



**M/A-COM**

1307043



# **SSMT™ NEXT GENERATION SURFACE MOUNT**

## **SSMT™ Interconnect System**

### **Microminiature Surface Mount RF Connectors**

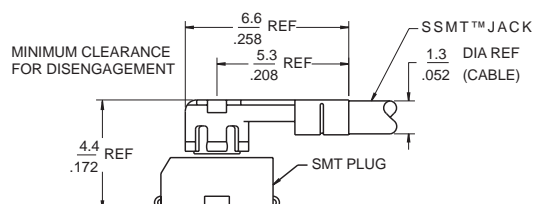
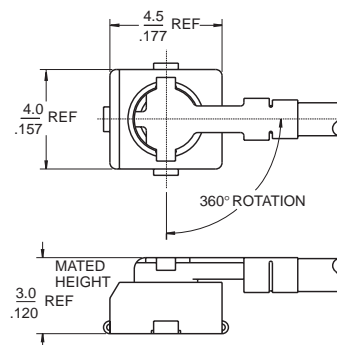
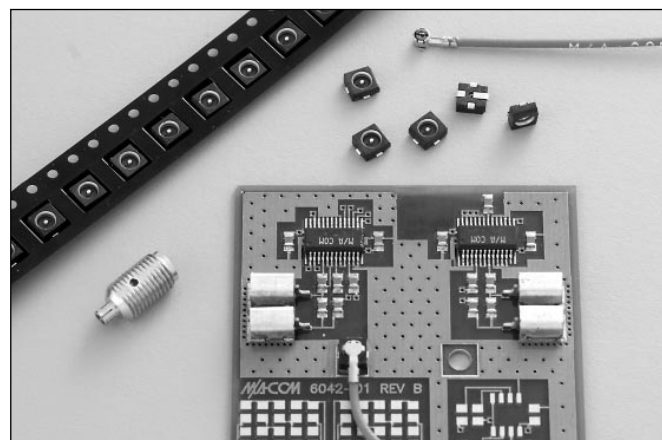
- 3.0 mm mated height
- Excellent interface retention
- Flexible micro-coax cable
- 360 degree mated rotation
- Tape and Reel packaging

M/A-COM's next generation SSMT™ surface mount Interconnect System is designed to provide superior electrical and mechanical performance for wireless communication applications. The SSMT™ occupies less printed circuit board (PCB) real estate than conventional through hole coaxial connectors. An innovative microstrip mounting pattern and plug receptacle design ensure reliable grounding and PCB retention characteristics. The SSMT™ Interconnect System allows closer pitch/spacing, standing a mere 3.0 mm (fully mated height) off the board. The mated SSMT™ interface allows 360 degrees of rotation providing maximum PCB design flexibility. The SSMT™ interface has been designed to provide optimal retention for applications where shock, vibration or cable flexure may be encountered. Force to disengage by cable load (cam-out) exceeds 300 grams.

These next generation enhancements and features have been built into the SSMT™ design to provide the performance of much larger industry standard connectors. The SSMT™ Interconnect System consistently achieves broad band electrical performance through 6 GHz with a maximum VSWR of 1.20:1 at 2 GHz. This broad band performance establishes a reliable interface that can be utilized for future system upgrades without concern for performance degradation.

The SSMT™ utilizes a common OSMT plug receptacle, part number 2367-0000-54, which is designed for high volume assembly using surface mount technology and is available in tape and reel packaging for automatic pick and place board assembly. The mating cable jack is available terminated to a highly flexible micro-coax cable as either a pigtail, jumper or standard interseries connector assembly to meet your needs.

The SSMT™ Interconnect System can be manually mated, facilitating high volume assembly and eliminating the need for special engagement tooling. The SSMT™ interface design aligns the center contacts prior to full mating to ensure a robust mechanical engagement. Interface durability is rated at 100 mating cycles.



Note: Unless otherwise specified, all dimensions are mm/in

M/A-COM's SSMT™ Interconnect System is ideal for wireless surface mount applications in cellular basestations, handsets, personal communications systems (PCS), global positioning systems (GPS), wireless local loops (WLL), wireless LAN (WLAN) and paging. The SSMT™ provides versatile, high quality RF solutions for next generation interconnect needs. M/A-COM is an ISO 9001 certified manufacturer and maintains a SPC controlled manufacturing environment. Call your local Sales or authorized Distribution office for additional information or qualification samples.

