

## UMCC – Ultraminiature Coax Connector & Cable Assembly Series

### DESCRIPTION

Tyco Electronics introduces the Ultraminiature Coax Connector and Cable Assembly series products. The UMCC series is an ultra low profile coax interconnect solution that meets the ever growing demand for miniaturization in next generation wireless applications. UMCC cable assemblies and connectors are available as double-ended jumpers and inter-series assemblies, and PCB jack receptacles for board mount applications.

Tyco Electronics specializes in solving tough problems with cable assemblies designed and manufactured to meet the most demanding requirements. Tyco Electronics can engineer custom UMCC solutions to meet special requirements. By making Tyco Electronics your partner in cable assembly design, you reduce risk and gain assurance that you will receive your assembly on time, to specification and within budget.

### APPLICATIONS

- Wireless LAN, Mini PCI
- Mobile Antenna/GPS/Radio Systems
- PDA / PCS / Cellular Handset applications
- Wireless Communications systems (LAN, GSM, PCS, WCDMA, UMTS)
- Remote measuring equipment

### KEY FEATURES

- Ultra low profile (2.0mm or 2.5mm maximum mated height)
- Easy snap on/off mating
- Small footprint on PCB (3mm x 3mm)
- Excellent performance to 6 GHz
- Surface mount and reflow solderable
- 360 degree mated rotation
- Available on 0.81mm, 1.13mm, and 1.37mm dia single shield, and 1.32mm dia double shield cable
- Style A receptacles compatible with Hirose U.FL/U.FL(v) Series connectors\*
- Style B receptacles compatible with Murata GSC Series connectors

### For More Information

#### Technical Support

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## SPECIFICATIONS

### REQUIREMENTS

### DETAIL

### ELECTRICAL

|                                       |   |
|---------------------------------------|---|
| Characteristic Impedance:             | 50 Ohms   |
| Frequency Range:                      | DC to 6 GHz   |
| VSWR (mated pair):                    | 1.30 max DC to 3 GHz<br>1.40 max 3 to 6 GHz (cable dependent)                                       |
| Insertion Loss (connectors only):     | 0.24 dB max DC to 6 GHz   |
| Rated voltage:                        | 60 VAC (rms) – standard recept (Styles A, B)  |
| Dielectric Withstanding Voltage:      | 200 VAC, 50 Hz for 1 min (at sea level)   |
| Insulation Resistance:                | 500 Megohms min   |
| Contact Resistance (connectors only): | 20 milliohms max (Center)<br>10 milliohms max (Outer, Plug)<br>10 milliohms max (Outer, Receptacle) |

### MECHANICAL / ENVIRONMENTAL

|                                   |   |
|-----------------------------------|---|
| Durability:                       | 30 cycles – standard recept (Styles A, B) |
| Disengagement Force:              | 2N min perpendicular<br>4N min orthogonal |
| Center Contact Retention force:   | 0.15N min                                 |
| Tape/Reel Packaging (receptacle): | 12mm carrier per EIA-481                  |
| Operating Temperature:            | - 40°C to + 90°C                          |

### MATERIAL

| Part Description       | Material             | Finish                  |
|------------------------|----------------------|-------------------------|
| Shell                  | Phosphor Bronze      | Gold or Silver Plating  |
| Male Center Contact    | Brass or Phos Bronze | Gold Plating            |
| Female Center Contact  | Brass or Phos Bronze | Gold Plating            |
| Insulator (Plug)       | PBT (15% G.F.)       | Black, UL94V-0          |
| Insulator (Receptacle) | LCP                  | Beige or Black, UL94V-0 |

