **Resistance to Soldering Heat Test Procedure for Wire and Electrical Components (ANSI/EIA-654-2000)**

These tests are performed to determine whether wire and other component parts can withstand the effects of the heating and/or environment to which they are subjected during the soldering of their terminations by soldering iron, solder dip, solder wave, or other soldering techniques. The solder dip method is used as a reasonable close simulation of conditions encountered in wave soldering in regard to radiated and conducted heat. The heat and/or environment of soldering may affect the parametric and/or physical characteristics of the component part.

**Product Code 4 Aug, 2000 COMMITTEE:STC**

**\$42.00**

### CONNECTORS

### EIA/IS-47

#### **Contact Termination Finish Standard for Surface Mount Devices**

Soldering of SMT components is performed, in general, at a relatively low soldering temperature (215oC). Therefore, the reflow characteristics of the finish must be carefully considered. This document is a guide in establishing finishes for SMT terminations.

**Product Code 4 Jul, 1987 COMMITTEE:CE-2.0**

**\$30.00**

### EIA/IPC JOINT STANDARDS

### J-STD-001C

#### **Requirements for Soldered Electrical and Electronic Assemblies**

This standard describes materials, methods, and acceptance criteria for producing soldered electrical and electronic assemblies.

**Product Code 4 Mar, 2000 COMMITTEE:STC**

**\$73.00**

### J-STD-002A

#### **Solderability Tests for Component Leads, Terminations, Lugs, Terminals, and Wires**

This standard prescribes the recommended test methods, defects definitions, acceptance criteria, and illustrations for assessing the solderability of electronic component leads, terminations, solid wire, stranded wire, stranded wire, lugs, and tabs. This standard is intended for use by both vendor and user.

Solderability evaluations are made to verify that the solderability of component leads and terminations meets the requirements established in this standard and that subsequent storage has had no adverse effect on the ability to solder components to an interconnecting substrate. Determination of solderability can be made at the time of manufacture, at receipt of the components by the user, or just prior to assembly and soldering.

The resistance to dissolution of metallization determination is made to verify that metallized terminations will remain intact throughout the assembly soldering processes.

**Product Code 4 Oct, 1998 COMMITTEE:STC**

**\$33.00**

### J-STD-003

#### **Solderability Tests for Printed Boards**

The objective of the solderability test methods described in this standard is to determine the ability of printed board surface conductors, attachment lands, and plated through-holes to wet easily with solder and to withstand the rigors of the printed board assembly processes.

**Product Code 4 Apr, 1992 COMMITTEE:STC**

**\$30.00**

### J-STD-004

#### **Requirements for Soldering Fluxes**

**Product Code 4 Jan, 1995 COMMITTEE:STC**

**\$40.00**

### J-STD-005

#### **Requirements for Soldering Paste**

**Product Code 4 Jan, 1995 COMMITTEE:STC**

**\$40.00**

### J-STD-006

#### **Requirements for Electronic Grade Solder Alloys and Fluxed and Non-fluxed Solid Solders for Electronic Soldering Applications**

**Product Code 4 Jan, 1995 COMMITTEE:STC**

**\$40.00**

### J-STD-012

#### **Implementation of Flip Chip and Chip Scale Technology**

This document describes the implementation of flip chip and related chip scale semiconductor packaging technologies. The document covers design considerations, assembly processes, technology choices, application and reliability data. It also provides general information on implementing flip chip and chip scale technologies for creating multichip modules, I/C cards, memory cards and very dense surface mount assemblies. Co-developed by EIA, IPC, MCNC and Sematech.

**Product Code 4 Jan, 1996 COMMITTEE:STC**

**\$70.00**

**SOLDER, SOLDERING, EIA/IPC JOINT STANDARDS (cont.)**

**J-STD-013**

**Implementation of Ball Grid Array and Other High Density Technology**

This document establishes the requirements and interactions necessary for printed board assembly processes for interconnecting high performance/high pin count IC packages. It includes information on design principles, material selection, board fabrication, assembly technology, testing strategy and reliability expectations based on end-use environments. Co-produced with IPC, MCNC and Sematech

**Product Code 4** Aug, 1996 **COMMITTEE:STC**  
**\$35.00**

**J-STD-026**

**Semiconductor Design Standard for Flip-Chip Applications**

This document covers design rules for solder bumps and footprint designs for flip chips. It gives electrical, mechanical, and environmental considerations, and shows paste deposition process. Co-developed with IPC.

**Product Code 4** Apr, 1999 **COMMITTEE:STC**  
**\$70.00**

**J-STD-028**

**Performance Standard for Flip Chip /Chip Scale Bumps**

This document sets the criteria of solder bumps, columns and conductive polymer deposits. It covers indium and nonmelttable (gold) bumps, and conductive and gold adhesives. Co-developed with IPC.

**Product Code 4** Apr, 1999 **COMMITTEE:STC**  
**\$70.00**

**ELECTRONIC COMPONENTS**

**EIA-534**

**Applications Guide, Soldering and Solderability Maintenance of Leaded Electronic Components (ANSI/EIA-534-88)**

Leaded Electronic Component parts are subjected to a wide variety of internal stresses during the soldering of their terminations by soldering dips, soldering irons, or automatic wave soldering techniques. The heat can either be conducted through the metal termination into the body of the component part, or absorbed directly or indirectly as radiant heat emanating from solder baths, waves or preheaters, or both. EIA-534 is intended as a guide for users of leaded electronic component parts that exist today. Recommendations are given on the cleaning, reflowing, packaging and storage of these components parts. It is recognized that many components behave differently during installation and lead reflowing operations.

**Product Code 4** Jan, 1989 **COMMITTEE:STC**  
**\$30.00**

**CB3-B**

**Specifications and Standards Associated with Solders and Soldering**

**Product Code 4** May, 1966 **COMMITTEE:STC**  
**\$30.00**

**FLUXES**

**EIA-402**

**Liquid Rosin Fluxes (ANSI/EIA-402-73) (R79) (R86)**

This Standard characterizes the three most common types of rosin fluxes used industrially and provides methods of test for compliance to the standard.

**Product Code 4** Mar, 1986 **COMMITTEE:STC**  
**\$30.00**

**SOLDERING**

**EIA-638**

**Surface Mount Solderability Test (ANSI-EIA-638-95)**

This document provides a standard procedure for Solderability Testing of Surface Mount Devices that simulates actual board mount performance in a reflow process.

**Product Code 4** Jul, 1995 **COMMITTEE:STC**  
**\$39.00**

**SURFACE MOUNT**

**EIA/IS-46**

**Test Procedure for Resistance to Soldering (Vapor Phase Technique) for Surface Mount Devices**

The procedure described in this document establishes a technique to evaluate plastic materials used for connector housings which will be exposed to a vapor phase reflow process.

**Product Code 4** Jul, 1987 **COMMITTEE:STC**  
**\$30.00**

**SWITCHES**

**DUAL IN-LINE SWITCHES**

**EIA-520E000-A**

**Sectional Specification - In-Line Switches of Certified Quality (ANSI/EIA-520E000-A-2000)**

This sectional specification relates to in-line switches of certified quality. Switches covered by this specification are intended for direct assembly to printed circuit boards (soldered-in) for use as an interface with analog and digital logic circuits. This specification includes, but is not necessarily limited to, the following subfamilies: (a) Rotary actuated dual-in-line (DIP) switches. (b) Transverse and linear slide actuated DIP switches. (c) Rocker and toggle actuated DIP switches.

**Product Code 4** Oct, 2000 **COMMITTEE:P-13**  
**\$36.00**

**EIA-520EA00**

**Blank Detail Specification for In-Line Switches (ANSI/EIA-520EA00-89)**

This blank detail specification gives guidelines on the preparation of detail specifications covering switches. Detail Specifications that do not comply with these requirements shall be considered as being not in accordance with the certification system, nor shall they be so described.

**Product Code 4** Mar, 1989 **COMMITTEE:P-13**  
**\$30.00**

**SWITCHES, DUAL IN-LINE SWITCHES (cont.)**

**EIA-520EAAA**

**Detail Specification for Surface Mountable Dual In-Line Switches of Certified Quality (ANSI/EIA-520EAAA-89)**

EIA-520EAAA describes Dual In-Line Surface Mountable Switches of Certified Quality having a maximum enclosure dimension of 32.5 mm long, 7.26 mm wide and 4.47 mm high; with maximum ratings of voltage of 50 Vdc and rated current of 100 mA.