V4.00

Requirement	Detail
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## General

Materials		
SMT Plug	Housing:	Polyphenylene Sulfide
	Contacts:	Copper Alloy
SSMT™ Cable Jack	Outer Contact:	Beryllium Copper
	Inner Contact:	Beryllium Copper
	Dielectric:	Polypropylene, GF
Finish	Plug and cable jack - Contacts: Gold plate over nickel plate	

## Electrical

Frequency	dc - 6 GHz
Nominal Impedance	50 Ohms
Voltage Rating	250 Volts (VRMS Maximum) @ Sea Level
VSWR (Mated Pair)	1.20:1 Maximum @ 2 GHz 1.40:1 Maximum @ 6 GHz
Insulation Resistance	5000 Megohms Minimum
Dielectric Withstanding Voltage	500 Volts (VRMS Minimum) @ Sea Level
Contact Resistance (Connectors Only)	
Center Contact	15 milliohms Maximum
Outer Contact	10 milliohms Maximum
Insertion Loss (Connectors Only)	.15dB Max. @ 6 GHz

## Mechanical

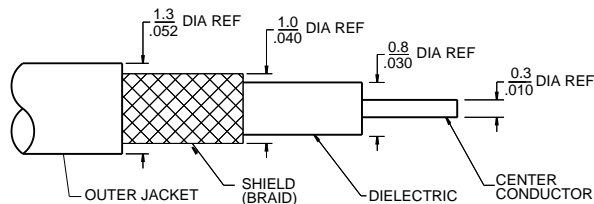
Connector Durability	100 mating cycles
Tape/Reel Packaging (Plug)	12mm per EIA-481
Force to Engage	5.5 lbs. Max. (3.5 lbs. typ.)
Force to Disengage	(2.0 lbs. typ.) 4.0 lbs. Max. (2.0 lbs. typ.)
Force to Disengage by Cable Load (camout)	300 Grams Min. (800 Grams typ. initial mate)

## Environmental

Temperature Rating (Mated Pair)	-40°C (-40°F) to +125°C (257°F)
Resistance to Solder Heat	Infrared, convection and vapor phase solderable (plug only). Maximum reflow time/temperature not to exceed 260°C for 3 minutes.

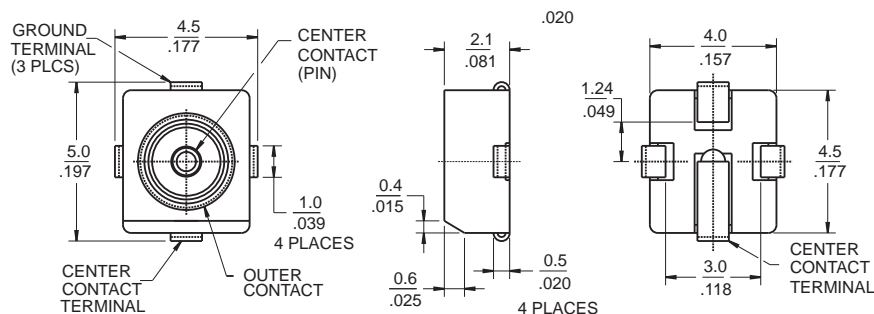
## Cable Specifications

Materials	
Jacket:	FEP (polytetrafluoroethylene)
Shield:	Silver plated copperwire, 44 AWG, 90% min. coverage
Dielectric:	PTFE (polytetrafluoroethylene)
Center Conductor:	Silver plated copper clad steel, 30 AWG
Minimum Bend Radius	6.35mm (.250 inch)
Insertion Loss (Cable Only)	0.5 dB/ft., 2.0 dB/m @ 1 GHz 0.9 dB/ft., 3.0 dB/m @ 2 GHz
Center Conductor Resistance	.25 Ohms per foot average. 819 milliohm/meter Nom.; 250 milliohm/Ft. Nom.



