

Series 791 Standard Materials, Product Specification

Series 791 Standard Materials

DESCRIPTION	MATERIAL	FINISH
Contacts	Copper alloy	Gold plated 50 microinches minimum over nickel underplate.
Socket Contact Hood	Stainless steel	Passivated
Shell	Aluminum alloy 6061	Code M: electroless nickel per ASTM B-733 Code MT: Nickel PTFE per SAE AMS2454 Code ZR: Black zinc-nickel per ASTM B841
Insulators, PCB tray	High grade rigid dielectric	None
Interfacial seal and grommet	Fluorosilicone blend elastomer	None
O-ring, non-conductive	Fluorosilicone blend elastomer	None
O-ring, conductive	Silver-plated aluminum-filled fluorosilicone	None
EMI spring	Beryllium Copper	Nickel
Panel Spring	Beryllium Copper	Gold
Contact retention clip, insert assembly retention clip	Beryllium copper	None
Jackscrews, jackposts, washers, threaded inserts, nuts	300 series stainless steel	passivated
EMI Cover, right angle PCB	Aluminum	See shell finish options

Series 791 Product Specification (ref: 799-008)

DESCRIPTION	REQUIREMENT	PROCEDURE																														
Contact resistance	SAE AS39029 Table V <table border="1"> <thead> <tr> <th>Max. Wire Size (AWG)</th> <th>Test Current (A)</th> <th>Maximum Voltage Drop (mV)</th> </tr> </thead> <tbody> <tr><td>8</td><td>46</td><td>26</td></tr> <tr><td>12</td><td>23</td><td>42</td></tr> <tr><td>14</td><td>17</td><td>40</td></tr> <tr><td>16</td><td>13</td><td>49</td></tr> <tr><td>20</td><td>7.5</td><td>55</td></tr> <tr><td>22</td><td>5</td><td>73</td></tr> <tr><td>24</td><td>3</td><td>45</td></tr> <tr><td>26</td><td>2</td><td>52</td></tr> <tr><td>28</td><td>1.5</td><td>54</td></tr> </tbody> </table>	Max. Wire Size (AWG)	Test Current (A)	Maximum Voltage Drop (mV)	8	46	26	12	23	42	14	17	40	16	13	49	20	7.5	55	22	5	73	24	3	45	26	2	52	28	1.5	54	EIA-364-06 Silver-coated copper wire, 25°C
Max. Wire Size (AWG)	Test Current (A)	Maximum Voltage Drop (mV)																														
8	46	26																														
12	23	42																														
14	17	40																														
16	13	49																														
20	7.5	55																														
22	5	73																														
24	3	45																														
26	2	52																														
28	1.5	54																														
Low level contact resistance	<table border="1"> <thead> <tr> <th>Wire Size</th> <th>Milliohms Max</th> </tr> </thead> <tbody> <tr><td>16</td><td>5</td></tr> <tr><td>20</td><td>9</td></tr> <tr><td>22</td><td>15</td></tr> <tr><td>24</td><td>20</td></tr> <tr><td>26</td><td>31</td></tr> <tr><td>28</td><td>50</td></tr> </tbody> </table>	Wire Size	Milliohms Max	16	5	20	9	22	15	24	20	26	31	28	50	EIA-364-23																
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16	5																															
20	9																															
22	15																															
24	20																															
26	31																															
28	50																															
Insulation resistance	5000 megohms minimum	EIA-364-21																														
Dielectric withstanding voltage	No breakdown or flashover	EIA-364-20 #23 contact 750 volts #8, 12 and #16 contacts 1800 volts																														