## SPECIFICATIONS

### CABLE INFORMATION

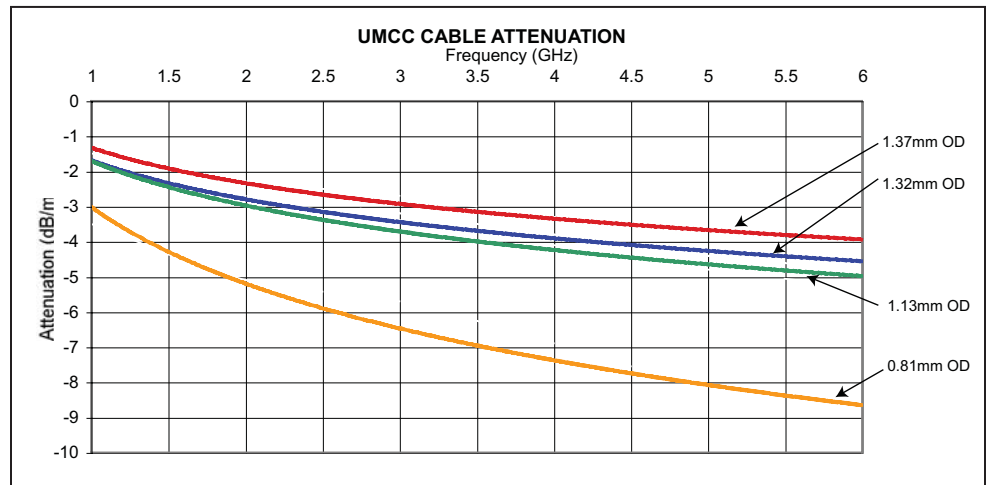
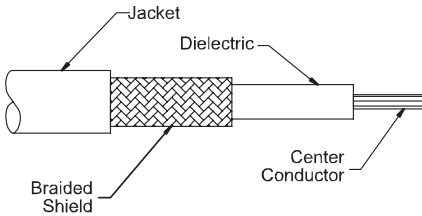
|                   | 0.81 mm Diameter           | 1.13 mm Diameter           | 1.32mm Diameter      | 1.37mm Diameter            |
|-------------------|----------------------------|----------------------------|----------------------|----------------------------|
| <b>MATERIALS:</b> |                            |                            |                      |                            |
| Center Conductor  | Silver Plated Copper       | Silver Plated Copper       | Silver Plated Copper | Silver Plated Copper       |
| Size              | Stranded 7/0.05 mm         | Stranded 7/0.08 mm         | Stranded 7/0.08 mm   | Stranded 7/0.10 mm         |
| Dielectric        | FEP or PFA                 | FEP                        | FEP                  | FEP                        |
| Size              | 0.40 mm OD                 | 0.62 mm OD                 | 0.66 mm OD           | 0.83 mm OD                 |
| Shield            | Silver Plated Copper Braid | Silver Plated Copper Braid | Double SPL Braid     | Silver Plated Copper Braid |
| Coverage          | > 90%                      | > 90%                      | > 90%                | > 90%                      |
| Jacket            | FEP or PFA                 | FEP                        | > 90%                | > 90%                      |
| Size              | 0.81 mm OD                 | 1.13 mm OD                 | 1.32 mm OD           | 1.37 mm OD                 |

### MECHANICAL:

|                     |  |  |  |  |
|---------------------|--|--|--|--|
| Minimum Bend Radius | 5 mm Single Bend<br>30 mm Continuous Flexing | 5 mm Single Bend<br>30 mm Continuous Flexing | 5 mm Single Bend<br>30 mm Continuous Flexing | 5 mm Single Bend<br>30 mm Continuous Flexing |
|---------------------|--|--|--|--|

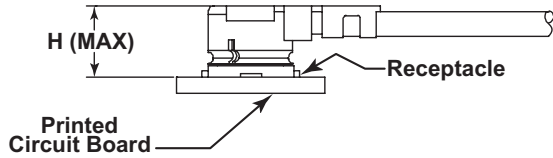
### ELECTRICAL:

|                         |           |           |           |           |
|-------------------------|-----------|-----------|-----------|-----------|
| Impedance (Ohms)        | 50±2      | 50±2      | 50±2      | 50±2      |
| Velocity of Propagation | 70%       | 70%       | 70%       | 70%       |
| CC Resistance (Ohms/M)  | 1.450     | 0.750     | 0.560     | 0.354     |
| Voltage Rating          | 60 VAC    | 60 VAC    | 60 VAC    | 60 VAC    |
| Attenuation             | See Chart | See Chart | See Chart | See Chart |

