



All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters. Unless otherwise specified, dimensions have a tolerance of ± 0.13 and angles have a tolerance of $\pm 2^\circ$. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

This specification covers the requirements for application of SOLARLOK Micro Junction Box Assemblies used as the primary electrical interface or junction for panel-based photovoltaic (PV) modules (solar panels) for grid- or off-grid connected power generation (typically used for residential roofing). The micro assembly is designed to be assembled onto a solar panel. The solar panels are designed to be installed onto the roof using the junction box to interconnect solar panels to form arrays and connect the first and last solar panel to the remainder of the system.

Each micro assembly consists of a housing assembly and two cable couplers (one male and one female). The housing assembly contains two solder contacts, a diode, and cable (connecting the couplers to the solder contacts). The solder contacts are used for electrical connection to the solar panel. The diode provides electrical direction bypass current capability control. The back of the housing assembly has a sealant channel used to hold the sealant that secures the micro assembly to the solar panel. The front of the housing assembly features a terminal potting window used to hold potting compound that will protect the solder contact connections from environmental conditions. The housing assembly contains cable seals that prevent water ingress. The female coupler is embossed with a positive or negative diode polarity symbol to indicate proper cable connection. The male coupler features locking latches that secure the connection. The female coupler has release locking latches that when depressed opens the locking mechanism to allow the couplers to be unplugged. The housing assembly has latches on each side that mate with latch arms on the contact cover. The contact cover protects the terminal potting window once it has been filled.

When corresponding with TE Connectivity Personnel, use the terminology provided in this specification to facilitate your inquiries for information. Basic terms and features of this product are provided in Figure 1.