**Product Code 4 Jun, 1989 COMMITTEE:P-13  
\$30.00**

**EIA-520EAAB**

**Detail Specification for Machine Insertable Dual In-Line Switches of Certified Quality (ANSI/EIA-520EAAB-89)**

EIA-520EAAB describes The Dual In-Line Machine Insertable Switches of Certified Quality having a maximum enclosure dimensions of 32.5 mm long, 7.26 mm wide and 4.57 mm high. The switch maximum ratings of voltage and current are 50 Vdc and 100 mA (respectively).

**Product Code 4 Jun, 1989 COMMITTEE:P-13  
\$30.00**

**EIA-520EAAC**

**Detail Specification for Dual In-Line Switches of Certified Quality (ANSI/EIA-520EAAC-90)**

This Detail Specification provides all information required for the identification, quality assessment, and certification of the switches described. The complete requirements for the switches described consist of the detail specification and the latest issues of EIA-520E000 and EIA-5200000. EIA-520EAAC covers dual-in-line switches of certified quality having: maximum enclosure dimensions of 33.02 mm (0.300 in) long, 10.16 mm (0.400 in) wide and 13.6 mm (0.520 in) high; maximum rated voltage of 50 Vdc; maximum rated current of 100 mA; rocker actuators that are either raised above, or recessed below, the top surface of the switch and sealed against the entrance of soldering flux and cleaning solutions during the process of assembly to circuit boards.

**Product Code 4 Nov, 1990 COMMITTEE:P-13  
\$44.00**

**EIA-520EAAD**

**Detail Specification for Dual In-Line Package (DIP) Switches, Raised and Recessed Slide Actuated (ANSI/EIA-520EAAD-90)**

The objective of this Detail Specification is to provide all information required for the identification, quality assessment, and certification of the switches described. Dual In-Line Machine Insertable Switches of Certified Quality covered by EIA-520EAAD have the following specifications: maximum enclosure dimensions of 33.02 mm (1.300 in) long; 10.16 mm (0.400 in) wide and 14.06 mm (0.554 in) high; maximum rated voltage of 50 Vdc; maximum rated current of 100 mA; slide actuators that are raised above, or recessed below, the top of the switch and sealed against the entrance of soldering flux and cleaning solutions during the process of assembly to circuit boards. Complete requirements for the switches described consist of the detail specification and the latest issues of EIA-520E000 and EIA-5200000.

**Product Code 4 Oct, 1990 COMMITTEE:P-13  
\$44.00**

**GENERAL SWITCHES**

**EIA-520 Series**

**Specification for Switches - Digital, Dual In-Line, Pushbutton, Rotary, Sensitive and Toggle**

**Product Code 4  
\$Call for Pricing**

**EIA-5200000-D**

**Generic Specification for Special-Use Electromechanical Switches of Certified Quality (ANSI/EIA-5200000-D-2000)**

This generic specification relates to special-use electromechanical switches of certified quality. Switches covered by this specification: a) Are devices that open close or change this connection of a circuit by the mechanical motion of conducting parts (contacts). b) Have a maximum rated voltage of 600 volts. c) Have a maximum rated current of 63 amperes. This generic specification does not include keyboards or keypads that are intended for use in information handling equipment.

**Product Code 4 Oct, 2000 COMMITTEE:P-13  
\$66.00**

**KEYBOARD SWITCHES**

**EIA-498 Series**

**Keyboard Specification**

**Product Code 4  
\$250.00**

**EIA-4980000-A**

**Generic Specification for Keyboard Switches of Certified Quality (ANSI/EIA-4980000-A-89)**

This Generic Specification relates to keyswitches, keypads, and keyboard switches of certified quality. Switches covered by this Specification provide manual interface with electronic logic circuits in commercial, industrial, and computer information handling equipment.

**Product Code 4 May, 1989 COMMITTEE:P-13  
\$67.00**

**EIA-498A000**

**Sectional Specification for Full and Short Stroke Keyboards of Certified Quality**

This Sectional Specification covers alphanumeric keyboards having full stroke or short stroke key travel and intended for use in information handling systems by a trained operator. Both product qualification and capability approval requirements are included in this document.

**Product Code 4 Jun, 1989 COMMITTEE:P-13  
\$30.00**

**EIA-498AA00**

**Blank Detail Specification for Keyboard Switches (ANSI/EIA-498AA00-92)**

A supplementary document to EIA-498A000 "Sectional Specification for Full and Short Stroke Keyboards of Certified Quality", describing requirements for style and layout of Keyboard Switches.

**Product Code 4 Apr, 1992 COMMITTEE:P-13  
\$39.00**

**SWITCHES, KEYBOARD SWITCHES (cont.)**

**EIA-498AAAA**

***Detail Specification for Short Stroke Keypads (ANSI/EIA-498AAAA-92)***

The short stroke keypads covered by this detail specification have maximum enclosure dimensions of 3.16 by 3.16 by .53 (excludes terminals and mounting studs); have a maximum rated voltage of 24 V dc, and have a maximum rated current of 20 mA.

The object of this detail specification is to provide all information required for the identification, quality assessment and certification of these keyboards. The information contained herein or by reference is complete and sufficient for inspection purposes.

**Product Code 4 Aug, 1992 COMMITTEE:P-13  
\$43.00**

**EIA-498B000**

***Sectional Specification for Touch Stroke Switch Panels of Certified Quality (ANSI/EIA-498B000-88)***

This new Sectional Specification covers a limited range of touch stroke tactile feel switch panels, the bases for which are etched type printed circuit boards. These switch panels are intended for use in low input rate data entry applications. Both product qualification and capability approval requirements are covered in this document.

**Product Code 4 Jul, 1988 COMMITTEE:P-13  
\$30.00**

**EIA-498BA00**

***Blank Detail Specification for Keyboard Switches***

Detail Specification shall cover a particular type of keyboard switch construction and may include several styles of that type, or, in the case of a capability approval specification, specific parts which represent a broad range of products. It is preferable that all styles of a particular type of keyboard switch construction be contained in a single detail specification wherever possible. Different construction types shall not be contained in the same Detail Specification.

**Product Code 4 Jan, 1990 COMMITTEE:P-13  
\$30.00**

**EIA-498BAAA**

***Detail Specification for Capability Approval of Metal Dome Contact Touch Stroke Switch Panels (ANSI/EIA-498BAAA-88)***

The object of this Detail Specification is to provide all information required for identification, quality assessment and certification of metal dome contact, touch stroke switch panel keyboards. The information contained herein or by reference is complete and sufficient for inspection purposes.

**Product Code 4 Jul, 1988 COMMITTEE:P-13  
\$44.00**

**PUSHBUTTON SWITCHES**

**EIA-446-A**

***Non-Sensitive Pushbutton Switches (ANSI/EIA-446-A-81)***

This revised Standard includes the following changes: (1) Flammability changed from 94V-1 to 94V-2; (2) Workman requirements were added; (3) Contact bounce was added. Also added were two more test groups to the qualification test table to accommodate some added requirements. Chromaticity and transmittancy which were previously published in EIA-446-2 are incorporated in this Standard. This Standard relates to non-sensitive pushbutton switches for use in electrical and electronic equipment and having maximum voltage rating of 500 VAC or VDC and a current rating not exceeding 25 amps.

**Product Code 4 Oct, 1981 COMMITTEE:P-13  
\$59.00**

**EIA-446-3**

***Detail Specification: Illuminated and Non-Illuminated Pushbutton Switches, 0.750 Square Mounting, 1 and 2 Poles, .001 to 10 Amperes (ANSI/EIA-446-3-81)***

This Standard establishes dimensional and performance criteria for .750 square mount pushbuttons along with the following optional features: (1) Three styles of terminals; (2) Neon, LED, or incandescent lamps; (3) Three groups of electrical ratings; (4) Momentary and two level maintained switching actions; (5) Three styles of illuminated color displays.

**Product Code 4 Feb, 1981 COMMITTEE:P-13  
\$30.00**

**EIA-446-4**

***Detail Specification, Illuminated and Non-Illuminated Non-Sensitive Switches, .625 Square Mounting, 1 and 2 Poles, 1.0 Ampere (ANSI/EIA-446-4-81)***

This Detail Specification describes a specific type of non-sensitive pushbutton switch that when used in conjunction with EIA-446-A constitutes a detailed listing of minimum electrical and mechanical requirements that the switch should meet in order to be advertised as complying with the combination of the two documents, EIA-446-A and EIA-446-4. EIA-446-4 contains explicit mechanical design requirements and performance requirement tests listed in EIA-446-A that apply to the pushbutton switches described in this Addendum.