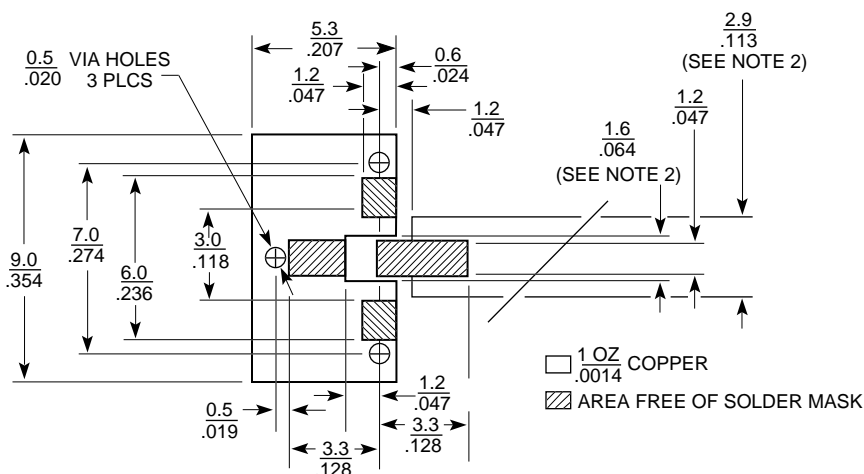
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## Straight SMT PCB Mount Plug Receptacle



Part Number	Packaging	Quantity
2367-0000-54	Bulk	Multiple of 100
2367-5001-54	178mm (7.0 inches) Dia. Taping	800 pcs/reel
2367-5002-54	330mm (13.3 inches) Dia. Taping	3000 pcs/reel

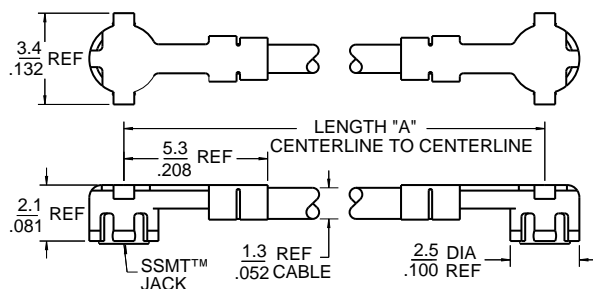
### Recommended Mounting Pattern for Microstrip Line



Notes:

1. Printed wiring board material: glass epoxy.  
FR-4 or similar, relative permittivity:  
4.8, 1 oz. copper clad both sides.
2. These dimensions valid for 1.6 (.062) board  
thickness.

## Right Angle Jack to Jack Cable Assembly



Note: Unless otherwise specified, all dimensions are mm/in

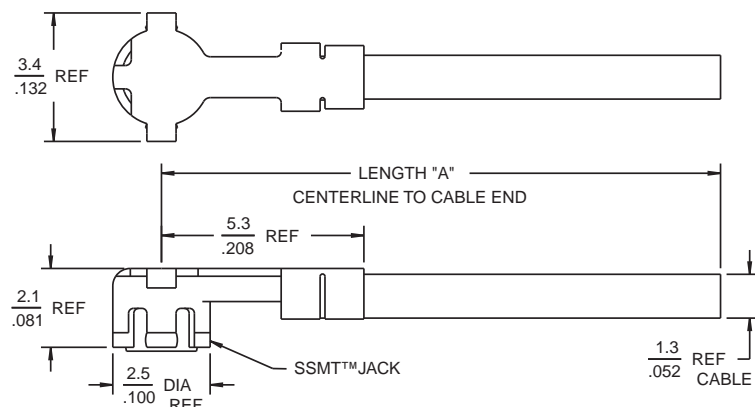
Part Number	Cable Length <sup>1</sup>	
	mm	(Inches)
9960-1100-24	100	4
9960-1200-24	200	8
9960-1305-24	305	12