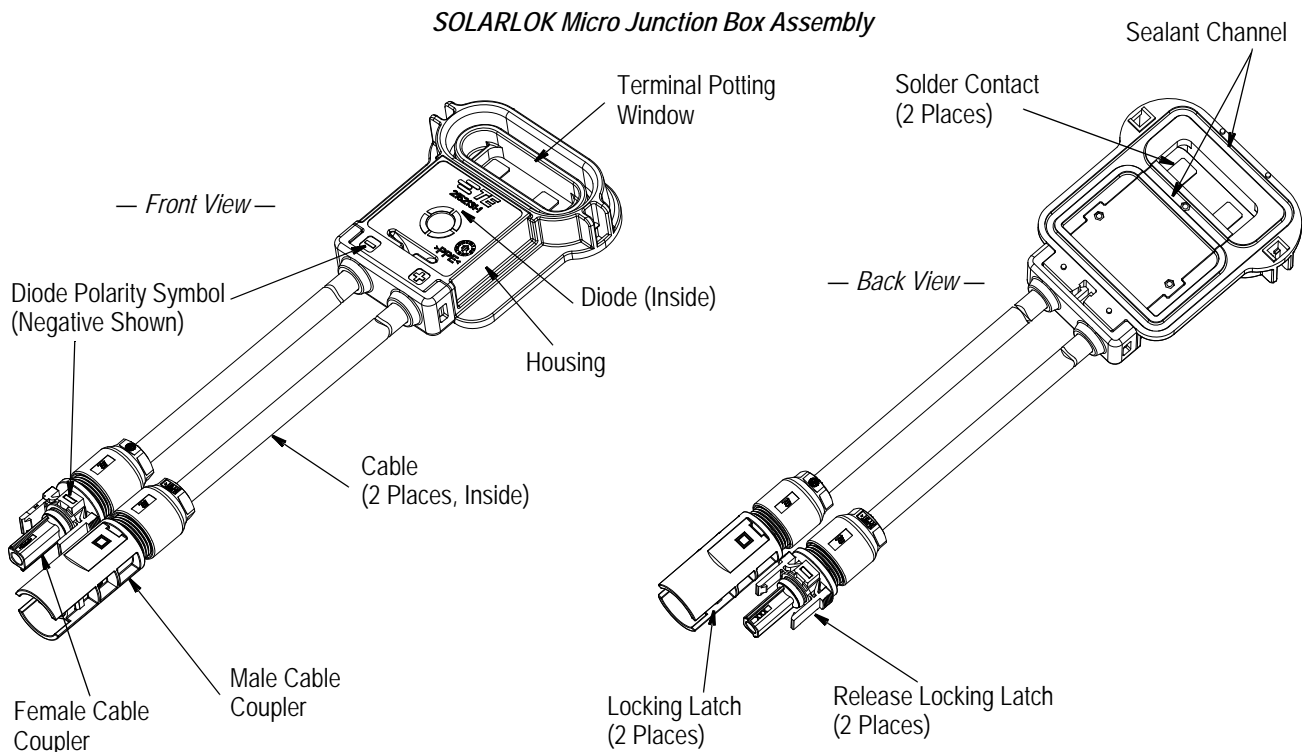


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

- Initial release of document

2.2. Customer Assistance

Reference Product Base Part Number **MICRO2** Product Code L292 are representative of SOLARLOK Micro Junction Box Assemblies. Use of these numbers will identify the product line and expedite your inquiries through a service network established to help you obtain product and tooling information. Such information can be obtained through a local TE Representative or, after purchase, by calling PRODUCT INFORMATION at the number at the bottom of page 1.

2.3. Drawings

Customer Drawings for product part numbers are available from the service network. If there is a conflict between the information contained in the Customer Drawings and this specification or with any other technical documentation supplied, call PRODUCT INFORMATION at the number at the bottom of page 1.

2.4. Standards and Publications

Documents developed by the International Electrotechnical Commission (IEC) and Underwriters Laboratories (UL) provide industry test and performance requirements. Documents available related to this product are:

- IEC 61215 ed. 2, "Crystalline Silicon Terrestrial Photovoltaic (PV) Modules - Design Qualification and Type Approval"
- IEC 60529, "Degrees of Protection Provided by Enclosures (IP Code)"
- UL 1703, "Flat-Plate Photovoltaic Modules and Panels"
- IEC 61646, "Thin Film terrestrial photovoltaic (pv) modules - Design Qualification and Type Approval"

2.5. Specifications

Design Objective 108-2469 provides expected product performance and test information.

2.6. Instructional Material

Instruction Sheets (408-series) provide product assembly instructions or tool setup and operation procedures. Documents available which pertain to this product are:

- 408-10437 SOLARLOK Micro Junction Box Assemblies

3. REQUIREMENTS

3.1. Safety

Do not stack product shipping containers so high that the containers buckle or deform.

3.2. Limitations

The micro assembly is designed to operate in a temperature range of -40° to 85°C [-40° to 185°F].

3.3. Ultraviolet (UV) Light

The micro junction box housing assembly material is Underwriters Laboratories Inc. (UL) rated for UV light and outdoor exposure.

3.4. Ratings

The micro assembly has a maximum voltage rating of 600 VDC for UL and 1000V for TÜV and a maximum current rating of **14A DC**.

3.5. Storage

A. Shelf Life

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

B. Chemical Exposure

Do not store product near any chemical listed below as they may cause stress corrosion cracking in the product.

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

3.6. Cable Assembly

The cable assemblies are UL rated for UV light and outdoor exposure.

3.7. Solar Panel

The solar panel must have two tin plated copper foils with a maximum width of 5 mm.

3.8. Assembly

1. The sealant channel of the micro assembly and the attachment area of the solar panel must be dry, oil-free, and free of any contaminants. A continuous bead of a recommended sealant (refer to Section 5) must be applied within the sealant channel. The bead of applied sealant must completely fill the channel and be free of gaps. Refer to Figure 2, Detail A.



To avoid personal injury, the manufacturer's instruction sheet and Material Safety Data Sheet (MSDS) must be reviewed before using the sealant.

2. The housing assembly (not including the cable) of the micro junction box assembly must be secured to the solar panel. The micro assembly must be flat and the centerline of the solder contacts must coincide with the centerline of the panel foils. Refer to Figure 2, Detail B.
3. The sealant must be allowed to cure according to the manufacturer's product specification or data sheet. The micro assembly must be protected from external forces that could cause it to be moved during curing.
4. The panel foils must be soldered to the solder contacts using industry-approved soldering methods. The connections must be tested and approved for electrical continuity. Refer to Figure 2, Detail B.
5. The terminal potting window must be filled with potting compound to within 1 mm of the top of the wall, refer to Figure 2, Detail D, (refer to Section 5 for recommended potting compound). The solder contacts and panel foils must be completely encapsulated with the potting compound. Refer to Figure 2, Detail C and D.
6. Orient alignment rib of cover (part number 2152144-1) with front housing wall (refer to Figure 4). Apply cover to housing immediately after potting. Cover should be latched on both sides and level with top of housing. Refer to Figure 4. After potting, and with the cover in place, the assembly must be protected from environmental extremes for seven days to permit adequate cure time.