**Product Code 4 Dec, 1981 COMMITTEE:P-13  
\$30.00**

**SWITCHES, PUSHBUTTON SWITCHES (cont.)**

**EIA-520A000-A**

**Sectional Specification for Pushbutton Switches of Certified Quality (ANSI/EIA-520A000-A-92)**

This Sectional Specification applies to the pushbutton switch family of special-use electromechanical switches of certified quality. Pushbutton switches covered by this standard have a rated voltage not exceeding 500 volts and a current not exceeding 25 amperes.

The objectives of this specification are: a) to prescribe preferred ratings and characteristics; b) to select the appropriate quality certification procedures and test methods from EIA-5200000, and c) to prescribe the general performance requirements for pushbutton switches.

**Product Code 4 Jun, 1992 COMMITTEE:P-13  
\$48.00**

**EIA-520AA00**

**Blank Detail Specification for Special-Use Pushbutton Switches of Certified Quality (ANSI/EIA-520AA00-88)**

This Blank Detail Specification is a supplementary document to EIA-520A000, "Sectional Specification for Pushbutton Switches of Certified Quality," and contains requirements for style, layout, and minimum content of Detail Specification.

**Product Code 4 Apr, 1988 COMMITTEE:P-13  
\$44.00**

**EIA-520AAAA-A**

**Detail Specification for Non-Sensitive Pushbutton Switch, Single-Pole Contact**

The family of momentary contact, nonsensitive pushbutton switches covered by this detail specification:

1. Mount in a panel hole with a clearance diameter for a 1/4-32UNEF-2A thread.
2. Have a maximum rated voltage of 115 Vac.

3. Have a maximum rated current of 1 A.  
**Product Code 4 Jun, 1991 COMMITTEE:P-13  
\$44.00**

**EIA-520AAAB-A**

**Detail Specification for Non-Sensitive Pushbutton Switch, Momentary Contact (ANSI/EIA-520AAAB-A)**

Scope: The family of momentary contact, nonsensitive pushbutton switches covered by this Detail Specification:

- a) mount in a panel hole with a clearance diameter for a 1/4-32UNEF-2A thread.
- b) have a maximum rated voltage of 115 Vac.
- c) have a maximum rated current of 250 mA.

**Product Code 4 Oct, 1991 COMMITTEE:P-13  
\$43.00**

**EIA-520AAAC**

**Detail Specification for Switch, Non-Sensitive, Pushbutton 15.88 mm of Mounting Hole (ANSI/EIA-520AAAC-90)**

The illuminated and non-illuminated pushbutton switches of certified quality covered by this specification shall mount in a panel hole of 15.88 mm (0.625 in) sq., having a maximum rated voltage of 125 Vac and a maximum rated current of 1 ampere.

**Product Code 4 Jan, 1990 COMMITTEE:P-13  
\$44.00**

**EIA-520AAAE**

**Detail Specification for Switch, Pushbutton, Square, or Rectangular Mounting, Illuminated or Non-Illuminated, 3 A (ANSI/EIA-520AAAE-88)**

This new Detail Specification covers illuminated and non-illuminated electronic control pushbutton switches of certified quality, having a mount in a panel of either 19.05 mm (0.750 in) square or 19.05 mm (0.750 in) x 29.98 mm (1.141 in); possessing a maximum rating of 250 volts and 3 amperes.

**Product Code 4 Dec, 1988 COMMITTEE:P-13  
\$30.00**

**EIA-520AAAF**

**Detail Specification for Pushbutton Switches, 19 mm x 29 mm, 10 Amperes (ANSI/EIA-520AAAF-88)**

This Detail Specification covers illuminated and non-illuminated power pushbutton switches of certified quality having a mount in a panel hole of 19.05 mm (0.750 in) x 28.98 mm (1.141 in), a maximum rated voltage of 250 volts, and a maximum rated current of 10 amperes. Complete requirements for the switches described in EIA-520AAAF consist of the detail specification and current issues of EIA-5200000, and EIA-520A000.

**Product Code 4 Dec, 1988 COMMITTEE:P-13  
\$49.00**

**ROCKER, SLIDE AND/OR TOGGLE SWITCHES**

**EIA-480**

**Toggle Switches (ANSI/EIA-480-81)**

This Standard was developed to promote the interchangeability of toggle switches and an improved understanding with respect to their application. The recommendations of EIA-480 relate to switches for use in equipment for electrical and electronic devices, including switches necessary to connect the supply mains. The switches covered have a rate voltage not exceeding 600 volts, and a rated current not exceeding 25 amperes (dc or rms).

**Product Code 4 Jul, 1981 COMMITTEE:P-13  
\$59.00**

SWITCHES, ROCKER, SLIDE AND/OR TOGGLE SWITCHES (cont.)

**EIA-520D000**

***Sectional Specification for Toggle, Paddle, and Rocker Switches of Certified Quality (ANSI/EIA-520D000-87)***

This Sectional Specification relates to the toggle, paddle and rocker operated family of special-use electromechanical switches of certified quality. This family of switches is for use in electrical or electronic equipment, including switches to control power supply voltage. These switches are not intended to be used in electrical distribution systems.

**Product Code 4 Oct, 1987 COMMITTEE:P-13  
\$30.00**

**EIA-520DA00**

***Blank Detail Specification for Special-Use Toggle, Paddle, and Rocker Switches of Certified Quality (ANSI/EIA-520DA00-87)***

This Blank Detail Specification is a supplementary document to EIA-520D000, "Sectional Specification for Toggle, Paddle and Rocker Switches of Certified Quality," and contains requirements for style, layout and minimum content of Detail Specifications.

**Product Code 4 Nov, 1987 COMMITTEE:P-13  
\$30.00**

**EIA-520DAAA**

***Detail Specification on 1 Pole Toggle Switches (ANSI/EIA-520DAAA-90)***

This Detail Specification covers the standard size, one pole watertight toggle switches of certified quality with a mount in a 12.4 mm (0.49 in) diameter mounting hole, a maximum rated voltage of 277 volts, and a maximum rated current of 20 amperes. Complete requirements for the switches described in EIA-520DAAA consist of the detail specification and the current issues of EIA-5200000 and EIA-520D000.

**Product Code 4 Jun, 1990 COMMITTEE:P-13  
\$41.00**

**EIA-520DAAB**

***Detail Specification on 2 Pole Toggle Switches (ANSI/EIA-520DAAB-90)***

This Detail Specification covers the standard, two pole watertight toggle switches of certified quality with a mount in a 12.4 mm (.49 inch) diameter mounting hole, a maximum rated voltage of 277 volts, and a maximum rated current of 20 amperes. Complete requirements for the switches described in EIA-520DAAB consist of the detail specification and the current issues of EIA-5200000 and EIA-520D000.

**Product Code 4 Jun, 1990 COMMITTEE:P-13  
\$41.00**

**EIA-520DAAC**

***Detail Specification on 4 Pole Toggle Switches (ANSI/EIA-520DAAC-90)***

This Detail Specification covers the standard, four pole watertight toggle switches of certified quality with a mount in a 12.4 mm (0.49 in) diameter mounting hole, a maximum rated voltage of 277 volts, and a maximum rated current of 20 amperes. Complete requirements for the switches described in EIA-520DAAC consist of the detail specification and the current issues of EIA-5200000 and EIA-520D000.

**Product Code 4 Jun, 1990 COMMITTEE:P-13  
\$41.00**

ROTARY SWITCHES

**EIA-520F000-A**

***Sectional Specification for Rotary Switches of Certified Quality (Low Current Capacity - 2 Amperes or Less) (ANSI/EIA-520F000-A-96)***

This sectional specification relates to electromechanical rotary switches of certified quality. These families of switches are for use in electronic, communication and other low power applications.

Switches covered by this specification have rated voltages not exceeding 250 volts and a rated current not exceeding two amperes (dc or rms values).

**Product Code 4 Jul, 1996 COMMITTEE:P-13  
\$71.00**

**EIA-520FA00**

***Blank Detail Specification for Special-Use Rotary Switches of Certified Quality (ANSI/EIA-520FA00-92)***

A blank detail specification is a supplementary document to the sectional specification and contains requirements for style, layout and minimum content of detail specifications. Detail specifications not complying with these requirements shall not be considered as being in accordance with the certification system nor shall they so be described.