1. Consult factory for non-standard cable lengths.  
Length 'A' Tolerances.

Length 'A' mm (IN)	Tolerance mm (IN)
50 To 100 (3.94)	$\pm 3$ ( $\pm .12$ )
101 To 500 (3.98 to 19.69)	$\pm 5$ ( $\pm .20$ )
Over 500 (19.69)	$\pm 10$ ( $\pm .39$ )
2. Connector centerlines align  $\pm 30^\circ$  as shown for lengths of 165mm (6.5 in.) or less. Cable assemblies over 165mm (6.5 in.) have randomly aligned connectors.
3. SSMT™ Jack is not mateable with OSMT High Retention plug receptacle (2367-5006-54)

V4.00

## Right Angle Jack Cable Pigtail



Part Number	Cable Length <sup>1</sup> mm (Inches)
9960-2100-24	100 (4)
9960-2200-24	200 (8)
9960-2305-24	305 (12)
9960-2510-24	510 (20)

1. Consult factory for non-standard cable lengths.

Cable length tolerance:

Length 'A' Tolerances.

Length 'A' mm (IN)	Tolerance mm (IN)
50 To 100 (3.94)	± 3 (± .12)
101 To 500 (3.98 to 19.69)	± 5 (± .20)
Over 500 (19.69)	± 10 (± .39)

2. SSMT™ Jack is not mateable with OSMT High Retention Plug receptacle (2367-5006-54).

Note: To avoid damaging the cable, minimize time at temperature while soldering and/or applying heat to unterminated end of cable.

## Inter-Series Cable Assemblies



Housing Finish: SMA, Passivated stainless steel; SMB and D-sub coax, Gold Plate; OSX, Nickel plate.

Part Number	Cable Length <sup>2</sup> mm (Inches)
9960-4100-XX	100 (4)
9960-4200-XX	200 (8)
9960-4305-XX	305 (12)

1. To order, replace XX in part number with appropriate dash numbers from tables below indicating connector choice.

2. Consult factory for non-standard cable lengths:

Length 'A' Tolerances.

Length 'A' mm (IN)	Tolerance mm (IN)
50 To 100 (3.94)	± 3 (± .12)
101 To 500 (3.98 to 19.69)	± 5 (± .20)
Over 500 (19.69)	± 10 (± .39)

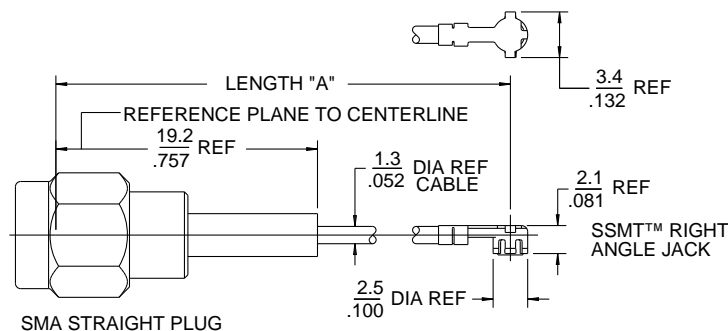
3. Connectors are randomly aligned unless otherwise noted below.