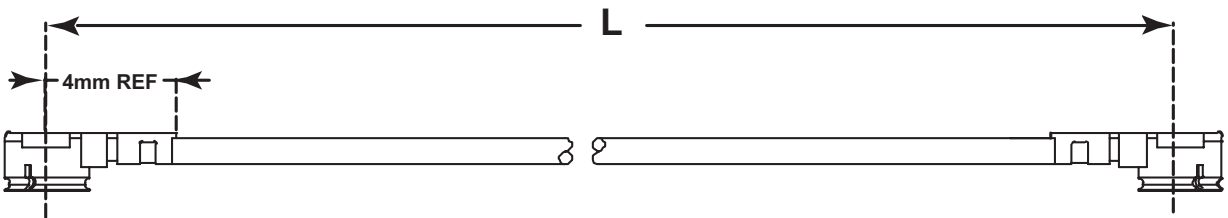


Dimensions are millimeters over inches unless otherwise specified.

## Standard Double Ended Cable Assemblies



| Part Number | Cable Dia | Length L | UMCC Cable Connector Type | Mates with PCB Receptacle | Mated Height (H) |
|-------------|-----------|----------|---------------------------|---------------------------|------------------|
| 2015697-3   | 0.81mm    | 50mm     | I                         | Style B                   | 2.0mm            |
| 2015697-1   | 0.81mm    | 100mm    | I                         | Style B                   | 2.0mm            |
| 2015697-2   | 0.81mm    | 200mm    | I                         | Style B                   | 2.0mm            |
| 2015698-4   | 0.81mm    | 50mm     | II                        | Style A                   | 2.0mm            |
| 2015698-2   | 0.81mm    | 100mm    | II                        | Style A                   | 2.0mm            |
| 2015698-3   | 0.81mm    | 200mm    | II                        | Style A                   | 2.0mm            |
| 2015699-3   | 0.81mm    | 50mm     | III                       | Style A                   | 2.5mm            |
| 2015699-1   | 0.81mm    | 100mm    | III                       | Style A                   | 2.5mm            |
| 2015699-2   | 0.81mm    | 200mm    | III                       | Style A                   | 2.5mm            |
| 2015487-6   | 1.13mm    | 50mm     | III                       | Style A                   | 2.5mm            |
| 2015487-4   | 1.13mm    | 100mm    | III                       | Style A                   | 2.5mm            |
| 2015487-5   | 1.13mm    | 200mm    | III                       | Style A                   | 2.5mm            |
| 2015700-3   | 1.32mm    | 50mm     | III                       | Style A                   | 2.5mm            |
| 2015700-1   | 1.32mm    | 100mm    | III                       | Style A                   | 2.5mm            |
| 2015700-2   | 1.32mm    | 200mm    | III                       | Style A                   | 2.5mm            |
| 2015357-3   | 1.37mm    | 50mm     | III                       | Style A                   | 2.5mm            |
| 2015357-4   | 1.37mm    | 100mm    | III                       | Style A                   | 2.5mm            |
| 2015357-2   | 1.37mm    | 200mm    | III                       | Style A                   | 2.5mm            |



| Total Length (mm) | Standard Tolerance (mm) |
|-------------------|-------------------------|
| 25 < L < 200      | +/- 2                   |
| 200 < L < 700     | +/- 3                   |
| 700 < L < 900     | +/- 4                   |
| 900 < L           | +/- 5                   |

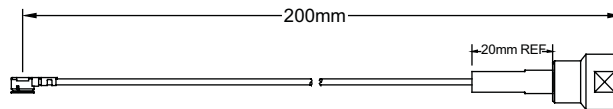
Note: Shortest length L is 25mm

Custom cable assembly lengths available. Contact Tyco Electronics with specific requirements.