**Product Code 4 Dec, 1992 COMMITTEE:P-13  
\$43.00**

**EIA-520FAAA**

***Detail Specification for Rotary Switches of Certified Quality (Low Current Rating) 12 Positions Maximum (ANSI/EIA-520FAAA-95)***

This detail specification is for rotary switches of certified quality, with low current rating, 12 positions maximum, central mounting; having 33 mm maximum width; having an indexing angle of 30, 36, 45, 60, and 90 degrees, and multiple deck construction.

**Product Code 4 Dec, 1995 COMMITTEE:P-13  
\$41.00**

**EIA-520FAAB**

***Detail Specification for Rotary Switches of Certified Quality (Low Current Rating) 16 Positions Maximum (ANSI/EIA-520FAAB-95)***

This detail specification is for rotary switches of certified quality, with low current rating, 16 positions maximum, central mounting; having 15 mm maximum width; having an indexing angle of 22.5, 30, 36, 45, 60 and 90 degrees.

**Product Code 4 Dec, 1995 COMMITTEE:P-13  
\$41.00**



SWITCHES (cont.)

SENSITIVE SWITCHES

**EIA-520C000**

**Sectional Specification for Sensitive Switches of Certified Quality (ANSI/EIA-520C000-87)**

This Sectional Specification applies to the sensitive switch family of special-use electromechanical switches of certified quality. Sensitive switches covered by this Specification have a rated voltage not exceeding 500 volts and a rated current not exceeding 25 amperes.

THIS STANDARD WAS ADOPTED AND APPROVED FOR DoD USE ON JULY 6, 1990.

**Product Code 4 Sep, 1987 COMMITTEE:P-13  
\$30.00**

**EIA-520CA00-A**

**Blank Detail Specification for Special-Use Sensitive Switches of Certified Quality (ANSI/EIA-520CA00-A-92)**

This blank detail specification is a supplementary document to the sectional specification and contains requirements for style, layout and minimum content of detail specification.

**Product Code 4 May, 1992 COMMITTEE:P-13  
\$39.00**

**EIA-520CAAA-A**

**Detail Specification for Sensitive Switches, Single Break Contacts, Basic Size (ANSI/EIA-520CAAA-A-92)**

This Specification describes single break, single pole, basic size sensitive switches, having maximum ratings, 15 A current and 480 Vac; covering 10 types of actuators and 5 types of terminals.

**Product Code 4 Mar, 1992 COMMITTEE:P-13  
\$42.00**

**EIA-520CAAB-A**

**Detail Specification for Sensitive Switches, Single Break Contacts, Miniature Size (ANSI/EIA-520CAAB-A-92)**

This Detail Specification covers single break, single pole miniature sensitive switches, having a maximum switch body of 29.46 mm (1.160 in) x 16.26 mm (0.640 in) x 10.67 mm (0.420 in); and having a maximum rate of 277 volts and 15 amperes.

**Product Code 4 Mar, 1992 COMMITTEE:P-13  
\$42.00**

**EIA-520CAAC-A**

**Detail Specification for Sensitive Switches, Single Break Contacts, Subminiature Size 5A (ANSI/EIA-520CAAC-A-92)**

This Specification describes single break contacts, single pole, subminiature size switches; rated at 5 A current, 250 Vac voltage; and having six types of actuators and five types of terminals.

**Product Code 4 Apr, 1992 COMMITTEE:P-13  
\$43.00**

**EIA-520CAAD-A**

**Detail Specification for Sensitive Switches, Single Break Contacts, Size 7A (ANSI/EIA-520CAAD-A-92)**

This Detail Specification relates to single break, single pole sub-miniature sensitive switches with a maximum switch body of 12.95 mm (0.510 in) X 9.14 mm (0.360 in) X 5.33 mm (0.210 in), and having maximum ratings of 250 volts and 7 amperes.

**Product Code 4 Feb, 1992 COMMITTEE:P-13  
\$43.00**

SWITCH TEST PROCEDURES

**EIA-448 Series**

**Test Methods for Electromechanical Switches**

This Standard establishes uniform test methods for those tests which are peculiar to electromechanical switches, except those classified as industrial controls, as defined in ANSI C19.3.

**Product Code 4  
\$360.00**

**EIA-448**

**Standard Test Methods for Electromechanical Switches (ANSI/EIA-448-78) (R83)**

This Standard establishes uniform test methods for those tests which are peculiar to electromechanical switches, except those classified as industrial controls, as defined in ANSI C19.3.

**Product Code 4 Apr, 1983 COMMITTEE:P-13  
\$67.00**

**EIA-448-1B**

**Standard Test Method for Electromechanical Switches (Test for Contact Bounce) (ANSI/EIA-448-1B-92)**

The purpose of this test method is to determine the duration of contact bounce so that it can be anticipated and provided for in user circuits. This phenomenon is defined as the random opening and closing of a switch contact that occurs after contact transfer caused by the switch mechanism. It is measured from the moment of first closure (or opening) to the moment when the contacts reach a useful state of equilibrium. Logic circuits are particularly sensitive to the kinetic behavior of switching contacts. Unless designed appropriately, these circuits can be triggered to produce spurious data as a result of contact bounce.

**Product Code 4 Mar, 1993 COMMITTEE:P-13  
\$30.00**

**EIA-448-2A**

**Test Standard for Electromechanical Components, Environmental Effects of Machine Soldering (ANSI/EIA-448-2-A-2000)**

The purpose of this Standard is to evaluate electromechanical components that have been subjected to the environmental effects of machine soldering and the associated fluxing, preheating, and cleaning operations.

**Product Code 4 Oct, 2000 COMMITTEE:P-13  
\$38.00**

**SWITCHES, SWITCH TEST PROCEDURES (cont.)**

**EIA-448-3A**

**Method 3: Standard Test Methods for Electromechanical Switches: Chromaticity (ANSI/EIA-448-3-A-90)**

The purpose of the test method contained in this Standard is to determine if the lens colors fall within specified limits. The chromaticity is determined by spectrometric or visual means using one of three techniques described within the document.

**Product Code 4** Jun, 1990 **COMMITTEE:P-13**  
**\$30.00**

**EIA-448-4**

**Standard Test Methods for Logic (TTL) Level Endurance and Low Level Endurance (ANSI/EIA-448-4-80) (R90)**

This Standard includes two test methods which are as follows: Method 17 Purpose: The Logic Level Endurance Test is a measure of the ability of a switch to control electrical loads in which the applied voltage exceeds the melting voltage of the switch contact material and is less than the arcing voltage and arcing current. Electronic logic circuits have defined interface signal voltages. Method 18 Purpose: The Low Level Endurance Test is a measure of the ability of a switch to control electrical loads which have insufficient energy to cause any physical change in the switch contacts.

**Product Code 4** May, 1990 **COMMITTEE:P-13**  
**\$30.00**

**EIA-448-19A**

**Method 19: Test Standard for Electromechanical Components, Environmental Effects of Machine Soldering Using a Vapor Phase System (ANSI/EIA-448-19A-2000)**

The purpose of this Standard is to evaluate electromechanical surface mountable components that have been subjected to the environmental effects of machine soldering using the batch type vapor phase system (that is considered to be more severe than an in-line system) and for use with solder alloys in a range suitable for use in a 215...C vapor.

**Product Code 4** Oct, 2000 **COMMITTEE:P-13**  
**\$36.00**

**EIA-448-20**

**Method 20: Test Method for Electromechanical Components: Test Method for Lens Face Touch Temperature (ANSI/EIA-448-20-89)**

The purpose of this test is to determine whether the switch lens face meets the touch temperature (rise above ambient requirements) as defined in the Detail Specification.

**Product Code 4** Sep, 1989 **COMMITTEE:P-13**  
**\$30.00**

**EIA-448-21A**

**Method 21: Test Standard for Electromechanical Components: Environmental Effects of Machine Soldering Using an Infrared System (ANSI/EIA-448-21A-2000)**

The intent of this standard is to evaluate electromechanical surface mountable components that have been subjected to the environmental effects of machine soldering using an infrared system.

**Product Code 4** Oct, 2000 **COMMITTEE:P-13**  
**\$36.00**

**EIA-448-22**

**Resistance to Soldering Heat, Soldering Method (ANSI/EIA-448-22-90)**

The heat of soldering may affect the electrical characteristics of switches and may cause damage to the materials from which they are made, e.g., loosening the terminations, softening or distortion of insulation materials, weakening of mechanical joints, etc. The test described in this Standard is performed for the purpose of determining whether switches can withstand the effects of soldering to their terminations using a soldering iron.

