SMA Flange Connectors

For better electrical performance, lower costs, and improved design flexibility

Consider the advantages of interchangeable transition pins for your microwave packages:

- **Increase package design options**
- **Replace/substitute components without disturbing package integrity**
- **Assure mechanical integrity for improved electrical performance**
- **Simplify testing procedures**
- **Reduce inventory costs**

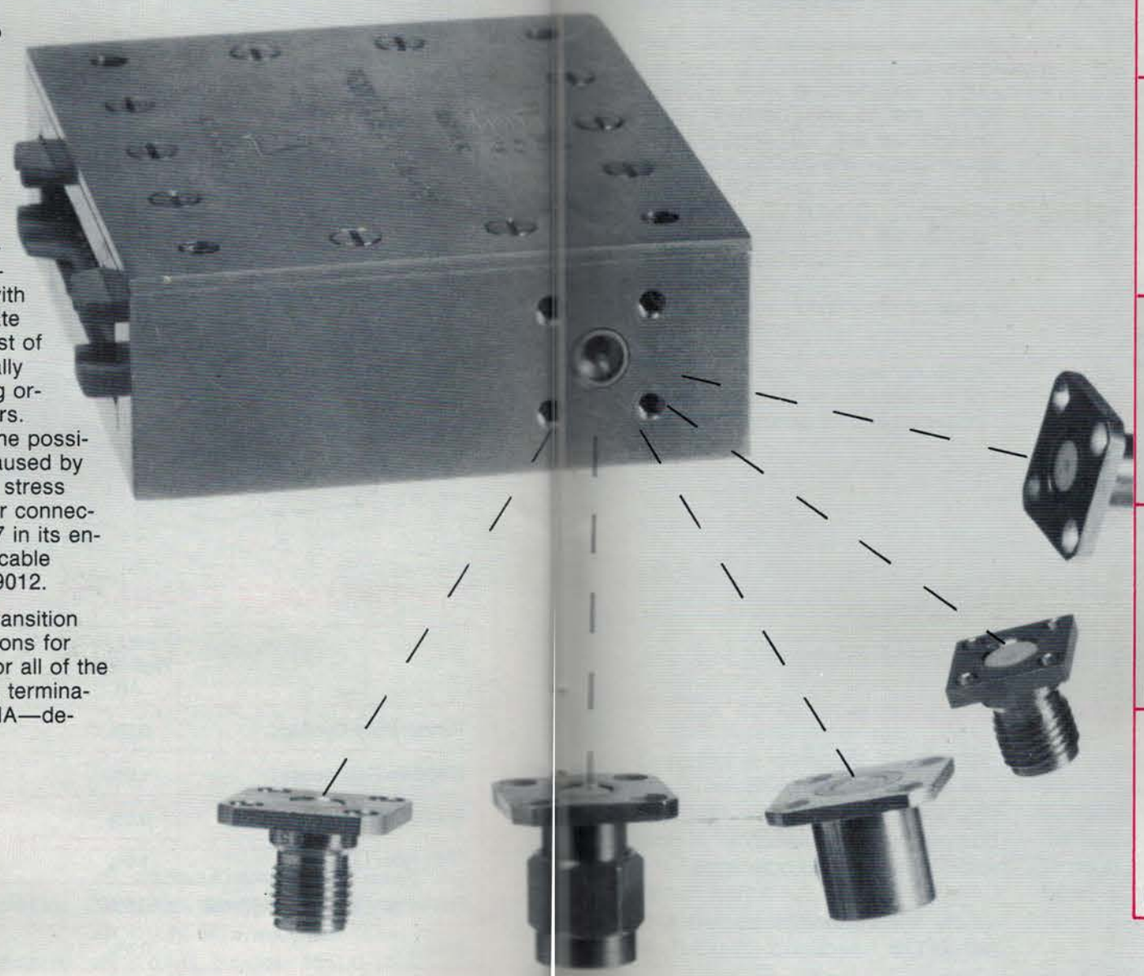
EMC's interchangeable design allows you the option of transitioning your circuit to coax with an attenuator, termination, DC block, or SMA connector—even after your package has been sealed. Over the years, we've discovered that many transition problems are caused by fixed transition pins or tabs. Our solution was simple and it works: eliminate them from our connectors and replace them with removable pins which make your life easier in many ways. One of which you'll really appreciate: you can replace any connection on your package in the field without opening or disturbing the package.