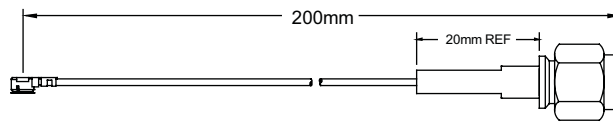
## Interseries Cable Assemblies



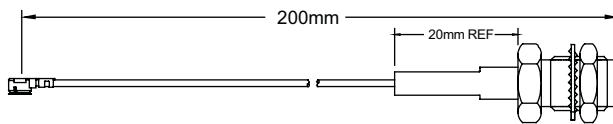
| Part Number | Description                  | Cable Dia | Length | UMCC Conn Type | Mated Height (H) |
|-------------|------------------------------|-----------|--------|----------------|------------------|
| 2032438-1   | UMCC Plug to FME Plug        | 1.37mm    | 200mm  | III            | 2.5mm            |
| 2032439-1   | UMCC Plug to SMA Plug        | 1.37mm    | 200mm  | III            | 2.5mm            |
| 2032440-1   | UMCC Plug to SMA Bulkhd Jack | 1.37mm    | 200mm  | III            | 2.5mm            |
| 2032441-1   | UMCC Plug to MCX R/A Plug    | 0.81mm    | 200mm  | II             | 2.0mm            |
| 2032442-1   | UMCC Plug to MCX R/A Plug    | 1.37mm    | 200mm  | III            | 2.5mm            |
| 2032443-1   | UMCC Plug to MMCX R/A Plug   | 0.81mm    | 200mm  | II             | 2.0mm            |
| 2032444-1   | UMCC Plug to MMCX R/A Plug   | 1.37mm    | 200mm  | III            | 2.5mm            |



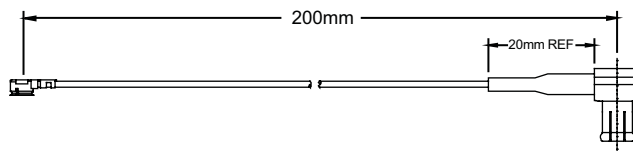
UMCC to FME Plug



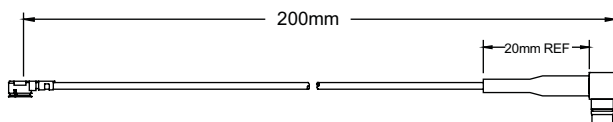
UMCC to SMA Plug



UMCC to SMA Bulkhead Jack



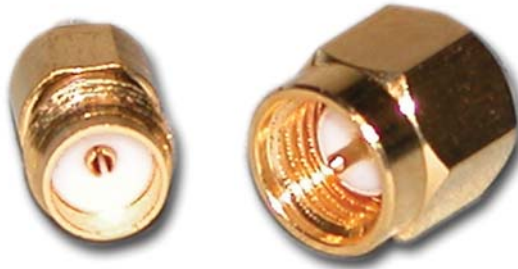
UMCC to MCX R/A Plug



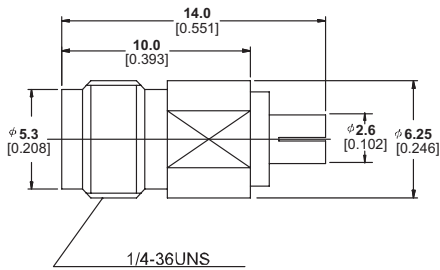
UMCC to MMCX R/A Plug

Custom cable assembly lengths and connector configurations are available. Contact Tyco Electronics with specific requirements.