**Product Code 4** Nov, 1990 **COMMITTEE:P-13**  
**\$30.00**

**EIA-448-23**

**Surface Mountable Switches, Qualification Test (ANSI/EIA-448-23-90)**

The qualification test described in this Standard specifies contact resistance and continuity/circuit configurations for switches that have passed all incoming inspection requirements.

**Product Code 4** Aug, 1990 **COMMITTEE:P-13**  
**\$34.00**

**EIA-448-24**

**Test Method 24, Solid State Switch Transfer Tests**

The purpose of this test method is to establish a standard for measuring the transfer time of switches with solid state circuit outputs. This standard applies to devices such as manually operated solid state switches, sensors with solid state outputs, or controllers interfacing between multiple switch arrays and computer processors.

**Product Code 4** Aug, 1994 **COMMITTEE:P-13**  
**\$38.00**

**EIA-545**

**Electromechanical Switch Test Method for Electrostatic Discharge (ESD) (ANSI/EIA-545-89)**

This test method is performed to determine the level at which electrostatic discharge occurs through or around a manually operated electromechanical switch, which is not equipped with a ground plane circuit protection feature. It is intended to be used on switches which have been fabricated using normal manufacturing workmanship standard for cleanliness.

**Product Code 4** Sep, 1989 **COMMITTEE:P-13**  
**\$30.00**

**TAPE, MAGNETIC**

**ADHESION**

**EIA-339**

**Recommended Test Method, Layer-to-Layer Adhesion of Magnetic Tape (ANSI/EIA-339-68) (R75)**

This method measures the susceptibility of magnetic tape to layer-to-layer adhesion between adjacent layers of tape roll.

**Product Code 4** Dec, 1974 **COMMITTEE:P-9**  
**\$30.00**

TAPE, MAGNETIC (cont.)

RECORDERS

EIA-405

**Recommended Test Method for Flutter Measurement of Instrumentation Magnetic Tape Recorder/Reproducers (ANSI/EIA-405-73) (R79)**

This Standard covers acceptable instrumentation and procedures for the measurement of flutter in instrumentation magnetic recording equipment. The purpose of this standard is to promote interchangeability and to eliminate misunderstandings between manufacturers and users by specifying standardized and reproducible flutter measurement techniques. In addition, it is intended to help the user ascertain the suitability of magnetic recording equipment for his requirements.

**Product Code 4** Apr, 1979 **COMMITTEE:P-4.2**  
**\$30.00**

**THERMISTORS**

BEADS

EIA-337

**General Specification for Glass Coated Thermistor Beads and Thermistor Beads in Glass Probes and Glass Rods (Negative Temperature Coefficient) (ANSI/EIA-337-67) (R77) (R81)**

This Standard provides classification of glass coated thermistor beads and thermistor beads in glass rods by style zero-power resistance, and resistance ratio, and delineates definitions, test methods, and performance characteristics.

**Product Code 4** Mar, 1981 **COMMITTEE:P-1**  
**\$30.00**

**TOOLS**

CRIMPING

EIA-270

**Tools, Crimping, Solderless Wiring Devices, Recommended Procedures for User Certification (ANSI/EIA-270-73) (R79)**

This Standard establishes procedures for certification by the user of all types of tooling used to crimp soldering wiring devices. It establishes minimum requirements for application of devices to wire and user certification to said application.

**Product Code 4** Apr, 1979 **COMMITTEE:CE-2.0**  
**\$30.00**

**WIRE**

See also Part 3, Wiring/Cabling

EIA-214

**Method for Calculation of Current Ratings on Hook-Up Wire**

The method of calculation provided by this Standard applies to the following: Continuous currents and thermal equilibrium; insulated wires in air subject to convection and radiation; and wire construction.

**Product Code 4** Jul, 1981 **COMMITTEE:P-9**  
**\$30.00**

EIA-293

**Sonic Wire Delay Lines**

This Standard defines the parameters used to describe the electrical characteristics of sonic wire delay lines with magnetostriction transducers for pulse applications. Methods for measuring these parameters are also described.

**Product Code 4** Nov, 1982 **COMMITTEE:P-3**  
**\$30.00**



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## CATHODE RAY TUBES

### DEFLECTING YOKES

#### EIA-256-A

##### *Deflecting Yokes for Cathode Ray Tubes*

The purpose of this Standard is to establish a standard yoke for various cathode-ray tubes which would be used to measure such performance characteristics as pin cushion, deflection defocusing, and light output, and also to define the limit for deflection beam clearance.

**Product Code 6 Jun, 1980 COMMITTEE:JT-6  
\$30.00**

#### TEB22

##### *Magnetic Deflection Yokes*

**Product Code 6 Nov, 1979 COMMITTEE:JT-6  
\$30.00**

### DESIGN MEASUREMENT AND CHARACTERISTICS

#### EIA-305

##### *Display Storage Tube Nomenclature*

The nomenclature and symbols listed in this Standard refer to generalized tube of the display storage type shown in a diagram in the Standard.

**Product Code 6 Sep, 1979 COMMITTEE:JT-6  
\$30.00**

#### EIA-493

##### *Recommended Practice for Conversion of U.S. to Metric Dimensions for Color and Monochrome Cathode Ray Tubes and Their Component Parts (ANSI/EIA-493-82)*

This Standard was prepared to serve as a guide for conversion of U.S. to metric dimensions for cathode ray tubes and their components parts. It will be applicable, but not limited to, the preparation of drawings, specifications and published data for color and monochrome television picture tubes.

**Product Code 6 Jun, 1982 COMMITTEE:JT-6  
\$30.00**

#### TEB21

##### *CRT Considerations for Raster Dot Alpha-Numeric Presentations*

**Product Code 6 Apr, 1979 COMMITTEE:JT-6  
\$30.00**

#### TEB23-A

##### *Spot Pulse Width and Repetition Rate in Raster Dot Alpha-Numeric CRT Presentations for Rectangular Pulses*

**Product Code 6 Nov, 1981 COMMITTEE:JT-6  
\$30.00**

#### TEB24

##### *The Effect of Pulse Shape in Raster Dot Alpha-Numeric CRT Presentations on Spot Luminance and Luminance Distribution*

**Product Code 6 Nov, 1981 COMMITTEE:JT-6  
\$30.00**

#### TEB25

##### *A Survey of Data-Display CRT Resolution Measurement Techniques*

Document describes many of the methods currently used to measure the resolution of data displays. Comparisons, disadvantages, and advantages of the various techniques are presented.

**Product Code 6 Jun, 1985 COMMITTEE:JT-6  
\$57.00**

#### TEB26

##### *1976 CIE-UCS Chromaticity Diagram with Color Boundaries*

**Product Code 6 Aug, 1988 COMMITTEE:JT-6  
\$30.00**

#### TEB27

##### *Relating Display Resolution and Addressability*

The document discusses a quantitative procedure for selecting optimal levels of resolution and addressability base upon the performance constraints of human vision.

**Product Code 6 Sep, 1988 COMMITTEE:JT-6  
\$30.00**

#### TEP105 Series

##### *Industrial Cathode Ray Tubes Test Methods*

**Product Code 6 COMMITTEE:JT-6  
\$400.00**

#### TEP105

##### *Industrial Cathode Ray Tubes Test Methods*

This document describes test methods that are useful in evaluating cathode ray tubes with respect to parameters of interest to users of these devices (e.g., measurement of control electrode voltages).

**Product Code 6 Feb, 1981 COMMITTEE:JT-6  
\$29.00**

#### TEP105-7-A

##### *Line Profile Measurements in Monochrome Cathode Ray Tubes*

The test method determines the line width by measuring the horizontal and vertical profiles of the lines produced by the electron beam.

**Product Code 6 Jan, 1987 COMMITTEE:JT-6  
\$30.00**

#### TEP105-8

##### *Raster Response Measurement for Monochrome Cathode Ray Tubes*

The purpose of this test is to measure the resolution capability of a cathode ray display tube.

**Product Code 6 Jan, 1987 COMMITTEE:JT-6  
\$30.00**

#### TEP105-9

##### *Line Profile Measurements in Shadow Mask and Other Structured Screen Cathode Ray Tubes*

The purpose of this test is to measure the profile of a line on the face of a shadow mask or other structured screen cathode ray tube in order to estimate its resolution capability.

**Product Code 6 Jan, 1987 COMMITTEE:JT-6  
\$30.00**

CATHODE RAY TUBES, DESIGN MEASUREMENT AND CHARACTERISTICS (cont.)