With this unique concept, you can change components simply, adjust your circuit quickly, and maximize performance with a minimum of parts in inventory. We offer five different interchangeable transition configurations plus our hermetic feedthrough for sealed packages for all of the attenuators, terminations, DC blocks, and SMA connectors shown in this catalog. These include pins, tabs, slotted pins, and a machinable blank pin for special applications. Regardless of your application, you can select the precise transition for your circuit while using the same basic connectors for your circuit package.

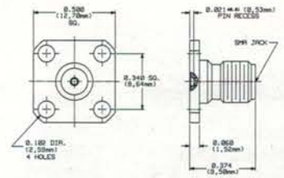
Interchangeable transition pins slip-fit into connectors, and are soldered to the circuit. This permits you to remove your connector without disturbing the circuit contact, perhaps exchanging an attenuator or termination for a connector and drastically simplify testing procedures.

EMC's connectors with interchangeable pins also allow non-destructive testing, providing you with better control over performance. And speaking of performance, the stress free contact of the transition pins eliminates the possibility of damaging the circuit/pin solder joint. Interchangeable transitions, with their slip fit joints, eliminate all axial stresses and most of the rotational stress usually encountered when mating ordinary fixed pin connectors. Slip fitting also reduces the possibility of circuit damage caused by connector mounting. The stress free transition permits our connectors to meet MIL-C-83517 in its entirety as well as the applicable requirements of MIL-C-39012.

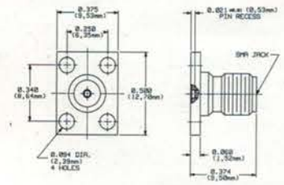
EMC's interchangeable transition pins open a world of options for you. They are available for all of the connectors—attenuators, terminations, DC blocks, and SMA—described in this catalog.



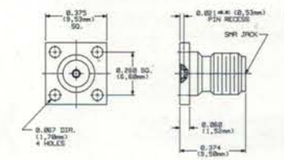
Model 6540



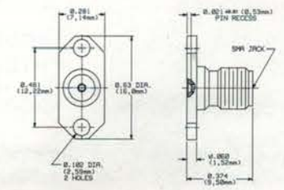
Model 6541

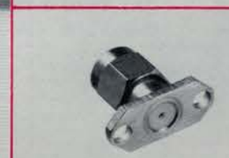


Model 6542

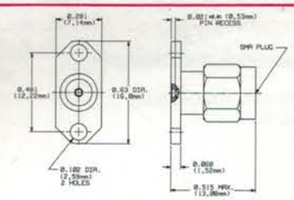


Model 6520

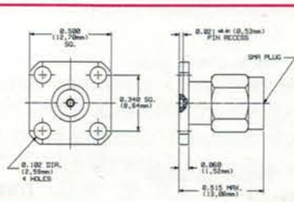




Model 6620



Model 6640



SMA Connectors

GENERAL	Material		Non-magnetic stainless steel per QQ-S-764, Class 303 Cond. A. Beryllium copper per QQ-C-530 half hard. Polytetrafluorethylene MIL-P-19468
	Finish		Center contacts: Gold per MIL-G-45204, Type II, Class 2, Grade C Other metal parts: Sufficient to meet corrosion requirements of MIL-C-39012.
	Design		Mating dimensions are in accordance with MIL-C-39012 requirements.
ELECTRICAL	Insulation Resistance		5K megohms minimum per MIL-STD-202, Method 302, Test Condition B.
	Dielectric Withstanding Voltage		Per Method 301 of MIL-STD-202 500 VDC
	Contact Resistance		Center contact: 3.0 milliohm Outer Shell: 2.0 milliohm
	Voltage Standing Wave Ratio (VSWR)		1.05 +.005 (frequency GHz) From DC to 18 GHz
	R.F. Leakage		60 db minimum from 2-3 GHz.
	Insertion Loss		0.15 db maximum at 6 GHz.
MECHANICAL	Force to Engage/ Disengage		Torque: 2 in-lbs. maximum.
	Coupling Nut Retention Force		60 lb. minimum - PLUG ONLY (Not applicable to Jack)
	Coupling Proof Torque		15 inch-pounds minimum PLUG ONLY (Not applicable to Jack)
	Mating Characteristics		Insertion: Test Pin-0.0370 dia. Force 3.0 lb. max. Withdrawal: Test Pin-0.0355 dia. Force 1.0 oz. min. (JACK ONLY, not applicable to plug)
	Contact Durability		500 cycles minimum
	Center Contact		6 lb. min. axial force. Torque not applicable.
ENVIRONMENTAL		MIL-STD-202 Par.	
	Vibration	Method 204 Test Condition	20 g peak - no loading
	Shock	Method 213, Cond. I	100 g, 6 msec, sawtooth. No loading.
	Thermal Shock	Method 107 Test Condition B except as noted	-65°C to +85°C
	Corrosion (Salt Spray)	Method 101 Test Condition B	5% Salt Solution (48 hours)
	Moisture Resistance	Method 106, except as noted	Test condition per 4.6.20 of MIL-C-39012. Step (e) after 24 hr. drying period
	Corona (Reduced Barometric Pressure)	Method 105 Test Condition C, except as noted	70,000 ft. altitude, no corona @200 Vrms, 50 Hz

