

AMPLIMITE* 5C5

NOTE *All numerical values are in metric units. Dimensions are in millimeters. Unless otherwise specified, dimensions have a tolerance of ± 0.13 (.005) and angles have a tolerance of $\pm 2^\circ$. Figures and illustrations are for identification only and are not drawn to scale.*

I. INTRODUCTION

This specification covers the application requirements for AMP *AMPLIMITE pn 185255- 1. Connectors that are designed for pc board applications. The connectors are available in plug straight configuration. They can be placed on the board by hand.

The plugs contain pin contacts. The connectors contain 4-40 nonremovable threads.

When corresponding with AMP personnel, use the terminology provided on this specification to help facilitate your inquiry for information.

II. REFERENCE MATERIAL**2.1 Drawings**

AMP Customer Drawings for specific products are available from the service network. The information contained in Customer Drawings takes priority if there is a conflict with this specification or with any technical documentation supplied by AMP Incorporated.

2.2 Bulletins

AMP Corporate Bulletin 401-52 is available from the service network. This bulletin provides information on various flux types and characteristics along with the commercial designation and flux removal procedures. A checklist is attached to the bulletin as a guide for information on soldering problems.

2.3 Specifications

AMP Product Specification 108-10045 provides performance test information and quality requirements.

2.4 Instructional Material

No other instructional material is available at the time of publishing of this specification.

III. REQUIREMENTS**3.1 Storage****A. Ultraviolet Light**

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the connector housings.

| | | | | | |
|------------|-----------|----------------------|-------------|-------------|----------------------|
| Drawing by | G. ROBERT | Date : August 9 1999 | Approved by | Y. PETRONIN | Date : August 9 1999 |
|------------|-----------|----------------------|-------------|-------------|----------------------|

B. Shelf life

The connectors should remain in the shipping containers until ready for use to prevent deformation to the connectors. The connectors should be used on a first in, first out basis to avoid storage, contamination that could adversely affect signal transmissions.

C. Chemical Exposure

Do not store connectors near any chemicals listed below as they may cause stress corrosion cracking in the shielding.

| | | | | | |
|----------|------------|----------|------------|----------|------------------|
| Alkalies | Ammonia | Citrates | Phosphates | Citrates | Sulfur Compounds |
| Amines | Carbonates | Nitrites | Sulfur | Nitrites | Tartrates |

3.2 Shell Size

The connector size is conform to industry standard size 3.

3.3 Printed Circuit Boards

A. Material and Thickness

The pc board material shall be glass epoxy (FR-4, G-10). Connector is designed for pc boards with a thickness of 4.3 mm. Contact the Product Information Center or the Tooling Assistance Center number listed at the bottom of page 1 for suitability of other board materials and thicknesses.

B. Tolerance

The maximum bow of the pc board shall be 0.03 over the length of the connector.

C. Layout

The mounting and contact holes in the pc board must be precisely located to ensure proper placement and optimum performance of the connector.

NOTE

Refer to customer drawing for PCB hole layout dimensions.

3.4 Circuit Identification

End cavities are marked with a number to provide circuit identification.

3.5 Shielding

These connectors feature tin-plated shield which provide continuity for EMC (Electro Magnetic Compatibility) applications. When mated with corresponding metal shell connectors, shielding and grounding continuity are achieved.

3.6 Limitations

Use the AMP Product Specification referenced in Paragraph 2.3 for test procedures regarding these connectors.

3.7 Polarizing

The keystone configuration of each connector mating face prohibits the accidental inversion of mating connectors.

3.8 Hardware for PC Board Receptacle Connector

The 4-40 nonremovable threads provide a means of mounting a pc board connector to a mating connector. They will accept removable hex screwlocks and captive or commercially available 4-40 threaded hardware. The torque limit is 0.35 Nm applied from the mating face side. The maximum pushout force is 89 N (20 lb-force) applied from the mating face side.

These connectors have been designed with the standard hardware shown in customer drawing. They will accomodate other types of commercially available mating hardware. If you are designing a connector for a system with some other type of hardware, contact the Product Information number on page 1 for design assistance.

