

MHF® III Connector

Part No. PLUG: 20609-002R RECEPTACLE: 20369-001E

Test Report

Product Specification no. PRS-2107

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1	T17095	June 15, 2017	M.A		T.M
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Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

Testing was performed on the MHF III Connector to determine meets the requirement of I-PEX specification PRS-2107.

2. Conclusion

All specimens met the requirements of PRS-2107.

3. Sample

MHF III Plug Connector : P/N. 20609-002

MHF III Receptacle Connector: P/N. 20369-001E

Cable: AWG#36 coaxial cable (jacket diameter 0.81mm)

4. Method

Refer to product specification PRS-2107.

4-1 Test Sequence and Sample Quantity

Test Item	Group													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
Contact Resistance				1,3	1,3	1,3	1,3	1,5	1,5	1,3	1,3	1,3		
Insulation Resistance								2,6	2,6					
Dielectric Withstanding Voltage								3,7	3,7					
VSWR	1													
Un-mating force		1												
Crimp strength			1											
Durability				2										
Cable retention force					2									
Vibration						2								
Shock							2							
Humidity (Steady State)								4						
Thermal Shock									4					
High Temperature Life										2				
H2S Gas											2			
Salt Water Spray												2		
Solder ability													1	
Soldering Heat Resistance														1
Sample QTY. Plug	10	10	10	10	10	10	10	10	10	10	10	10	-	-
Receptacle	5		-										10	10

* The number of group is test sequence.

5. Test Result

	Test items	Measurements	Spec.	n	Unit	Data				Judge
						AVE	MAX	MIN	S	
A	VSWR Plug (0.81)	0.1~3GHz	1.30 MAX.	10	----	1.159	1.18	1.14	0.012	OK
		3~6GHz	1.50 MAX.	10	----	1.260	1.30	1.23	0.021	OK
		6~9GHz	1.70 MAX.	10	----	1.350	1.38	1.33	0.016	OK
	VSWR Plug (0.64)	0.1~3GHz	1.30 MAX.	10	----	1.107	1.12	1.09	0.007	OK
		3~6GHz	1.50 MAX.	10	----	1.246	1.27	1.22	0.014	OK
		6~9GHz	1.70 MAX.	10	----	1.383	1.43	1.31	0.029	OK
	VSWR Rece.	0.1~3GHz	1.30 MAX.	5	----	1.080	1.09	1.07	0.009	OK
		3~6GHz	1.40 MAX.	5	----	1.231	1.25	1.22	0.009	OK
6~9GHz		1.60 MAX.	5	----	1.467	1.50	1.43	0.020	OK	
B	Un-mating force	Initial	4N MIN.	10	N	9.36	10.5	8.3	0.82	OK
		30 cycles	2N MIN.	10	N	6.00	6.5	5.0	0.51	OK
C	Crimp strength	Initial	7N MIN.	10	N	11.02	11.5	10.5	0.36	OK
D	Durability	Contact resistance of inner contact								
		Initial	20mΩ MAX.	10	mΩ	11.77	13.0	10.5	0.82	OK
		After 30 cycles	-----	10	mΩ	12.94	14.8	11.4	1.14	OK
		ΔIR	20mΩ MAX.	10	mΩ	1.17	2.8	-0.9	0.97	OK
		Contact resistance of ground contact								
		Initial	20mΩ MAX.	10	mΩ	6.01	6.4	5.4	0.32	OK
		After 30 cycles	-----	10	mΩ	6.79	7.5	6.3	0.37	OK
		ΔIR	100mΩ MAX.	10	mΩ	0.78	1.5	-0.1	0.47	OK
E	Cable Retention Force	Contact resistance of inner contact								
		Initial	20mΩ MAX.	10	mΩ	12.86	14.2	11.8	0.96	OK
		After testing	-----	10	mΩ	14.90	16.3	13.6	0.78	OK
		ΔIR	20mΩ MAX.	10	mΩ	2.04	2.9	0.4	0.78	OK
		Contact resistance of ground contact								
		Initial	20mΩ MAX.	10	mΩ	6.05	6.7	5.4	0.46	OK
		After testing	-----	10	mΩ	6.63	7.5	6.0	0.45	OK
		ΔIR	100mΩ MAX.	10	mΩ	0.58	1.6	0.1	0.45	OK
		Electrical Discontinuity	Spec. : No electrical discontinuity grater than 1μ sec. shall occur.							
			-----	10	-----	No discontinuity				OK
		Appearance	Spec : No abnormality adversely affecting the performance shall occur.							
			Initial	10	-----	No abnormality				OK
			After testing	10	-----	No abnormality				OK
F	Vibration	Contact resistance of inner contact								
		Initial	20mΩ MAX.	10	mΩ	12.82	14.3	11.9	0.71	OK
		After testing	-----	10	mΩ	12.70	14.3	11.7	1.02	OK
		ΔIR	20mΩ MAX.	10	mΩ	-0.12	1.2	-1.2	0.77	OK
		Contact resistance of ground contact								
		Initial	20mΩ MAX.	10	mΩ	6.12	6.8	5.5	0.46	OK
		After testing	-----	10	mΩ	6.31	7.3	5.4	0.60	OK
		ΔIR	100mΩ MAX.	10	mΩ	0.19	0.9	-1.2	0.71	OK
		Electrical Discontinuity	Spec. : No electrical discontinuity grater than 1μ sec. shall occur.							
			-----	10	-----	No discontinuity				OK
		Appearance	Spec : No abnormality adversely affecting the performance shall occur.							
			Initial	10	-----	No abnormality				OK
			After testing	10	-----	No abnormality				OK