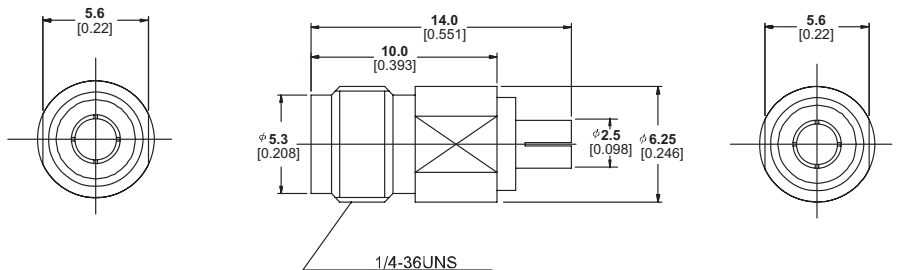
## Adapters



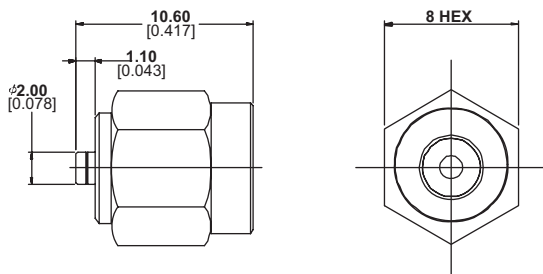
| Part Number | Description                      | UMCC Conn Type |
|-------------|----------------------------------|----------------|
| 1775229-1   | UMCC Plug to SMA Jack            | I              |
| 1775230-1   | UMCC Plug to SMA Jack            | II/III         |
| 1775228-1   | UMCC Jack Receptacle to SMA Plug | I              |
| 1775227-1   | UMCC Jack Receptacle to SMA Plug | II/III         |



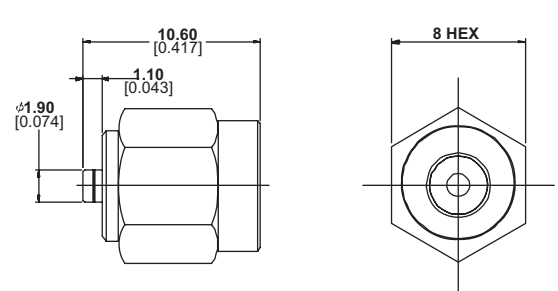
Part Number 1775229



Part Number 1775230



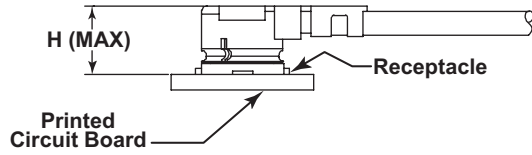
Part Number 1775228



Part Number 1775227

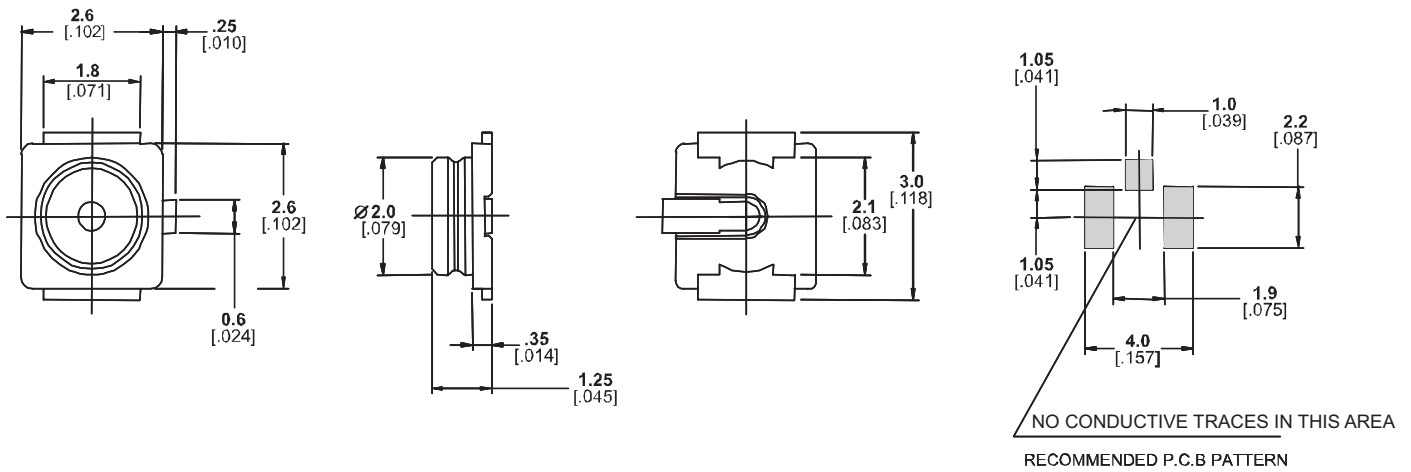
Dimensions are millimeters [inches] unless otherwise specified