Series 791 Connectors

Ruggedized Ultraminiature Rectangular Connectors



Series 791 Product Specification

DESCRIPTION	REQUIREMENT	PROCEDURE												
Current carrying capacity	<table border="1"> <thead> <tr> <th>Contact Size</th> <th>Max Current</th> </tr> </thead> <tbody> <tr> <td>8</td> <td>46 A</td> </tr> <tr> <td>12</td> <td>23 A</td> </tr> <tr> <td>16</td> <td>13 A</td> </tr> <tr> <td>23</td> <td>5 A</td> </tr> </tbody> </table>	Contact Size	Max Current	8	46 A	12	23 A	16	13 A	23	5 A	EIA-364-70 Method 1		
Contact Size	Max Current													
8	46 A													
12	23 A													
16	13 A													
23	5 A													
Shell-to-shell resistance (with ground spring)	2.5 millivolt maximum	EIA-364-83												
Shielding effectiveness	<table border="1"> <thead> <tr> <th>Frequency</th> <th>Attenuation dB</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>75</td> </tr> <tr> <td>1000</td> <td>50</td> </tr> <tr> <td>3000</td> <td>44</td> </tr> <tr> <td>6000</td> <td>38</td> </tr> <tr> <td>10000</td> <td>35</td> </tr> </tbody> </table>	Frequency	Attenuation dB	100	75	1000	50	3000	44	6000	38	10000	35	EIA-364-66
Frequency	Attenuation dB													
100	75													
1000	50													
3000	44													
6000	38													
10000	35													
Ingress protection	IP67 rating	IEC-60529												
Vibration, sine	No discontinuity of greater than 1 microsecond, no cracking, breaking or loosening of parts, plug shall not become disengaged from receptacle.	EIA-364-28 Test Condition IV 100 milliamp test current 10- 2,000 Hz 20 g, 196 m/s ²												
Vibration, random	No discontinuity of greater than 1 microsecond, no cracking, breaking or loosening of parts, plug shall not become disengaged from receptacle.	364-28 Test Condition V Letter E 100 milliamp test current 50- 2,000 Hz 43.92 g rms												
Mechanical shock	No discontinuity of greater than 1 microsecond, no cracking, breaking or loosening of parts, plug shall not become disengaged from receptacle.	EIA-364-27 Condition D 3 shocks X 3 axes X 2 directions = 18 shocks 2941 m/s ² (300 g's), 3 ms, half-sine												
Thermal shock	No mechanical damage or loosening of parts. Following thermal shock, connector shall meet contact resistance, DWV, insulation resistance and shell-to-shell resistance requirements	EIA-364-32 Test Condition IV 5 cycles consisting of -65° C 30 minutes, +25° C 5 minutes max., +150° C 30 minutes, +25° C 5 minutes max.												
Humidity, Cyclic	No deterioration which will adversely affect the connector. 100 megohms minimum insulation resistance during the final cycle. Following the recovery period, connectors shall meet contact resistance, shell-to-shell resistance and DWV requirements.	EIA-364-31 Condition B Method IV 80-98% RH 10 cycles (10 days) +25° C to +65° C Step 7b vibration deleted. 24 hour recovery period.												
Altitude – Low Temperature	5000 megohms minimum insulation resistance.	EIA-364-105 -65° C 100,000 feet (11 mbar) Wired, mated pairs												

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Mechanical Durability, at Ambient Temperature	No deterioration which will adversely affect the connector after 500 cycles of mating and unmating. Connectors shall meet contact resistance, insulation resistance, shell-to-shell resistance, DWV, and mating and unmating force.	EIA-364-09										
Insert retention	50 PSI	EIA-364-35										
Corrosion (Salt Mist)	No exposure of base metal. Connectors shall meet DWV and contact resistance requirements following the test.	EIA-364-26, 5% salt solution, 35° unmated connectors Code M: electroless nickel 48 hours Code MT: nickel PTFE 500 hours Code ZR: black zinc nickel 500 hours										
Solderability, PC Tail Contacts	95% solder coverage. Smooth, bright and even finish.	EIA-364-52 Category 3 8 hours steam aging prior to test 245° C 4-5 sec. dwell 10X magnification										
Resistance To Soldering Heat, PC tail connectors	No damage to connector. Connectors shall meet insulation resistance and waterproof sealing requirements.	EIA-364-56 260° C, 10 seconds										
Impact, Cable Connectors	No impairment of function. Connector shall meet contact resistance, insulation resistance and waterproof sealing.	EIA-364-42 1 meter 8 drops										
Fluid Immersion	No damage from immersion in various fuels and oils. Connector shall meet mating/unmating force and dielectric withstanding voltage.	EIA-364-10										
Altitude Immersion	No evidence of moisture on connector interface or contacts. Connector shall meet dielectric withstanding voltage.	EIA-364-03 30,000 feet simulated altitude										
Contact retention	<table border="1"> <thead> <tr> <th>Contact Size</th> <th>Min Pounds</th> </tr> </thead> <tbody> <tr> <td>23</td> <td>6</td> </tr> <tr> <td>16</td> <td>25</td> </tr> <tr> <td>12</td> <td>25</td> </tr> <tr> <td>8</td> <td>25</td> </tr> </tbody> </table>	Contact Size	Min Pounds	23	6	16	25	12	25	8	25	EIA-364-29
Contact Size	Min Pounds											
23	6											
16	25											
12	25											
8	25											
Contact separation force	<table border="1"> <thead> <tr> <th>Contact Size</th> <th>Min Ounces</th> </tr> </thead> <tbody> <tr> <td>23</td> <td>0.5</td> </tr> <tr> <td>16</td> <td>2.0</td> </tr> <tr> <td>12</td> <td>3.0</td> </tr> <tr> <td>8</td> <td>5.0</td> </tr> </tbody> </table>	Contact Size	Min Ounces	23	0.5	16	2.0	12	3.0	8	5.0	SAE AS39029 Table 9
Contact Size	Min Ounces											
23	0.5											
16	2.0											
12	3.0											
8	5.0											
Magnetic permeability	2 μ maximum	EIA-364-54										
Thermal vacuum outgassing	Connectors, following special outgassing processing, shall meet < 1.0% total mass loss (TML), < 0.1% collected volatile condensable material (CVCM).	ASTM E595										