To avoid personal injury, the manufacturer's instruction sheet and MSDS must be reviewed before using the potting compound.

3.9. Checking Assembly

1. After adequate curing of the sealant and potting ensure the micro assembly was not forced out of position.
2. The contact cover is aligned properly to the housing and is latched on both sides.

3.10. Installation

For complete installation requirements of the solar panels with the micro assemblies onto the roof, refer to the documentation included with the solar panel.

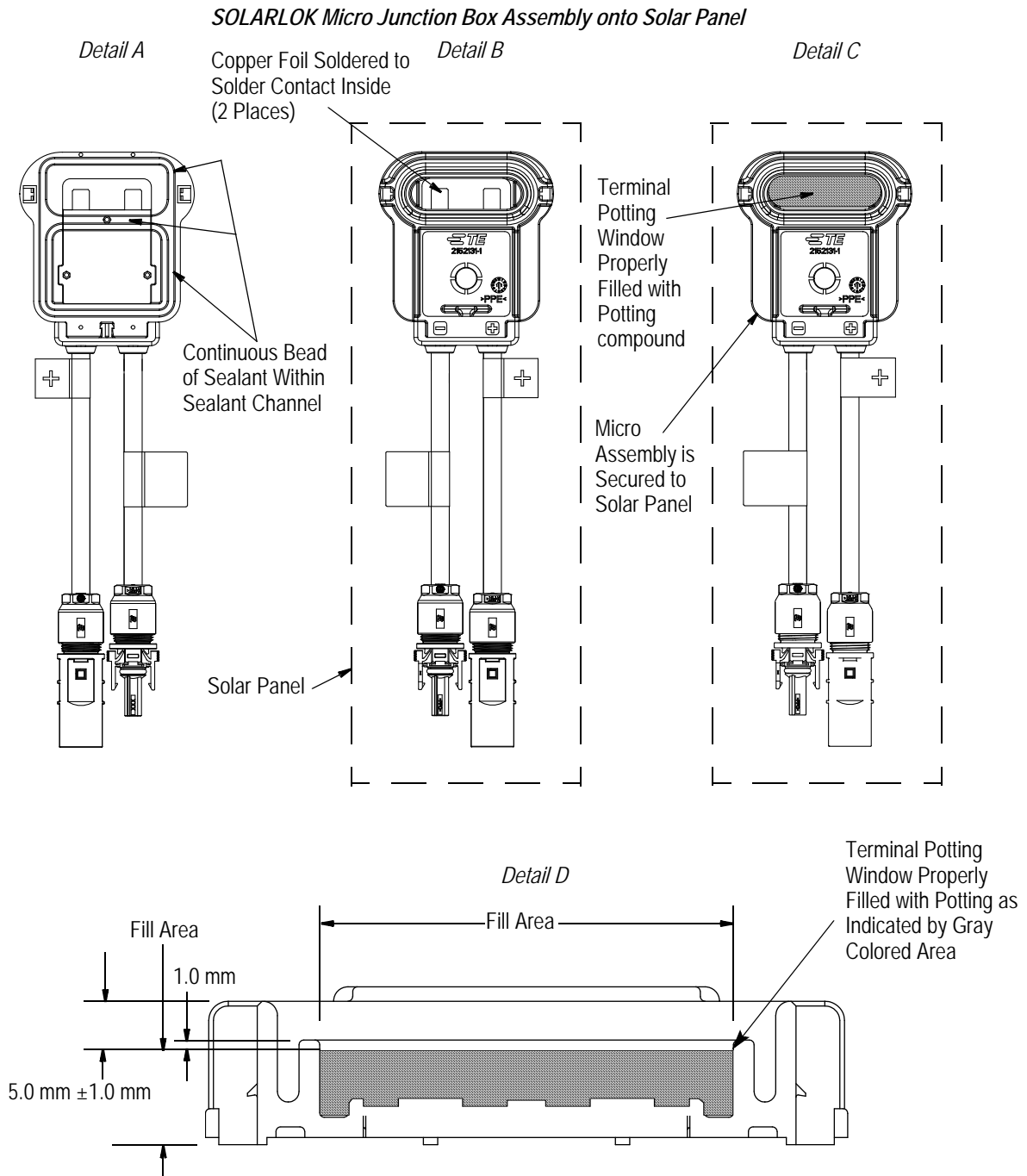


Figure 2

3.11. Connection



To avoid personal injury, the circuit load must be **DISCONNECTED BEFORE** connecting cable couplers. A cable coupler **MUST NOT** be plugged in under load.