## PCB Receptacles --Style A



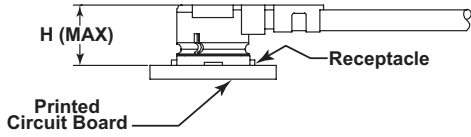
| Part Number | Description         | Style | Mates with UMCC Cable Conn Type | Mated Height (H) | Packaging               |
|-------------|---------------------|-------|---------------------------------|------------------|-------------------------|
| 1566230-1   | UMCC PCB Receptacle | A     | II/III                          | 2.0mm/2.5mm      | Tape (2500 pieces/reel) |
| 1566230-2   | UMCC PCB Receptacle | A     | II/III                          | 2.0mm/2.5mm      | Bulk (500 pieces/bag)   |

### UMCC PCB Receptacle - Style A



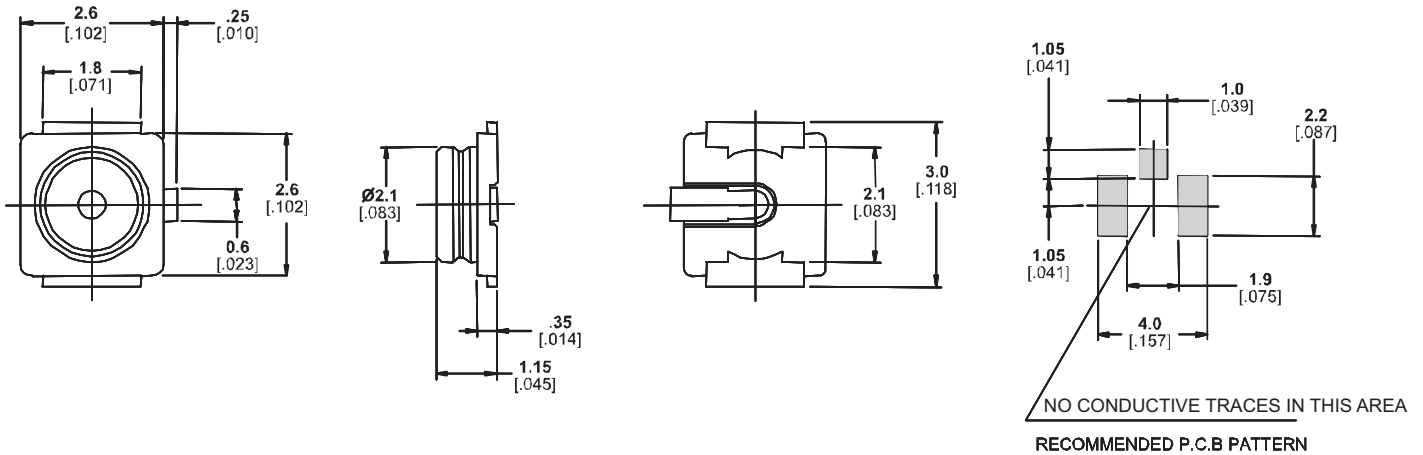
Dimensions are millimeters [inches] unless otherwise specified

## PCB Receptacles – Style B



| Part Number | Description         | Style | Mates with UMCC Cable Conn Type | Mated Height (H) | Packaging               |
|-------------|---------------------|-------|---------------------------------|------------------|-------------------------|
| 1775146-1   | UMCC PCB Receptacle | B     | I                               | 2.0mm            | Tape (2500 pieces/reel) |
| 1775146-2   | UMCC PCB Receptacle | B     | I                               | 2.0mm            | Bulk (500 pieces/bag)   |

### UMCC PCB Receptacle - Style B



Dimensions are millimeters [inches] unless otherwise specified



## Application Notes

### Soldering Profile - SMT Receptacle

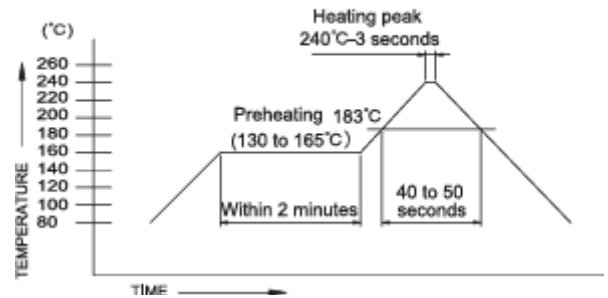
#### Recommended Temperature Profile (Reference)

- 1) The preferred technique for mounting the SMT Receptacle package is to reflow solder the device onto a PCB (Printed Circuit Board).
- 2) The maximum temperature for the lead of PCB surface does not exceed 240 .
- 3) The right reflow soldering profile is for reference and will modify under individual different conditions.