4. SSMT™ Jack is not mateable with OSMT High Retention Plug receptacle (2367-5006-54).

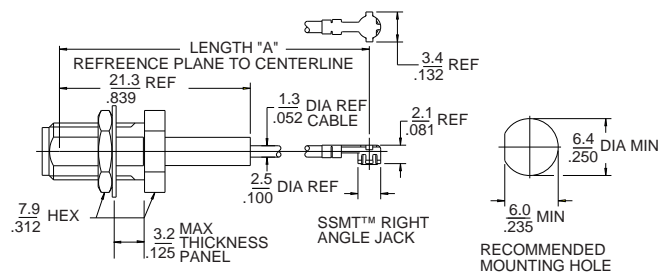
## SMA Straight Plug

Dash Number

-01



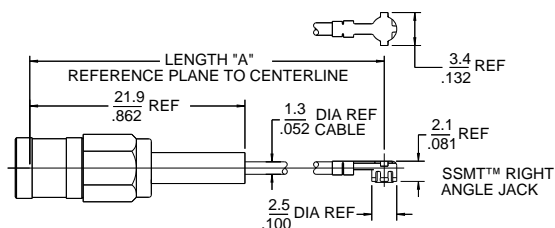
## SMA Bulkhead Jack



Dash Number

-02

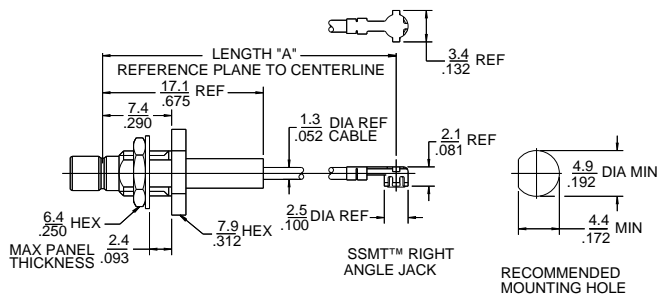
## SMB Straight Plug



Dash Number

-03

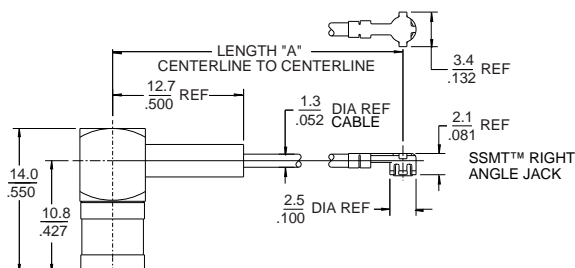
## SMB Bulkhead Jack



Dash Number

-04

## SMB Right Angle Plug



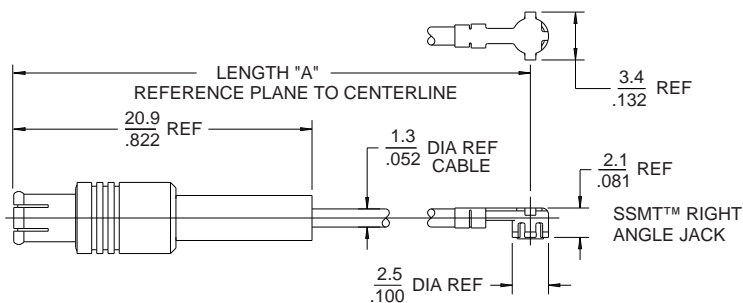
Dash Number

-05

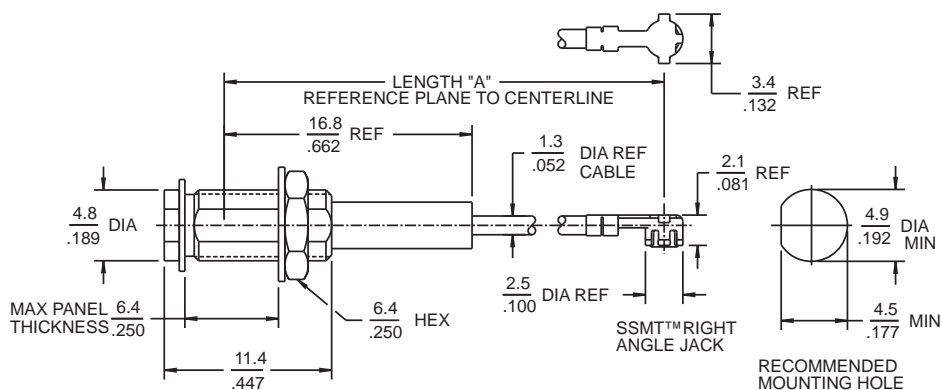
Note: Unless otherwise specified, all dimensions are mm/in

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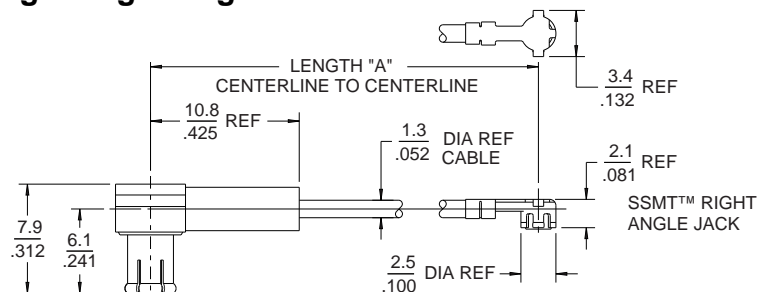
## OSX Straight Plug