SMA Connectors

EMC Technology's NEW Series 6500 and 6600 units represent a unique concept for SMA connectors. They may LOOK the same but are specifically designed to provide engineers flexibility previously unavailable for interfacing with flat sandwich type circuits (stripline, microstrip, slabline, etc.). This type of "transitional connector" is one which adapts from coaxial circuitry to flat transmission line environment providing a match between the two transmission systems. The concept is based on looking at the "transitional connector" as having two separate and distinct functions — a connector (coaxial) phase and a transition, or adaptor, phase. By separating the two functions it is possible to get a coaxial connector that has excellent RF performance and a transition that can be tailored to adapt to a particular circuit with minimal discontinuity.

A distinguishing feature of these new models is a built-in provision for testing units prior to circuit installation. Using Model 6401 test pin, a pair of connectors can be non-destructively tested and then reused with no detrimental effect on connector performance. Details of the test procedure are shown on page 32.

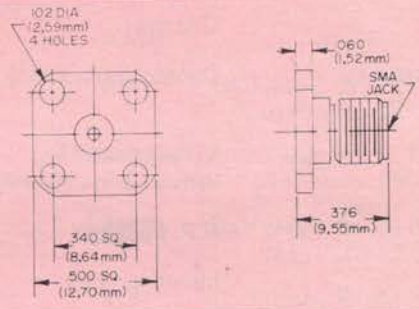
User advantages of this concept are four-fold:

- **FLEXIBILITY** — The transition phase can be tailored to specific needs or a standard accessory pin may be used. Tailoring may even be done at final test.
- **ECONOMY** — Only a few basic connector cases need be purchased and stocked. Low cost accessory pins provide any transition configuration needed, eliminating procuring a high priced "special" to fit the application.
- **RELIABLE PERFORMANCE** — 100% electrical testing is possible through a simple NON-DESTRUCTIVE test method.
- **MECHANICAL CONSIDERATIONS** — Provide a STRESS FREE contact in a connector that meets the mating and interface requirements of MIL-C-39012.