#### Hand Soldering (Reference only)

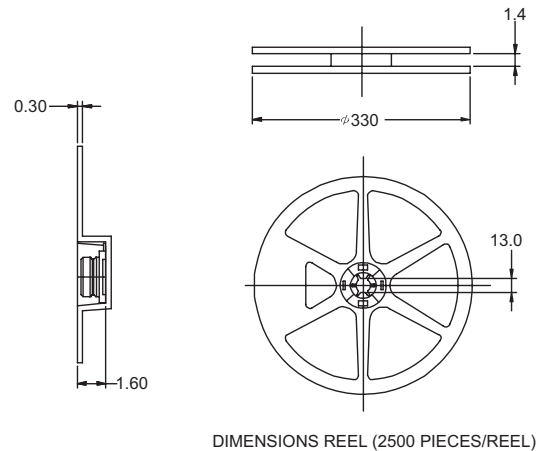
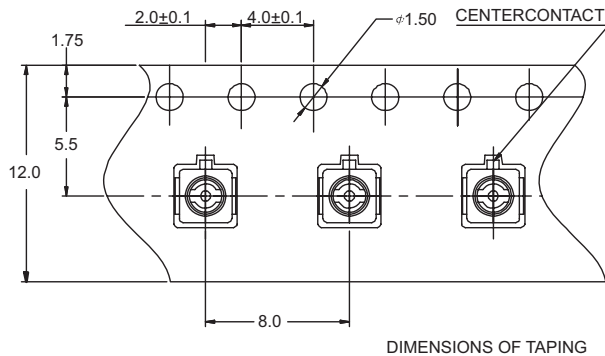
- 1) Soldering iron: The maximum temperature 240 .
- 2) Soldering period: within 5 seconds.

RECOMMENDED TEMPERATURE PROFILE (REFERENCE)



### Tape and Reel Packaging Specifications

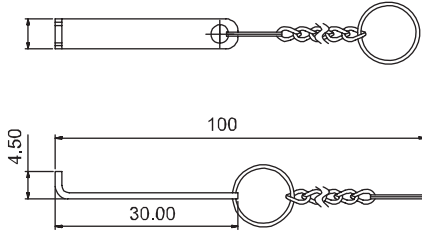
#### Standard Receptacles



## Application Notes

### Extraction Tool

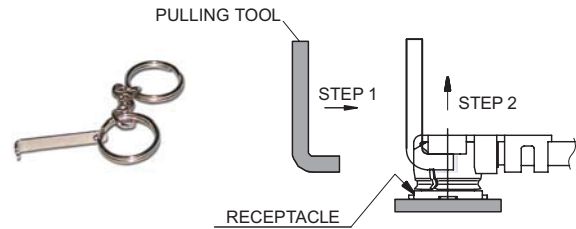
Part Number: 1775231-1



Dimensions are millimeters [inches] unless otherwise specified

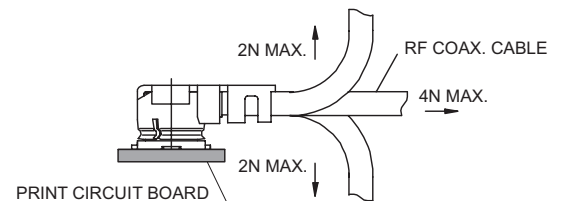
### Mating/Unmaking — Cable Plugs

- 1) To mate the connectors, insert the cable plug into the SMT receptacle, making sure the cable plug is as vertical as possible and the mating axis of both connectors are aligned. Do not insert on an extreme angle.
- 2) To unmate the connectors, insert the end portion of the extraction tool under the SMT receptacle connector flanges and pull off vertically in the direction of the mating axis.



### Permissible Load

Do not apply excessive load to the cable after the connectors are mated. Please refer to the permissible loads indicated in the figure to the right.



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## JONHON

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Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«**FORSTAR**» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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