

HiPer-D Introduction and Technical Reference

Performance Specification



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Performance Specifications		
Description	Requirement	Procedure
Water Immersion	No evidence of water penetration into mated connectors. No evidence of water penetration into an unmated panel mounted PCB receptacle. ≥ 100 M Ω insulation resistance.	MIL-STD-810F Method 512.4 1 meter immersion 1 hour
Air Pressure	No detectable moisture. ≥ 100 M Ω insulation resistance.	IEC-60512-7 Test 14b 0.4 bar overpressure 48 hours immersion at a depth of 150mm in 25° C tap water.
Ingress Protection	IP67 rating	IEC-60529
Vibration, Sine	No discontinuity of greater than 1 microseconds, no cracking, breaking or loosening of parts, plug shall not become disengaged from receptacle. Connectors shall meet electrical requirements after vibration test.	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 microseconds, no cracking, breaking or loosening of parts, plug shall not become disengaged from receptacle. Connectors shall meet electrical requirements after vibration test.	EIA-364-28 Test Condition V Letter E 100 milliamp test current 50-2,000 Hz 16.91 g rms 8 hours each axis
Mechanical Shock	No discontinuity of greater than 1 microsecond, no cracking, breaking or loosening of parts, plug shall not become disengaged from receptacle. Connectors shall meet electrical requirements after shock test.	EIA-364-27 Condition D IEC-60512-6-3 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 IEC-60512-11-4 5 cycles consisting of -65° C 30 minutes, +25° C 5 minutes max., + 200° C 30 minutes, +25° C 5 minutes max.
Humidity, Cyclic (Damp Heat, Cyclic) (Moisture Resistance)	No deterioration which will adversely affect the connector. 100 meg-ohms 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 III IEC-60512-11-12 80-98% RH 10 cycles (10 days) +25° C to +65° C Step 7b vibration deleted. 24 hour recovery period.
Mechanical Durability, at Ambient Temperature	No deterioration which will adversely affect the connector after 500 cycles of mating and un-mating. Connectors shall meet contact resistance, insulation resistance, shell-to-shell resistance, DWV, and mating and un-mating force.	EIA-364-09 IEC-60512-5 Test 9a

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Corrosion (Salt Mist)	No exposure of base metal. Connectors shall meet DWV and contact resistance requirements following the test.		EIA-364-26 IEC 60512-11-6 5% salt solution 35° C Unmated connectors Code ME: Electroless nickel 96 hours Code MT: Nickel-PTFE 500 hours Code JF: Cadmium 500 hours Code ZR: Zn-Ni 500 hours																					
Solderability, PC Tail Contacts	95% solder coverage. Smooth, bright and even finish.		EIA-364-52 Category 3 IEC-60512-12-1 IEC-68-2-20 Test Ta, method 1 8 hours steam aging prior to test 245° C 4-5 sec. dwell 10X magnification																					
Resistance To Soldering Heat	No damage to connector. Connectors shall meet insulation resistance and waterproof sealing requirements.		EIA-364-56 IEC-60512-12-5 Test 12e 260° C, 10 seconds (PC tail)																					
Impact, Cable Connectors	No impairment of function. Connector shall meet contact resistance, insulation resistance and waterproof sealing.		EIA-364-42 IEC-60512-5 Test 7b 1 meter, 8 drops																					
Fluid Immersion	No damage from immersion in various fuels and oils. Connector shall meet mating/un-mating 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																					
Contact Retention	<table><tr><td>Contact Size</td><td>Min. Pounds</td><td>Min. Newtons</td></tr><tr><td>8</td><td>18</td><td>80</td></tr><tr><td>22</td><td>9</td><td>40</td></tr><tr><td>20</td><td>9</td><td>40</td></tr></table>	Contact Size	Min. Pounds	Min. Newtons	8	18	80	22	9	40	20	9	40		EIA-364-29 .012 inch maximum displacement, both axial directions									
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Contact Separation Force	<table><tr><td>Contact Size</td><td>Min. Ounces</td><td>Min. Newtons</td></tr><tr><td>22</td><td>0.7</td><td>0.19</td></tr><tr><td>20</td><td>0.7</td><td>0.19</td></tr></table>	Contact Size	Min. Ounces	Min. Newtons	22	0.7	0.19	20	0.7	0.19		SAE AS39029												
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Mating and Un-mating Force, connectors with size 20 or size 22 contacts	<table><tr><td>Shell Size</td><td>Min. Unmating</td><td>Max. Mating</td></tr><tr><td>1</td><td>0.75</td><td>10.0</td></tr><tr><td>2</td><td>1.00</td><td>17.0</td></tr><tr><td>3</td><td>1.75</td><td>28.0</td></tr><tr><td>4</td><td>2.50</td><td>39.0</td></tr><tr><td>5</td><td>3.25</td><td>49.0</td></tr><tr><td>6</td><td>4.50</td><td>65.0</td></tr></table>	Shell Size	Min. Unmating	Max. Mating	1	0.75	10.0	2	1.00	17.0	3	1.75	28.0	4	2.50	39.0	5	3.25	49.0	6	4.50	65.0		EIA-364-13 Full complement of contacts 1 to 10 inches per minute travel rate
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6	4.50	65.0																						
Maximum Mating Force, combo HiPer-D® connectors with size 8 and size 20 contacts	[(# of size 8 contacts) X 5.0 pounds] + [(# of size 20HD contacts) X .75 pounds] + [3.0 pounds]		EIA-364-13 Full complement of contacts 1 to 10 inches per minute travel rate																					
Magnetic Permeability	2 μ maximum.		EIA-364-54																					
Insert Retention	No dislocation of inserts from their original positions when subjected to an axial load of 60 pounds per square inch		EIA-364-35 Apply force at a rate of 10 pounds per square inch per second until specified pressure is reached.																					