**TEP105-10**

***Contrast Measurement of Cathode Ray Tubes***  
Product Code 6 Apr, 1987 COMMITTEE:JT-31  
\$30.00

**TEP105-11-B**

***Color Measurement and White Set-Up Procedure for CRT Screens***

Performing the white set-up of a CRT might involve nothing more than adjusting the driving voltages of the three electron guns until the desired white point is reached. While this approach is appropriate for factory installation of CRTs into receivers, we ignore it in favor of the system analysis approach. It is based on fundamental colorimetry and produces the advantage of a formula for the set-up conditions of any desired white point.

Product Code 6 Jun, 2000 COMMITTEE:JT-31  
\$43.00

**TEP105-12**

***Test Method for Tube Face Reflectivity***  
Product Code 6 Apr, 1987 COMMITTEE:JT-31  
\$30.00

**TEP105-13**

***Test Method for Specular Gloss***  
This method covers a test procedure for the measurement and evaluation of nonglare surfaces in terms of specular gloss for screened tubes and panels at 60 and 45 degree unscreened panels and cover plates at 60, 45, and 20 degrees glossmeter geometry.

Product Code 6 Apr, 1987 COMMITTEE:JT-31  
\$30.00

**TEP105-14**

***Measurement of Phosphor Persistence of Cathode Ray Tube Screens***  
The test methods for measuring persistence of CRT screen described are to be used primarily for registration of phosphors in the WTDS system and as a general guideline to the suitability of a phosphor to a particular application.

Product Code 6 Apr, 1987 COMMITTEE:JT-31  
\$30.00

**TEP105-15**

***CRT Screen and Glass Aging Procedures***  
This test is intended to test the aging characteristics of a CRT glass when subjected to a high-power densities. Glass aging of CRT glass alone and preaging and long term aging of the complete CRT system are evaluated in these tests.

Product Code 6 Oct, 1988 COMMITTEE:JT-31  
\$30.00

**TEP105-16-A**

***Test Methods for Phosphor Linearity***  
An excited CRT raster is designed to give the impression of a continuously excited display without any flicker or scan line structure. High frequency field refresh rates and closely spaced scan lines obscure from the human observer the way in which each phosphor particle receives its excitation. These factors also determine how fast the writing speed of the electron beam is across a given point on the phosphor screen, and therefore how long a dwell time and how large a charge impulse each particle receives.

Product Code 6 Jun, 2000 COMMITTEE:JT-31  
\$38.00

**TEP105-17**

***MTF Test Method for Monochrome CRT Display Systems***  
Includes floppy disc.  
Product Code 6 Jul, 1990 COMMITTEE:JT-6  
\$67.00

**TEP105-18**

***Color Field Uniformity Test Procedures***  
This procedure is recommended to demonstrate the degree of uniformity of any color field of a display device. For simplification, references are made to a CRT monitor, but the principles of this procedure can be applied to other types of displays. This procedure does not identify limits or tolerances, but offers the user a standardized method which can be used to compare numerical values of color field uniformity.  
Product Code 6 Apr, 1995 COMMITTEE:JT-31  
\$30.00

**TEP106-B**

***Worldwide Type Designation System for TV Picture Tubes and Monitor Tubes***  
This document covers a designation system for color and monochrome TV picture tubes for consumer receiver applications and color and monochrome monitor or display tubes for direct-view, raster-scan applications other than consumer TV.  
Product Code 6 Jun, 1988 COMMITTEE:JT-6  
\$71.00

**TEP110-A**

***Monochrome Cathode Ray Tube Bulb Criteria***  
This document establishes general quality criteria for monochrome CRT direct-view, blown type, pressed face, optical quality face, and pressed face rectangular bulbs.  
Product Code 6 Oct, 1985 COMMITTEE:JT-6  
\$49.00

**TEP116-C**

***Optical Characteristics of Cathode Ray Tube Screens***  
This publication is comprised of two parts: general information on phosphors, and registered data on individual screens. It is intended to serve two groups of people: phosphor and CRT manufacturers interested in registering new phosphors and end users of CRT's interested in determining what screen type is most suitable for an application. In addition to the "hard copy" presentation of the general information and the registered data, the data is also presented on computer diskette for handy reference use.  
Product Code 6 Feb, 1993 COMMITTEE:JT-31  
\$188.00

**TEP192**

***Glossary of Cathode Ray Tube Terms and Definitions***  
Product Code 6 Sep, 1984 COMMITTEE:JT-6  
\$44.00

CATHODE RAY TUBES, DESIGN MEASUREMENT AND CHARACTERISTICS (cont.)

**TEP195**

**Method for Calculating Refractive Gain for Color TV Picture Tube and Color Monitor Tube Screens**

This publication describes the two methods of calculating the refractive gain that are to be used for color TV picture and monitor tubes. The first method is for face panels that are described by a polynomial, and the second method is for face panels that are described by annular segments of spheres.

**Product Code 6** Dec, 1987 **COMMITTEE:JT-6**  
**\$30.00**

**GLASS COMPONENTS**

**TEP123**

**Glossary of Terms Used in the Description of Glass Components and of Their Defects**

**Product Code 6** May, 1980 **COMMITTEE:JT-6**  
**\$30.00**

**TEP131(COLOR)**

**Criteria for Bulb Parts for Color Picture Tubes**

This document provides the criteria for color television picture tube parts and safety panels.

**Product Code 6** Oct, 1981 **COMMITTEE:JT-6**  
**\$73.00**

**TEP131**

**Criteria of Bulbs and Implosion Panels for Television Picture Tubes**

**Product Code 6** Oct, 1982 **COMMITTEE:JT-6**  
**\$57.00**

**PACKAGING**

**EIA-505**

**Packaging for Return CRT Glass Component Packing Material (ANSI/EIA-505-83)**

This Standard was developed to establish standards for count, pallet loading or used packing material, and labeling for return. It is the intent of EIA-505 to reduce problems encountered previously in the area, to attain better inventory control, and possible cost reduction.

**Product Code 6** Oct, 1983 **COMMITTEE:JT-7**  
**\$67.00**

**RADIATION TESTING, CRTs**

**EIA-500-A**

**Recommended Practice for Measurement of X-Radiation from Projection Cathode Ray Tubes (ANSI/EIA-500-A-89)**

The purpose of this Standard is to obtain the x-radiation characteristics of projection cathode-ray tubes in order to predict the levels emitted by tubes when the electrical characteristics of the application are known. (For some applications, test procedures for the measurement of X-radiation from direct-view television picture tubes may be found in EIA-503.)

**Product Code 6** Feb, 1989 **COMMITTEE:JT-32**  
**\$42.00**

**EIA-501-A**

**Recommended Practice for the Measurement of X-Radiation from Raster-Scanned Direct-View Data Display Cathode Ray Tubes (ANSI/EIA-501-A-90)**

The purpose of this Standard is to obtain the X-radiation characteristics of raster-scanned direct-view data display cathode-ray tubes in order to predict the levels emitted by tubes when the electrical characteristics of the application are known. For some applications the test procedures described in EIA-503-A may be more appropriately used than those described in this Standard.

**Product Code 6** May, 1990 **COMMITTEE:JT-32**  
**\$41.00**

**EIA-502-A**

**Recommended Practice for Measurement of X-Radiation from Non-Raster-Scanned Direct-View Cathode Ray Tubes (ANSI/EIA-502-A-89)**

The purpose of this Standard is to obtain the X-radiation characteristics of non-raster-scanned direct-view data display cathode ray tubes in order to predict the levels emitted by tubes when electrical characteristics of the application are known.

**Product Code 6** Mar, 1989 **COMMITTEE:JT-32**  
**\$30.00**

**EIA-503-A**

**Recommended Practice for the Measurement of X-Radiation from Direct-View Television Picture Tubes (ANSI/EIA-503-A-90)**

The purpose of this Standard is to obtain X-radiation characteristics of direct-view television picture tubes in order to predict the levels emitted by tubes when the electrical characteristics of the application are known.

**Product Code 6** May, 1990 **COMMITTEE:JT-32**  
**\$41.00**

**TEP194**

**Considerations Used in Establishing the X-Radiation Ratings of Monochrome and Color Direct-View Television Picture and Data Display Tubes**

This document describes the practices followed under the TEPAC Type Registration System for X-radiation ratings and relates them to the appropriate registered glassware and to the data for the finished tube.