The solar panels must be connected using the micro assemblies by plugging the female cable couplers into the male cable couplers. There should be an audible “click” when the couplers are fully mated. The polarity symbols must be observed when making connections. **The cables must not be pulled or twisted.** The first solar panel and last solar panel must be connected to the remainder of the system. An overview of connection is shown in Figure 3.

3.12. Disassembly



To avoid personal injury, the circuit load must be **DISCONNECTED BEFORE** a cable coupler is unplugged. A cable coupler **MUST NOT** be unplugged under load.

A cable coupler must be unplugged by squeezing the release locking latches of the female cable coupler together, then the couplers can be pulled apart. The body (not the cable) of the male cable couplers must be grasped when unplugging the couplers.

3.13. Removal and Repair

The micro assembly cannot be removed from the solar panel without damage to both products. The micro assemblies are not repairable. Damaged or defective product **MUST NOT** be used.

A cable coupler must be replaced after 50 mating cycles of either coupler.

Overview of Connection of Solar Panels Using Micro Junction Box Assemblies

Serial Wire Diagram (Ref)

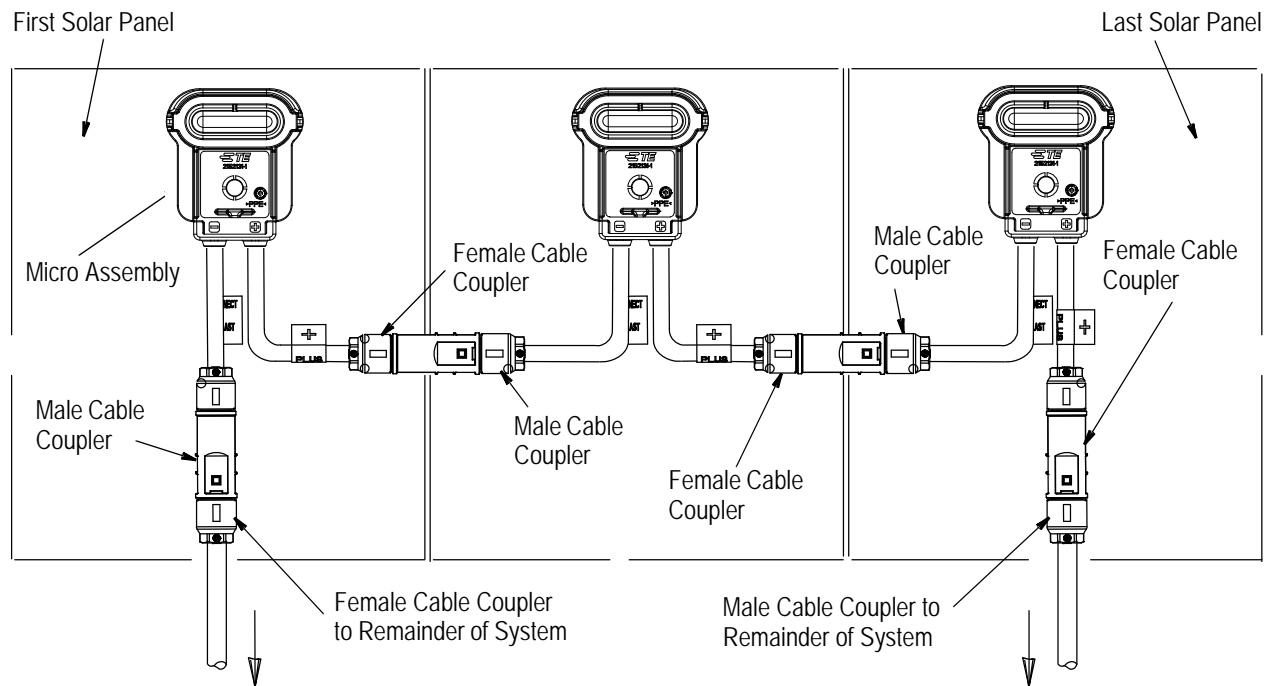


Figure 3

4. QUALIFICATION

SOLARLOK Micro Junction Box Assemblies have been sent to UL for evaluation and testing.

5. MATERIALS AND TOOLING

A sealant is required to secure the micro assembly to the solar panel. Dow Corning PV804 Room Temperature Vulcanization (RTV) Silicon Sealant, (or equivalent is recommended).