**Dash Number**
**-06**

## OSX Bulkhead Jack

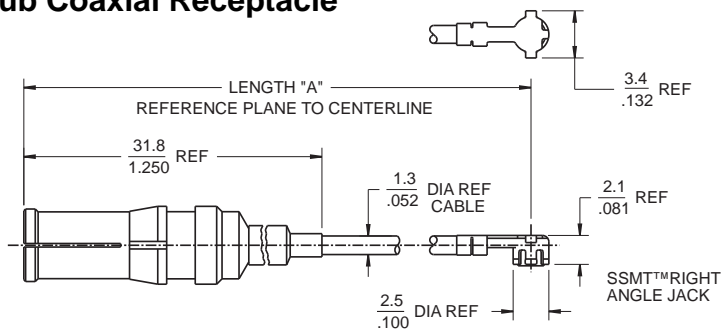

**Dash Number**
**-07**

## OSX Right Angle Plug

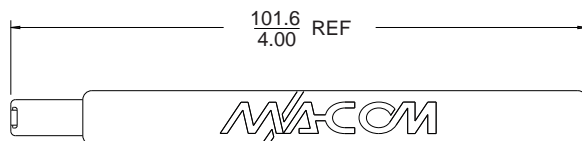

**Dash Number**
**-08**

Note: Unless otherwise specified, all dimensions are mm/in

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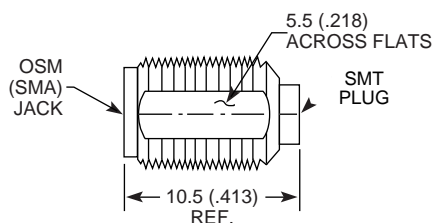
**50 OHM D-Sub Coaxial Receptacle**


Dash Number
-09

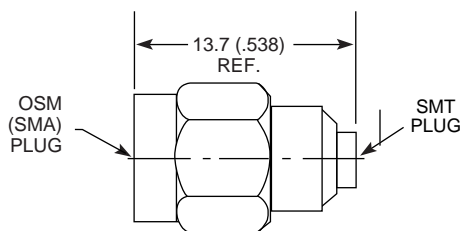
**SSMT Disengagement Tool**


Part Number	2598-5400-54
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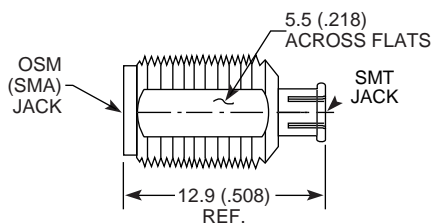
See Application Notes for instructions

**SMT to SMA Between Series Adapters**
**SMT Plug to SMA Jack Adapter**


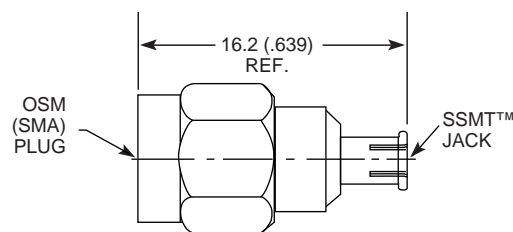
Part Number	2382-2240-00
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**SMT Plug to SMA Plug Adapter**


Part Number	2381-2241-00
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**SMT Jack to SMA Jack Adapter**


Part Number	2380-2240-00
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**SMT Jack to SMA Plug**


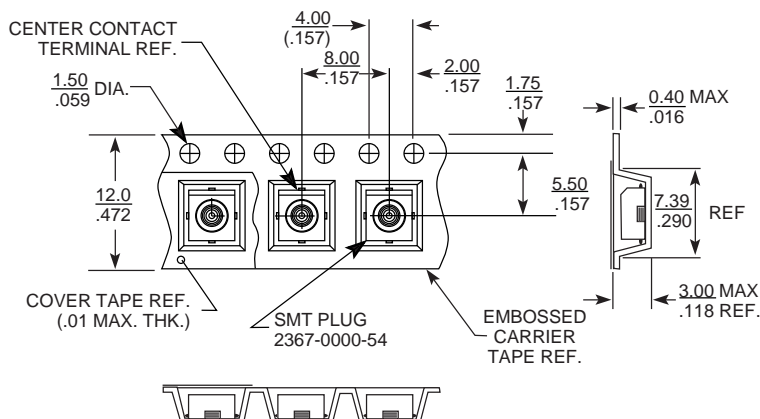
Part Number	2382-2241-00
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Note: Unless otherwise specified, all dimensions are mm/in