**Product Code 6** Jul, 1986 **COMMITTEE:JT-32**  
**\$134.00**

**TEP194-2**

**Amendment No. 2 to TEP194**

Also includes previous Amendment No. 1 dated Oct., 1987.  
**Product Code 6** Sep, 1988 **COMMITTEE:JT-32**  
**\$30.00**

**TEP196**

**Cathode Ray Tube X-Radiation Round Robin Procedures**

This document describes a consistent method for conducting round-robin testing of cathode ray tubes.

**Product Code 6** Jul, 1989 **COMMITTEE:JT-32**  
**\$30.00**



CATHODE RAY TUBES, RADIATION TESTING, CRTs (cont.)

**TEP197-A**

***Preparation of X-Radiation Characteristic Curves for Cathode Ray Tubes***

In accordance with the Radiation Control for the Health and Safety Act of 1968, cathode ray tube (CRT) manufacturers are required to submit an initial report to the Center for Devices and Radiological Health (CDRH). The initial report for cathode ray tubes must provide results of the testing and measuring of the X-radiation emissions from a cathode ray tube.

**Product Code 6** Oct, 1997 **COMMITTEE:JT-32**  
**\$49.00**

**SCREEN DIMENSIONS**

**EIA-266-A**

***Registered Screen Dimensions for Monochrome Picture Tubes***

This Standard defines the methods for determining the values for the screen dimensions required for JEDEC registration of monochrome picture tubes.

**Product Code 6** Sep, 1979 **COMMITTEE:JT-6**  
**\$30.00**

**EIA-324-A**

***Registered Screen Dimensions for Color Picture Tubes (ANSI/EIA-324-A-82)***

EIA-324 was revised (now EIA-324-A) to simplify the Standard and make it more useful. Obsolete examples were eliminated and replaced by current panel size, 25V. The revision of EIA-324 makes it clear that the screen dimension calculations are based on the panel design print rather than on the measurement of an arbitrary panel.

**Product Code 6** Apr, 1982 **COMMITTEE:JT-6**  
**\$30.00**

**EIA-527**

***Screen Definition for Color Picture Tubes (ANSI/EIA-527-86-93)***

Defines the method for establishing the relationship between the inside face panel edge geometry, and the minimum published screen dimensions for shadow-mask color TV picture tubes and color monitor tubes (as defined in the Worldwide Type Designation System-EIA Publication TEP106-B).

**Product Code 6** May, 1993 **COMMITTEE:JT-6**  
**\$30.00**

**CLOSED CIRCUIT TELEVISION**

**CAMERAS**

**EIA-312-A**

***Engineering Specifications Outline for Monochrome CCTV Camera Equipment (ANSI/EIA-312-A-76)***

This Standard contains the recommended minimum specification formats that should be included in the published advertising literature in order to provide the user with an adequate description of the equipment.

**Product Code 6** Jan, 1974 **COMMITTEE:CC-1**  
**\$30.00**

**EIA-330**

***Electrical Performance Standards for Closed Circuit Television Camera 525/60 Interlaced 2:1 (ANSI/EIA-330-68)***

This Standard consists of Definitions, Standards and Methods of Measurement for those parameters believed to be of importance. They are intended to apply only to locally generated signals.

**Product Code 6** Nov, 1966 **COMMITTEE:CC-1**  
**\$30.00**

**EIA-343-A**

***Electrical Performance Standard for High Resolution Monochrome Closed Circuit Television Camera***

This Standard encompasses equipment which operates in the range from 675 to 1023 scanning lines with a field rate of 60 Hz, interlaced 2:1. This Standard consists of (1) Definitions, (2) minimum Standards, and (3) Method of Measurement for those parameters believed to be of importance.

**Product Code 6** Sep, 1969 **COMMITTEE:CC-1**  
**\$46.00**

**EIA-420**

***Electrical Performance Standards for Monochrome Closed Circuit Television Cameras 525/60 Random Interlace (ANSI/EIA-420-76)***

This Standard is intended to apply only to locally generated signals, that is, signals generated in the camera itself or at a nearby point where control can be exercised over picture quality.

**Product Code 6** Jan, 1975 **COMMITTEE:CC-1**  
**\$30.00**

**EIA-439**

***Engineering Specifications Format for Color CCTV Camera Equipment***

This Standard lists the electrical, mechanical and environmental specification which should be provided for color CCTV camera equipment.

**Product Code 6** Nov, 1976 **COMMITTEE:CC-1**  
**\$30.00**

**CLOSED CIRCUIT**

**IEB1**

***Closed Circuit Television Definitions***

This bulletin is intended to provide easily understood definitions of closed circuit television equipment characteristics and performance.

**Product Code 6** Sep, 1962 **COMMITTEE:CC-1**  
**\$30.00**

CLOSED CIRCUIT TELEVISION (cont.)

MONITORS

**EIA-375-A**

**Electrical Performance Standards for Direct View Monochrome Closed Circuit Television Monitors 525/60 Interlaced 2:1 (ANSI/EIA-375-A-76)**

This Standard is intended to apply only to Direct View Monochrome Closed Circuit Television Monitors with a video input; that is, signals generated at a nearby point where control can be exercised over picture quality. They are intended to apply with a video signal described in EIA-330.

**Product Code 6 Oct, 1974 COMMITTEE:CC-1 \$30.00**

**EIA-412-A**

**Electrical Performance Standards for Direct View High Resolution Monochrome Closed Circuit Television Monitors (ANSI/EIA-412-A-76)**

This Standard is intended to apply only to direct view high resolution monochrome closed circuit television monitors with a video input; that is, signals generated at a nearby point where control can be exercised over picture quality.

**Product Code 6 Oct, 1974 COMMITTEE:CC-1 \$30.00**

**COLOR IDENTIFICATION & CODING**

MICROWAVE DEVICES

**EIA-235-C**

**Color Codes for Microwave Devices with Wire Leads, Including Traveling Wave Tubes, Klystrons, Crossed Field Devices, Electromagnetic Leads**

Inasmuch as color code is valuable only if the colors are easily identifiable, it is suggested that Standard EIA-359-A "Standard Colors for Color Identification and Coding" be used with the color limits as established by Supplement No. 1 to EIA-359-A, "Visual Reference Standards, Color Tolerance Charts for EIA-359-A".

**Product Code 6 Sep, 1979 COMMITTEE:JT-6 \$30.00**

**ELECTRON TUBES**

ACCEPTANCE SAMPLING

**TEP140**

**Proposed Acceptance Sampling Procedures for Small Lots**

The document describes a methodology for obtaining assurances of lot quality when lot size restrictions occur. A sampling plan and concomitant sampling tables are included.

**Product Code 6 Oct, 1981 COMMITTEE:JT-6 \$30.00**

ELECTRICAL RATING

**EIA-239-A**

**Electrical Rating Systems for Electron Tubes**

This Standard defines Design-Center Rating System, absolute-Maximum Rating System, and Design-Maximum Rating Systems applied to the specification of electron tubes.

**Product Code 6 Sep, 1979 COMMITTEE:JT-6 \$30.00**

FILTERS

**EIA-268**

**Infrared-Filter Transmission**

The purpose of this Standard is to establish the transmission of an infrared filter for use in making certain measurements on electron tubes.

**Product Code 6 Jun, 1982 COMMITTEE:JT-32 \$30.00**

ORTHICON TUBES

**EIA-300**

**Methods of Test for 3-Inch Image Orthicons**

This Standard describes methods for measuring thirteen important parameters of 3 inch image orthicon tubes.

**Product Code 6 Sep, 1979 COMMITTEE:JT-32 \$30.00**

OUTLINE DRAWING AND DIMENSIONS

**EIA-202-A**

**Recommended Practice for Preparation of Outline Drawings of Electron Tubes and Bases**

The purpose of this Standard is to supply the essential information required for preparation of satisfactory tube and base outline drawings on electron tubes and vacuum sealed devices for JEDEC application where standard outlines do not exist. In addition to meeting EIA registration, this information should also be of equal value to the ultimate user of the device.

**Product Code 6 Dec, 1979 COMMITTEE:JT-6 \$59.00**

**EIA-206-C**

**Recommended Practice for Preparation of Basing or Terminal Diagrams**

This Standard establishes the basic rules which shall be used as a guide in the preparation of basing and terminal diagrams for electron tubes and associated sealed devices. The rules have been specifically planned to cover low-power, high-vacuum, gas and cathode ray tubes, klystrons, and photo-tubes.