Potting compound is required to seal the terminal potting window of the micro assembly. A recommended potting compound is Shin-Etsu Silicones of America KE-210F Potting Compound. Other equivalent potting compounds determined by the module manufacturer can also be used.

No tooling is required.

Dow Corning and Shin-Etsu are trademarks of their respective owners.

6. VISUAL AID

The illustration below shows a typical application of this product. This illustration should be used by production personnel to ensure a correctly applied product. Applications which DO NOT appear correct should be inspected using the information in the preceding pages of this specification and in the instructional material shipped with the product or tooling.

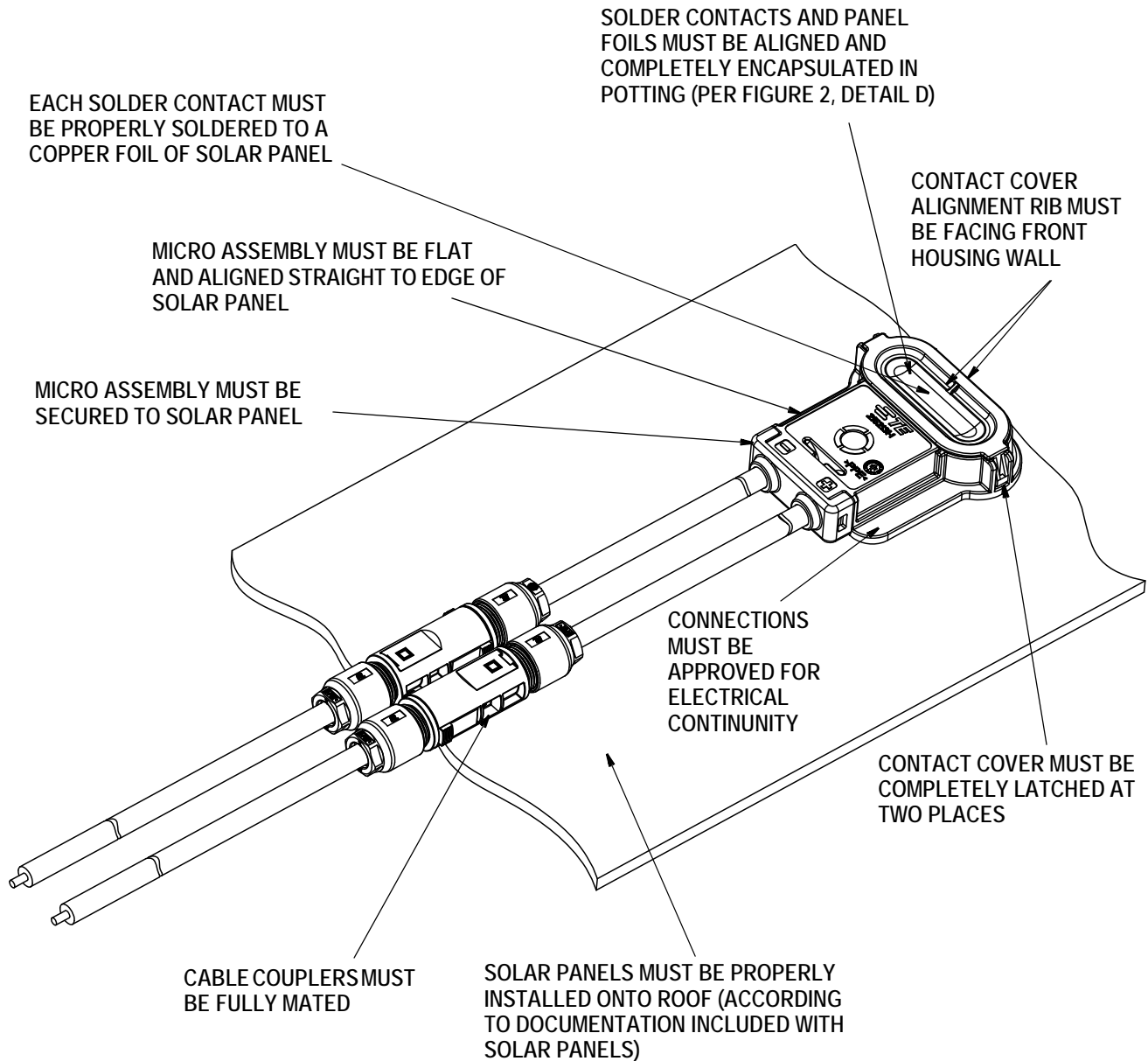


FIGURE 4. VISUAL AID