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### Packaging

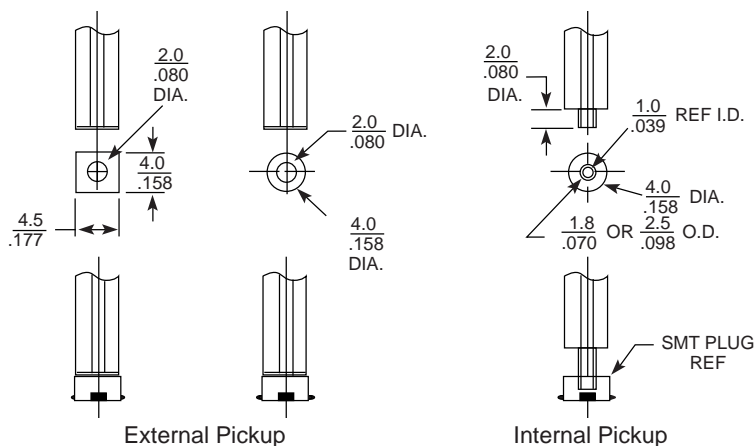
- Bulk Packed or Packaged in Plastic Carrier Tape on a Reel
- Available on 178mm/800 pc or 300mm/3000 pc Plastic Reel
- Sealed Plastic Carrier Tape in Accordance with EIA-481-1
- Conductive Anti-static Tape Material To Prevent Static Charge Entry to Electronic Assembly or Equipment
- Recommended Max. Storage Temperature of Plastic Carrier Tape: 40°C (140°F), 50% Relative Humidity Max.



**Figure 1**  
SMT Surface Mount Plug Receptacle  
Tape Package Detail Dimensions and Orientation

### Automatic Placement

The SMT surface mount plug receptacle is compatible with industry standard automatic placement equipment utilizing pneumatic (vacuum) part pick-up. SMT plug surface mount receptacles have been approved for use with Fuji pick and place equipment. A standard 1.8 or 2.5 mm dia. pneumatic vacuum nozzle is recommended for internal pick-up. Vacuum nozzle configuration may vary depending on equipment utilized. Typical configurations follow:



**Figure 2**  
Typical Pneumatic Nozzel

Nozzel vacuum should be 15-30 inch Hg.  
Component placement pressure should not exceed 400g.

Note: Unless otherwise specified, all dimensions are mm/in

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### Cable Stripping

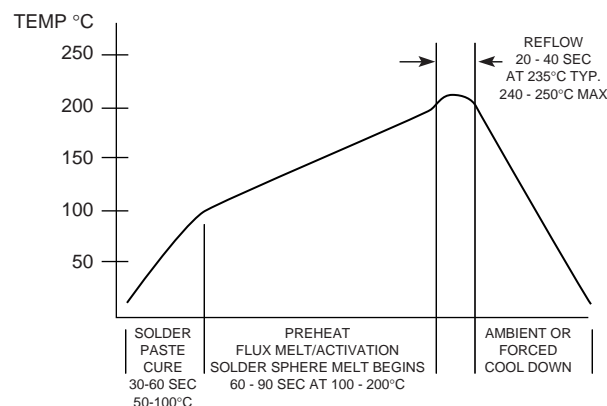
To ensure optimal performance for pigtail soldering applications, it is critical that proper care be exercised in the cable stripping operation. M/A-COM has prepared a detailed application note to facilitate proper stripping of the SSMT™ Micro-coax cable. This application note outlines proper procedures and calibration techniques for recommended Schleuniger brand automatic stripping equipment. Application note ID 1015 entitled, "Cable Stripping Process for SSMT™ Surface Mount Connector Series" is available from a local M/A-COM field office, authorized distributor or direct through our global applications engineering group.