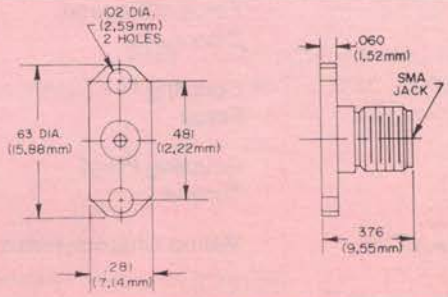
*Patent # 4,125,308

BASIC CASE STYLES

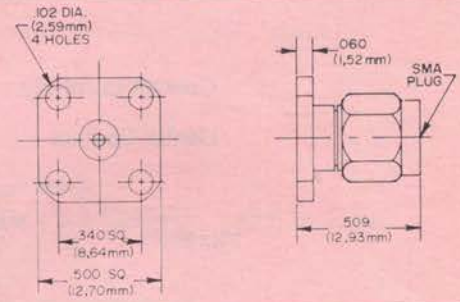
Model 6540
4 Hole Jack



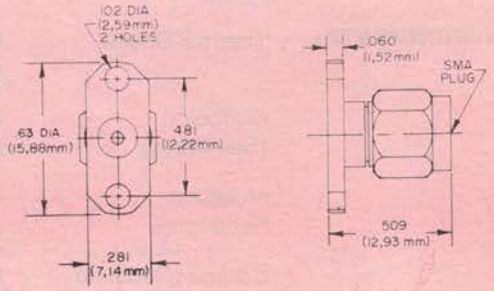
Model 6520
2 Hole Jack



Model 6640
4 Hole Plug



Model 6620
2 Hole Plug

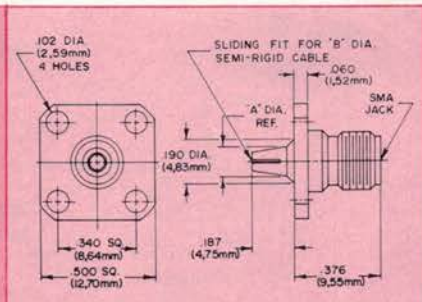
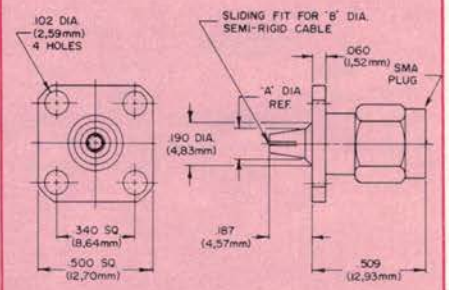
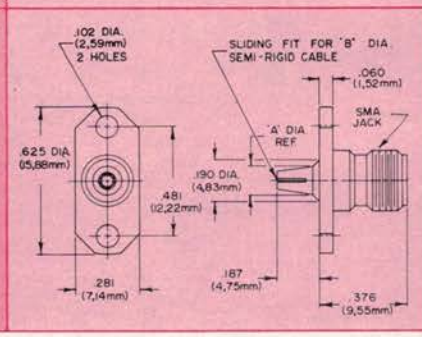
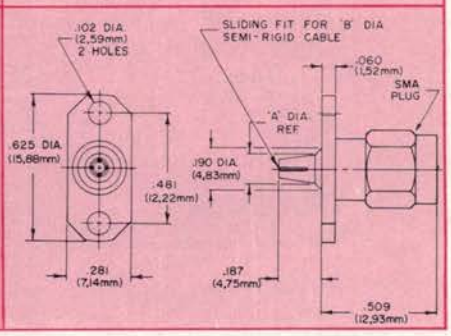


NEW! SMA Connectors

EMC TECHNOLOGY, INC.

FLANGE MOUNT SEMI-RIGID CABLE CONNECTORS

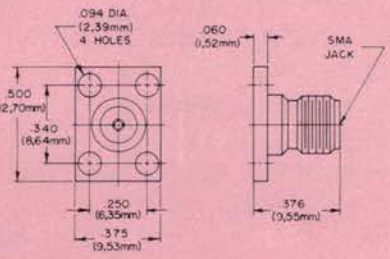
These models are designed for connection to .141 and .085 semi-rigid cable. Assembly of cable to connector is accomplished by pushing the cable into flange end of the connector. Outer conductor of the cable is gripped by nickel plated Be/Cu spring contact. Inner conductor of the cable is engaged with gold plated Be/Cu female contact internal to the connector. Cable preparation consists of stripping both outer conductor and teflon away from the center conductor. The .141 cable can be used as stripped. The .085 cable requires an additional solder-on pin which is supplied with the connector.

4 Hole Jack 6542 for .085 cable 6543 for .141 cable		**2 Hole Jack 6522 for .085 cable 6523 for .141 cable**	
4 Hole Plug 6642 for .085 cable 6643 for .141 cable		**2 Hole Plug 6622 for .085 cable 6623 for .141 cable**	