**Product Code 6 Jun, 1980 COMMITTEE:JT-6 \$30.00**

ELECTRON TUBES, OUTLINE DRAWING AND DIMENSIONS (cont.)

**EIA-209-A**

**Standard for Electron Tubes (ANSI/EIA-209-A-64)**

This Standard consists of three Sections: Section 1 - Dimensional Characteristics of Electron Tubes; Section 2 - Electron Tube Bases, Caps, and Terminals; Section 3 - Gauges. It differs from the previous issues (EIA-209 and 209-1) in that reference letters are used on the diagrams instead of numerals. The dimensions, both inch and metric, are given in tabulated form.

**Product Code 6** Feb, 1976 **COMMITTEE:JT-6**  
**\$152.00**

**EIA-209-A-1**

**Supplement to EIA-209-A**

Supplement to EIA-209-A (Aug., 1965; Reaffirmed Feb., 1976)

**Product Code 6** (Aug. 1965; Reaffirmed Feb. 1976)

**COMMITTEE:JT-6**

**\$71.00**

**EIA-209-A-2**

**Supplement to EIA-209-A**

Supplement to EIA-209-A (June, 1968; Reaffirmed Feb., 1976)

**Product Code 6** (Jun. 1968; Reaffirmed Feb. 1976)

**COMMITTEE:JT-6**

**\$30.00**

**EIA-212-A**

**Numbering of Electrodes and Designation of Units in Electron Tubes**

This Standard gives the system used for numbering electrodes of the same type in multielectrode tubes, and for assigning designations to the units of multiple unit tubes. For tubes made with two or more similar units, the numbering of the units is given, as derived from the basing arrangement. The designations determined from this Standard shall also apply to other tube elements, such as heaters, shields, etc.

**Product Code 6** Sep, 1979 **COMMITTEE:JT-6**

**\$30.00**

**PHOTOSENSITIVE DEVICES**

**TEP150**

**Relative Spectral Response Data for Photosensitive Devices ("S" Curves)**

**Product Code 6** Mar, 1981 **COMMITTEE:JT-31**

**\$30.00**

**TEP161**

**Typical Characteristics of Photosensitive Surfaces**

**Product Code 6** May, 1980 **COMMITTEE:JT-31**

**\$30.00**

**PULSE MAGNETRONS**

**TEP42**

**Application Notes on Pulse Magnetrons**

This document provides a basic introduction to magnetrons, test specifications, physical properties, and the effect of the system on the magnetron.

**Product Code 6** Nov, 1963 **COMMITTEE:JT-6**

**\$30.00**

**RADIATION TESTING, ELECTRON TUBES**

**TEP167**

**Recommended Practice for Measurement of X-Radiation from Receiving Tubes**

**Product Code 6** Mar, 1981 **COMMITTEE:JT-32**

**\$30.00**

**TEP170**

**Recommended Practice on X-Radiation Detection and Measurement for Microwave Tubes**

**Product Code 6** Mar, 1981 **COMMITTEE:JT-32**

**\$30.00**

**TEP171**

**Recommended Practice for Measurement and Warning of Radio Frequency Leakage from Microwave Tubes**

**Product Code 6** Mar, 1981 **COMMITTEE:JT-32**

**\$30.00**

**TEP173**

**Recommended Practice for Quality Control of X-Radiation Emitted from High Voltage Rectifier and Shunt Regulator Receiving Tubes**

**Product Code 6** Mar, 1981 **COMMITTEE:JT-32**

**\$30.00**

**TEP181**

**Recommended Practice for Measurement of X-Radiation Emitted from Power Tubes**

This document describes methodology for obtaining X-ray levels emitted by power tubes when they are operated with integral tube shielding in place.

**Product Code 6** Nov, 1981 **COMMITTEE:JT-32**

**\$30.00**

**TEP189**

**Electron Tubes Radioactivity Calculations in Microcuries**

This document establishes a recommended practice for calculation of very low-level radioactivity on a per tube basis.

**Product Code 6** Oct, 1981 **COMMITTEE:JT-32**

**\$30.00**

**RADIO FREQUENCY (RF) AMPLIFIER**

**TEP138**

**Noise Figure Testing of RF Amplifier Tubes**

**Product Code 6** Jun, 1982 **COMMITTEE:JT-6**

**\$30.00**

**SAFETY**

**EIA-257**

**Mercury Warning Label**

The label design described in this Standard is for use on packages of electron tubes which contain metallic mercury, and which do not meet the requirements of the Official Air Transport Restricted Articles Tariff in effect at the time of shipment.

**Product Code 6** Sep, 1979 **COMMITTEE:JT-32**

**\$30.00**

**ELECTRON TUBES, SAFETY (cont.)**

**EIA-287**

**Standard for Mercury Content Label**

The label described herein is for use on packages of electron tubes which contain metallic mercury, and which do meet the requirements of the Official Air Transport Restricted Articles Tariff in effect at the time of shipment.

**Product Code 6** Nov, 1963 **COMMITTEE:JT-32**  
**\$30.00**

**TESTING**

**EIA-191-D**

**Measurement of Direct Interelectrode Capacitances of Electron Tubes (ANSI/EIA-191-D-85)**

This Standard covers the measurement of direct interelectrode capacitance of tubes in the following classes: Receiving, Cathode Ray, Gas, Phototubes Multiplier Phototubes, and High Power Vacuum Tubes.

**Product Code 6** Jan, 1985 **COMMITTEE:JT-6**  
**\$30.00**

**TEP146**

**Philosophy of Vibration Testing of Receiving Tubes**

This document provides information for determining the degree of looseness, applied force-caused excitable frequencies, and the durability of the components parts in receiving tubes.

**Product Code 6** Jun, 1982 **COMMITTEE:JT-6**  
**\$30.00**

**TOOLS AND MECHANICAL AIDS**

**EIA-188**

**Standard Dimensional System for Automation Requirements (ANSI/EIA-188-72) (R77) (R83)**

This Standard describes two groups of mechanical aids for mounting electron tubes of the types having their pins sealed in glass. The first group covers standard tools for straightening and aligning tube pins to assure proper mating with the socket; the second provides standard jigs for maintaining socket terminals in alignment during wiring.

**Product Code 6** Aug, 1983 **COMMITTEE:JT-7**  
**\$30.00**

**EIA-190-A**

**Pin Straighteners and Wiring Jigs for Electron Tubes**

Describes two groups of mechanical aids for mounting electron tubes of the type having their pins sealed in glass.

**Product Code 6** Oct, 1979 **COMMITTEE:JT-6**  
**\$30.00**

**TYPE DESIGNATION**

**EIA-277**

**Designation System for Metal Electron Tube Shells**

This Standard defines a designation system for identifying and classifying metal electron tube shells.

**Product Code 6** Sep, 1979 **COMMITTEE:JT-6**  
**\$30.00**

**EIA-301-B**

**Type Designation System for Electron Tubes**

This Standard contains designation systems for cathode ray tubes, designation systems for receiving tubes, and designation systems for electron tubes and allied devices.

**Product Code 6** Aug, 1979 **COMMITTEE:JT-6**  
**\$30.00**

**EIA-552**

**EIA Standards for Electron Tubes (ANSI/EIA-552-89)**

This Standard is similar to EIA-209-A, "Standard for Electron Tubes." EIA-209-A is essentially a reference document for older tubes. This standard covers current bases and gauges. It also contains a cross reference list of all known EIA assignments for bases, caps and gauges as well as standard drawings for current picture tube bases and gauges.

**Product Code 6** Jan, 1989 **COMMITTEE:JT-6**  
**\$74.00**

**TEP137**

**The Design-Maximum Rating System for Electron Tubes**

**Product Code 6** Oct, 1981 **COMMITTEE:JT-6**  
**\$30.00**

**VOLTAGE JUMP MEASUREMENT**

**EIA-272**

**Definition and Measurement of Voltage Jump for Voltage Regulator and Reference Tubes**

The purpose of this Standard is to provide a uniform method for the measurement of voltage jump in gas voltage regulator and reference tubes. It provides a definition of voltage jump and establishes a general test method including the necessary circuit constants.

**Product Code 6** Sep, 1979 **COMMITTEE:JT-6**  
**\$30.00**

**X-RAY IMAGE INTENSIFIER TUBES**

**TEP109**

**Test Criteria for X-Ray Image Intensifier Tubes**

This document provides recommended test methods for the measurement and ratings of X-ray image intensifier tubes.

**Product Code 6** Oct, 1981 **COMMITTEE:JT-6**  
**\$30.00**