### Soldering

SMT plug receptacles are designed for reflow soldering processes, however excellent results can still be achieved using manual soldering. Flow (wave) soldering is not appropriate for this device.

The type of solder paste selected for reflow soldering is generally a function of many factors relative to the overall system (PWA\*) design. Most applications will use common electronic grade solders such as: 63/37, 60/40 or 62/36/2 with mild rosin/resin fluxes. Metal content of the paste for screen and/or stencil applications is generally 85-90% by weight, slightly lower for nozzle dispensing applications.

When screening or stenciling, solder paste thickness of .15mm (.006 inch) to .25mm (.010 inch) is recommended.



**Figure 4**

*Typical Infrared and Convection Heating/Soldering Profile*

*\* Printed Wiring Assembly*

Note: Unless otherwise specified, all dimensions are mm/in

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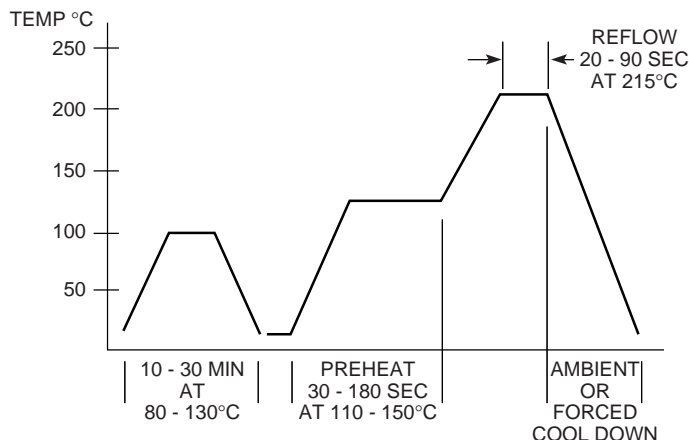
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### Soldering cont'd.



**Figure 5**

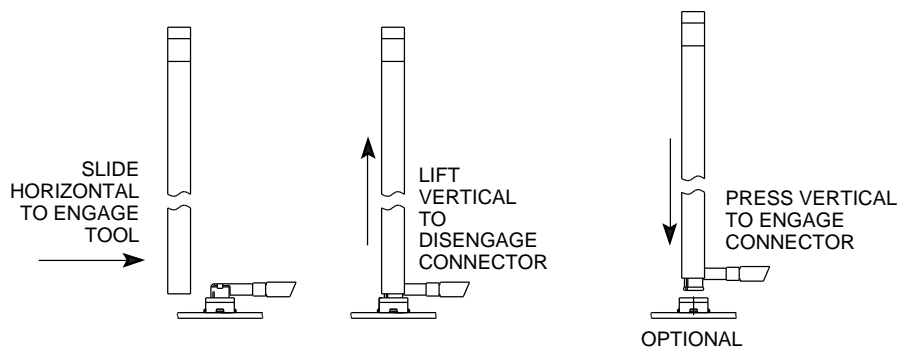
*Typical Vapor Phase Heating/Soldering Profile*

A 15-40 watt max. fine point tip soldering iron is recommended for manual soldering. Soldering iron tip temperature should not exceed 350-370°C. Lengthy application of heat and/or direct contact of the iron tip with the plastic housing should be avoided. The flux core solder (i.e.; 63/37 RMA, 62/36/2 RMA) is recommended. The center contact pad reflows easiest because of relatively low thermal mass, therefore, the center contact lead should be soldered first to minimize connector "skating".

### Post-Solder Cleaning

SMT plug receptacles can withstand most electronics grade cleaning agents including: high temperature water/aqueous cleaners, ethanol, methanol, MEK, acetone, 1,1,1-trichloroethane, trichloroethylene, perchloroethylene, chlorofluorocarbon (CFC) solvents, isopropanol, dichlorofluoroethane, and blends. The SSMT cable can also withstand mild exposure to the above listed cleaning agents.

### Disengagement Tool Part Number: 2598-5400-54



**Figure 6**

*Use of Engagement/Disengagement Tool  
(2598-5400-54)*

Note: The SSMT™ disengagement tool can be utilized as an optional engagement tool versus manual hand installation.

Note: Unless otherwise specified, all dimensions are mm/in

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