	"A" Dim.
Models 6522, 6542, 6622, 6642	.123
Models 6523, 6543, 6623, 6643	.180

LOW PROFILE FLANGE MOUNT CONNECTORS

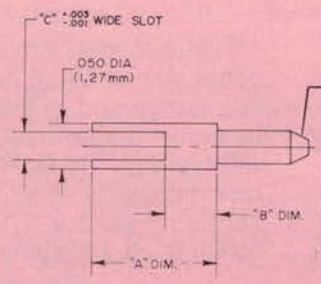
MODEL 6541



ACCESSORY PINS

MODELS
6400-1X-0*
6400-2X-0*

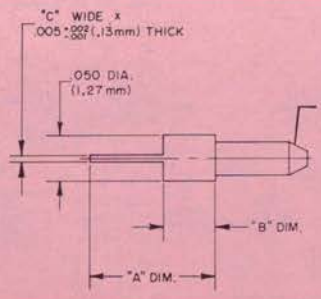
Bifurcated contact



	"C" Dim.
Model 6400-1X-0	.028
Model 6400-2X-0	.013

MODELS
6400-4X-0*
6400-5X-0*

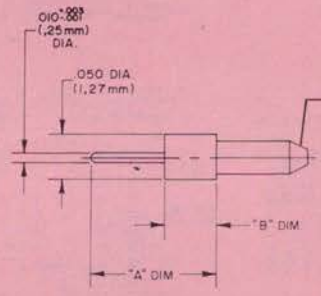
Tab contact



	"C" Dim.
Model 6400-4X-0	.025
Model 6400-5X-0	.050

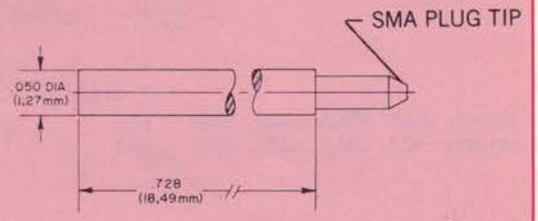
MODEL
6400-6X-0*

Pin contact



MODEL
6400-70-0

Machinable blank Pin

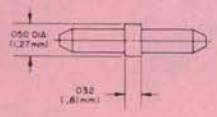


*Accessory Code digit	Wall Thickness	'A' Dim.	'B' Dim.
1	1/16"	.136	.080
2	1/8"	.198	.142
3	3/16"	.261	.205
4	1/4"	.323	.267
8	Flush	.073	.017

*Position 6 of model number — see "How To Order Information"

TEST PIN

MODEL
6401
Test Pin



SMA Connectors

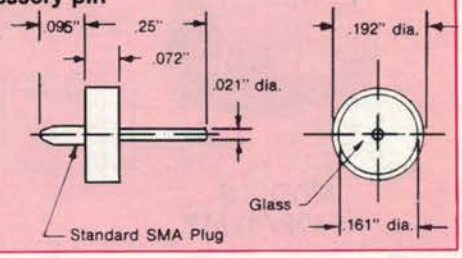
EMC TECHNOLOGY, INC.

COMPANION HERMETIC SEAL

EMC's hermetic seal 64 HS-80-0 is the link between the hermetically sealed circuit and the SMA flange connector. The matched Kovar-glass seal, leakage guaranteed not to exceed 10^{-8} ccm- sec, can be soldered into the circuit frame to obtain a perfect electrical match by calculating the counterbore diameter required for each specific application. In combination with EMC's Series 6000 flange connectors the hermetic seal 64 HS 80-0 will provide an electrically superior and more economical transition from the hermetically enclosed circuit to SMA coaxial transmission line.

Hermetic seal accessory pin
64-HS-80-0
Shell and contact:
Gold plated Kovar
Dielectric: Glass
VSWR:

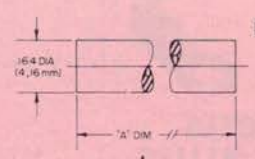
DC-8.0	1.15
8.1-12.0	1.25
12.1-18.0	1.35



ACCESSORY BEADS

MODEL 6400-00-X

Bead I.D. .051



	Wall Th.	"A" Dim.		Wall Th.	"A" Dim.
6400-00-1	1/16"	.070	6400-00-4	1/4"	.257
6400-00-2	1/8"	.132	6400-00-5	5/8"	.625
6400-00-3	3/16"	.195			

HOW TO ORDER

BASIC MODEL NUMBER

6 X X 0 — X X — X

CONNECTOR CASE STYLE

4 — ACCESSORY PINS AND BEADS ONLY
5 — SMA JACK
6 — SMA PLUG

FLANGE FACE

0 — NONE
2 — TWO HOLE MODEL
4 — FOUR HOLE MODEL

ACCESSORY PIN STYLE

0 — NO ACCESSORY PIN
1 — .028 BIFURCATION
2 — .013 BIFURCATION
4 — .025 W x .050 L TAB
5 — .050 W x .050 L TAB
6 — .010 DIA.
7 — .050 DIA.

ACCESSORY BEAD LENGTH

0 — NO ACCESSORY BEAD
1 — 1/16" EXTENSION
2 — 1/8" EXTENSION
3 — 3/16" EXTENSION
4 — 1/4" EXTENSION
5 — 5/8" EXTENSION

ACCESSORY PIN LENGTH

0 — NO ACCESSORY PIN
1 — 1/16" EXTENSION
2 — 1/8" EXTENSION
3 — 3/16" EXTENSION
4 — 1/4" EXTENSION
8 — FLUSH MOUNT PIN

EXAMPLES

COMPLETE CONNECTOR:

1) Model No. 6540-52-2 defines a four hole jack with an .050 wide x .050 long 1/8" extension tab-pin and a 1/8" extension bead.

ACCESSORIES ONLY:

2) Model No. 6400-22-2 defines an .013 bifurcation 1/8" extension pin and a 1/8" extension bead. (No connector case supplied)
3) Model No. 6400-61-0 defines a .010 diameter 1/16" extension pin. (No connector case or bead supplied)

NOTES: When ordering ONLY accessory pin and/or bead (no connector case to be supplied), the digits 4 and 0 MUST be shown in the second and third digit of basic model number.

For ease of testing and mounting, the accessory pins for all connectors will be packaged separately.