3.9 Connector Placement

A. Manual Placement

Insert contacts into housing, determine wich hole in the pc board is to receive the number one contact, then orient the connector so the number one solder is aligned with the hole. Start all solder into the board, press the connector, until is slot on the PCB then assemble washer and TBR screw applying the torque limit 0.35 Nm.

3.10 Soldering

Connector can be soldered with wave process, provided the temperatures and exposure time are within the ranges specified in Figure 8. We recommend the use of SN60 or SN62 solder for the connectors. Refer to Paragraph 2.4 for instructional material that is available for establishing soldering guidelines.

| SOLDERING PROCESS | TEMPERATURE | | TIME (At Max Temp) |
|-------------------|-------------|------------|--------------------|
| | CELSIUS | FAHRENHEIT | |
| WAVE SOLDERING | 260 • | 500 • | 5 Seconds |

• Wave Temperature

A. Flux Selection

Contact solder must be fluxed prior to soldering with a mildly active, resin base flux. Selection of the flux will depend on the type of pc board and other components mounted on the board. Additionally, the flux must be compatible with the wave solder line, manufacturing, health, and safety requirements. Call one of the AMP phone numbers at the bottom of page 1 for consideration of other types of flux. Some fluxes that are compatible with these connectors are provided in Figure 9.

B. Cleaning

After soldering, removal of fluxes, residues, and activators is necessary. Cleaning methods depend on the type of flux used. Consult the supplier of solder and flux for recommended cleaning solvents. The following are common cleaning solvents that can be used on these connectors for 10 minutes at room temperature without any adverse effects on contacts or housing. See figure 10.

DANGER

Consideration must be given to toxicity and other safety requirements recommended by the solvent manufacturer. Refer to the manufacture's Material Safety Data Sheet (MSDS) for characteristics and handling of cleaners. Trichloroethylene and Methylene Chloride can be used with no harmful affect to the connectors; however AMP does not recommend them because of the harmful occupational and environmental effects. Both are carcinogenic (cancer-causing) and Trichloroethylene is harmful to the earth's ozone layer.

NOTE

If you have a particular solvent that is not listed, contact the Tooling Assistance Center or Product Information number at the bottom of page 1.

| CLEANER | | TIME (Minutes) | TEMPERATURE | |
|-------------------|---------|-------------------|---------------|------------|
| NAME | TYPE | | CELSIUS | FAHRENHEIT |
| Alpha 2110■ | Aqueous | 1 | 132 | 270 |
| Bioact EC-7◆ | Solvent | 5 | 100 | 212 |
| Butyl Carbitol● | Solvent | 1 | Room Ambience | |
| Isopropyl Alcohol | Solvent | 5 | 100 | 212 |
| Kester 5778❖ | Aqueous | 5 | 100 | 212 |
| Kester 5779❖ | Aqueous | 5 | 100 | 212 |
| Loncoterger 520● | Aqueous | 5 | 100 | 212 |
| Loncoterger 530● | Aqueous | 5 | 100 | 212 |
| Terpene Solvent | Solvent | 5 | 100 | 212 |

■ Product of Fry's Metals, Inc. ◆ Product of Petroferm, Inc. ● Product of Union Carbide Corp. ❖ Product of Litton Systems, Inc.

C. Drying

Connectors can withstand a temperature of 40°C (105°F) for a period of 5 minutes. Values may vary with different automatic cleaning equipment (see equipment manufacturer's recommendations)

CAUTION

Excessive temperatures may cause housing degradation.

D. Checking Installed Connector

All solder joints should conform to those specified in AMP Workmanship Specification 101-21. The housing must seat on the pc board.

IV. TOOLING

Even though no special tooling is required for the hand placement of AMPLIMITE Connectors on a pc board, the following information should be considered.

4.1 PC Board Support

A pc board support should be used to prevent bowing of the pc board during the placement of a connector on the board. It should have flat surfaces with holes or a channel wide enough and deep enough to receive the solder tines and hold-down during installation of the connector on the board.