



# PRODUCT SPECIFICATION

## CATEGORY 5 RIGHT ANGLE MODULAR JACKS

### 1.0 SCOPE

This Product Specification covers the 1.27 mm (.050 inch) centerline (pitch) printed circuit board (PCB) modular jack connector series with selective gold and tin plating.

### 2.0 PRODUCT DESCRIPTION

#### 2.1 PRODUCT NAME AND SERIES NUMBER(S)

Right Angle, Single Port Modular Jack	44050
Right Angle, Ganged Modular Jack	44150
Right Angle, Stacked Ganged Modular Jack (with light pipes, shielded only)	44170
Right Angle, Stacked Ganged Modular Jack (without light pipes, shielded only)	44520

#### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See the appropriate sales drawings (SD-44050-002, SD-44150-002, SD-44170-001, SD-44520-001) for information on dimensions, materials, plating and markings.

#### 2.3 SAFETY AGENCY APPROVALS

UL File Number.....E107635  
CSA File Number.....LR19980

### 3.0 REFERENCE DOCUMENTS

FCC Rules and Regulations, Part 68, Subpart F  
REA Bulletin 345-81, PE-76; Specification for modular telephone set hardware  
ANSI/EIA/TIA-568  
IEC-60603-7  
UL 1863  
MIL-STD-202; General requirements for test specifications

### 4.0 RATINGS

#### 4.1 VOLTAGE

56.5 V DC  
150 V<sub>RMS</sub> AC (Ringing voltage only)

#### 4.2 CURRENT

1.5 Amps @ 25°C

#### 4.3 TEMPERATURE

Operating: - 40°C to + 85°C  
Nonoperating:\* - 40°C to + 85°C  
\*Packaging materials should not exceed + 50°C

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## 5.0 PERFORMANCE

### 5.1 ELECTRICAL REQUIREMENTS

	DESCRIPTION	TEST CONDITION	REQUIREMENT
	<b>Contact Resistance (Low Level)</b>	Mate connectors: apply a maximum voltage of <b>20 mV</b> and a current of <b>100 mA</b> . (Measurement locations in Section 7.0)	<b>20 milliohms</b> MAXIMUM [initial]
	<b>Insulation Resistance</b>	Unmated connector, mounted to a PCB: apply a voltage of <b>100 VDC</b> between adjacent terminals and between terminals to ground.	<b>500 Megohms</b> MINIMUM
	<b>Dielectric Withstanding Voltage</b>	Mate connectors: apply a voltage of <b>1000 VAC</b> for <b>1</b> minute between adjacent terminals and <b>1500 VAC</b> between terminals to ground.	No breakdown; current leakage < <b>5 mA</b>
	<b>Capacitance</b>	Measure between adjacent terminals at <b>1 kHz</b>	<b>10 picofarads</b> MAXIMUM
	<b>Shielding Effectiveness</b>	Measure at frequency from <b>30 MHz</b> to <b>400 MHz</b> .	<b>20dB</b> MINIMUM

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## 5.2 TRANSMISSION PERFORMANCE

ITEM	TEST CONDITION	Frequency (MHz)	Requirement (dB)
Reference Specification TIA/EIA 568A		Frequency (MHz)	Loss (dB)
5.2.1 Maximum Attenuation	Measurement of signal power loss due to connection made on any pair within the connector under test. Worst result shall be within specification.	1	0.1
		4	0.1
		10	0.1
		16	0.2
		20	0.2
		31.25	0.2
		62.5	0.3
5.2.2 Minimum Near End Crosstalk	Jack under test shall be terminated with resistor of 100 ohms +/- 1% (see figure 1). Measurements are made in these 2-pair combinations: 1-2, 3-6, 4-5, 7-8. The worst case NEXT loss must be within specification	1	65
		4	65
		10	60
		16	56
		20	54
		25	52
		31.25	50
5.2.3 Minimum Return Loss	Jack under test shall be terminated with resistor of 100 ohms +/- 1%. (See figure 1) A balanced input signal is applied to a connector pair while signals that are reflected back due to the impedance discontinuities are measured at the same port from which the signal is applied. A measurement shall be done for each pair (1-2, 3-6, 4-5, 7-8).	1	20
		16	20
		20	14
		100	14
		100	14

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## 5.2 MECHANICAL REQUIREMENTS

	DESCRIPTION	TEST CONDITION	REQUIREMENT
	<b>Connector Mate Force</b>	Mate connector at a rate of <b>25 ± 6 mm (1 ± ¼ inch)</b> per minute. (Gage dimensions in Section 7.0)	<b>22 N (5 lbf)</b> unshielded MAXIMUM insertion force <b>35 N (8 lbf)</b> shielded MAXIMUM insertion force
	<b>Durability</b>	Mate connectors up to <b>500</b> cycles at a maximum rate of <b>10</b> cycles per minute prior to Environmental Tests.	<b>10</b> milliohms MAXIMUM (change from initial)
	<b>Vibration (Random)</b>	Amplitude: 1.50mm (.060") peak to peak Sweep: 10-55-10 Hz in one minute Duration: 15 minutes ±X,±Y,±Z axis (45 minutes total)	<b>10</b> milliohms MAXIMUM (change from initial) & Discontinuity < <b>1</b> microsecond
	<b>Plug Retention Force</b>	Apply an axial pullout force on the plug at a rate of <b>25 ± 6 mm (1 ± ¼ inch)</b> per minute.	<b>89 N (20 lbf)</b> MINIMUM retention force
	<b>PCB Separation Forces</b>	Apply a perpendicular load on the plug at a rate of <b>25 ± 6 mm (1 ± ¼ inch)</b> per minute.	<b>4.5 N (1 lbf)</b> MINIMUM withdrawal force before solder reflow <b>89 N (20 lbf)</b> MINIMUM withdrawal force after solder reflow
	<b>Shock (Mechanical)</b>	Mate connectors and shock at <b>50 g's</b> with three saw tooth wave form shocks in the ±X,±Y,±Z axis (18 shocks total).	<b>10</b> milliohms MAXIMUM (change from initial) & Discontinuity < <b>1</b> microsecond