	Test items	Measurements	Spec.	n	Unit	Data				Judge
						AVE	MAX	MIN	S	
G	Shock	Contact resistance of inner contact								
		Initial	20mΩ MAX.	10	mΩ	12.58	14.2	11.0	1.06	OK
		After testing	-----	10	mΩ	13.03	15.0	10.9	1.24	OK
		ΔIR	20mΩ MAX.	10	mΩ	0.45	1.7	-0.9	0.90	OK
		Contact resistance of ground contact								
		Initial	20mΩ MAX.	10	mΩ	6.20	6.9	5.5	0.49	OK
		After testing	-----	10	mΩ	6.47	6.9	5.5	0.42	OK
		ΔIR	100mΩ MAX.	10	mΩ	0.27	0.8	-0.5	0.47	OK
		Electrical Discontinuity	Spec. : No electrical discontinuity grater than 1μ sec. shall occur.							
			-----	10	-----	No discontinuity				OK
		Appearance	Spec : No abnormality adversely affecting the performance shall occur.							
			Initial	10	-----	No abnormality				OK
			After testing	10	-----	No abnormality				OK
H	Humidity (Steady state)	Contact resistance of inner contact								
		Initial	20mΩ MAX.	10	mΩ	13.50	14.5	12.1	0.76	OK
		After testing	-----	10	mΩ	12.96	13.9	11.4	0.90	OK
		ΔIR	20mΩ MAX.	10	mΩ	-0.54	0.9	-2.0	1.00	OK
		Contact resistance of ground contact								
		Initial	20mΩ MAX.	10	mΩ	6.21	6.9	5.6	0.48	OK
		After testing	-----	10	mΩ	7.87	9.1	7.2	0.72	OK
		ΔIR	100mΩ MAX.	10	mΩ	1.66	3.2	0.5	0.78	OK
		Insulation resistance	Initial	10	MΩ	10,000 (minimum value)				OK
			After testing	10	MΩ	10,000 (minimum value)				OK
		Dielectric Withstanding Voltage	Spec : No creeping discharge flashover, nor insulator breakdown shall occur.							
			Initial	10	-----	No abnormality				OK
			After testing	10	-----	No abnormality				OK
		Appearance	Spec : No abnormality adversely affecting the performance shall occur.							
			Initial	10	-----	No abnormality				OK
			After testing	10	-----	No abnormality				OK
J	Thermal shock	Contact resistance of inner contact								
		Initial	20mΩ MAX.	10	mΩ	13.63	15.3	12.9	0.83	OK
		After testing	-----	10	mΩ	13.14	14.9	12.1	0.96	OK
		ΔIR	20mΩ MAX.	10	mΩ	-0.49	1.1	-1.9	0.83	OK
		Contact resistance of ground contact								
		Initial	20mΩ MAX.	10	mΩ	6.11	6.7	5.5	0.30	OK
		After testing	-----	10	mΩ	8.85	10.2	7.4	1.05	OK
		ΔIR	100mΩ MAX.	10	mΩ	2.74	4.0	1.3	1.07	OK
		Insulation resistance	Initial	10	MΩ	10,000 (minimum value)				OK
			After testing	10	MΩ	10,000 (minimum value)				OK
		Dielectric Withstanding Voltage	Spec : No creeping discharge flashover, nor insulator breakdown shall occur.							
			Initial	10	-----	No abnormality				OK
			After testing	10	-----	No abnormality				OK
		Appearance	Spec : No abnormality adversely affecting the performance shall occur.							
			Initial	10	-----	No abnormality				OK
			After testing	10	-----	No abnormality				OK