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## 5.3 ENVIRONMENTAL REQUIREMENTS

	DESCRIPTION	TEST CONDITION	REQUIREMENT
	<b>Shock (Thermal)</b>	Mate connectors; expose to <b>10</b> cycles of: <b>-40°C to +85°C</b> <b>30</b> minutes dwell	<b>10</b> milliohms MAXIMUM (change from initial) & Visual: No Damage
	<b>Thermal Aging</b>	Mate connectors; expose to: <b>240</b> hours at <b>85±2°C</b>	<b>10</b> milliohms MAXIMUM (change from initial) & Visual: No Damage
	<b>Humidity (Cyclic)</b>	Mate connectors: expose to <b>10</b> cycles at <b>90-95%</b> relative humidity with temperatures at <b>+25°C</b> and <b>+65°C</b> per MIL-STD-202F method 106F (without -10°C dip)	<b>10</b> milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at <b>500 VAC</b> & Insulation Resistance: <b>200</b> Megohms MINIMUM & Visual: No Damage
	<b>Solder Resistance</b>	Dip connector terminal tails in solder: Solder Duration: <b>5±0.5</b> seconds Solder Temperature: <b>260±5°C</b>  {Recommended same parameters as <b>SMES-152.</b> }  Note: The solder resistance test simulates a wave solder process. This test should not be used to determine the suitability of the connector for a convection or IR reflow solder process.	Visual: No Damage to insulator material

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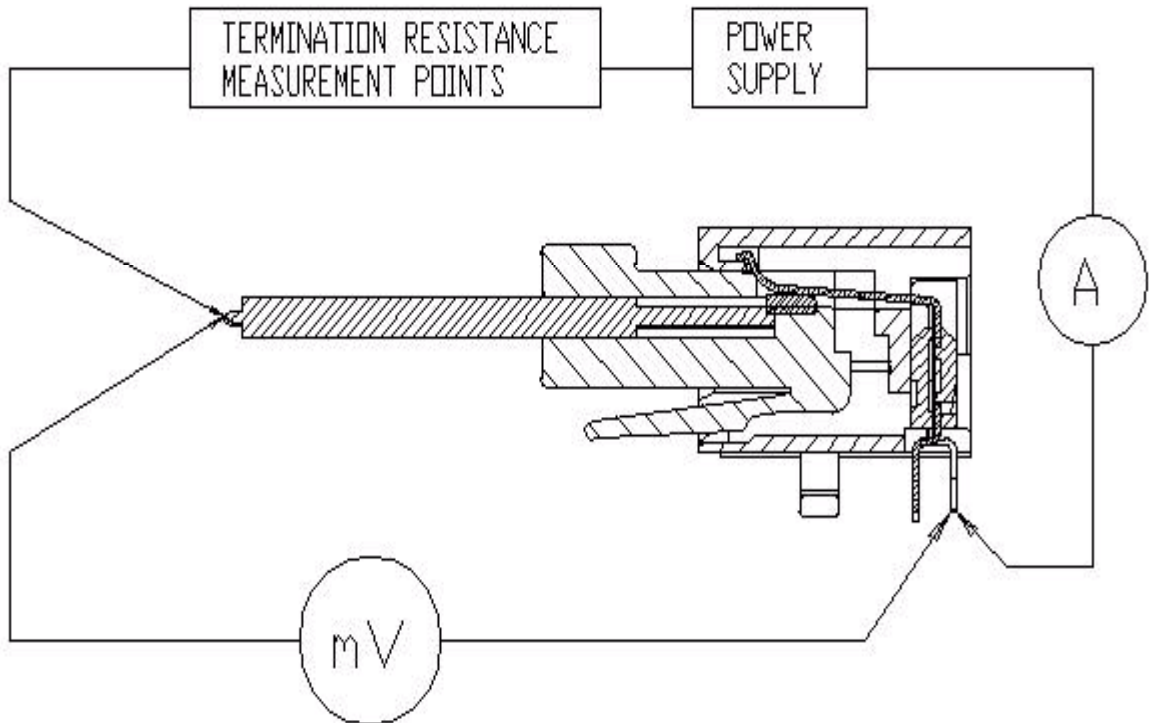


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## 6.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage. See appropriate sales drawings on Sheet 1 for packaging descriptions.

## 7.0 GAGES AND FIXTURES



### TERMINATION RESISTANCE MEASUREMENT POINTS

Connector and plug terminals and wire conductor bulk resistance to be subtracted from measurements

## 8.0 OTHER INFORMATION

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