	Test items	Measurements	Spec.	n	Unit	Data				Judge	
						AVE	MAX	MIN	S		
K	High temperature Life	Contact resistance of inner contact									
		Initial	20mΩ MAX.	10	mΩ	13.74	14.9	12.3	1.00	OK	
		After testing	-----	10	mΩ	14.00	15.2	12.0	0.99	OK	
		ΔIR	20mΩ MAX.	10	mΩ	0.26	1.7	-1.2	0.96	OK	
		Contact resistance of ground contact									
		Initial	20mΩ MAX.	10	mΩ	6.48	7.5	5.5	0.63	OK	
		After testing	-----	10	mΩ	6.56	9.2	5.7	1.04	OK	
		ΔIR	100mΩ MAX.	10	mΩ	0.08	2.6	-1.3	1.06	OK	
		Appearance	Spec : No abnormality adversely affecting the performance shall occur.								
			Initial	10	-----	No abnormality					OK
			After testing	10	-----	No abnormality					OK
L	H ₂ S Gas	Contact resistance of inner contact									
		Initial	20mΩ MAX.	10	mΩ	13.27	14.2	11.8	0.75	OK	
		After testing	-----	10	mΩ	13.55	14.9	11.9	1.04	OK	
		ΔIR	20mΩ MAX.	10	mΩ	0.28	3.0	-1.6	1.56	OK	
		Contact resistance of ground contact									
		Initial	20mΩ MAX.	10	mΩ	5.96	6.3	5.6	0.23	OK	
		After testing	-----	10	mΩ	7.92	9.8	6.6	0.85	OK	
		ΔIR	100mΩ MAX.	10	mΩ	1.96	3.5	0.6	0.80	OK	
		Appearance	Spec : No abnormality adversely affecting the performance shall occur.								
			Initial	10	-----	No abnormality					OK
			After testing	10	-----	No abnormality					OK
M	Salt Water Spray	Contact resistance of inner contact									
		Initial	20mΩ MAX.	10	mΩ	13.24	15.0	12.0	1.01	OK	
		After testing	-----	10	mΩ	13.36	14.9	11.7	0.96	OK	
		ΔIR	20mΩ MAX.	10	mΩ	0.12	2.7	-1.6	1.26	OK	
		Contact resistance of ground contact									
		Initial	20mΩ MAX.	10	mΩ	6.39	7.2	5.1	0.82	OK	
		After testing	-----	10	mΩ	6.50	7.9	5.5	0.76	OK	
		ΔIR	100mΩ MAX.	10	mΩ	0.12	1.6	-1.5	0.89	OK	
		Appearance	Spec : No abnormality adversely affecting the performance shall occur.								
			Initial	10	-----	No abnormality					OK
			After testing	10	-----	No abnormality					OK
N	Solder ability		Spec. : More than 95% of the dipped surface becomes wet and the pinhole that should not gather at one point is less than 5%.							OK	
			-----	10	-----	No abnormality					
P	Reflow soldering heat resistance		Spec. : Abnormality adversely affecting the performance should not occur.							OK	
			-----	10	-----	No abnormality					









