

MHF® 4L Connector

Part No. Plug: 20632-001R-37 Receptacle: 20449-001E-**

Test Report

Product Specification no. PRS-2008

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Rev.	ECN	Date	Prepared by	Checked by	Approved by

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1. 目的 / Purpose

MHF4L コネクタについて製品規格(PRS-2008)に基づき評価を行う。

Testing was performed on the MHF4L Connector to determine meets the requirement of I-PEX specification, PRS-2008.

2. 結果 / Conclusion

全ての試料が製品規格(PRS-2008)の条件を満足した。

All specimens met the requirements of PRS-2008.

3. 試料 / Sample

MHF4L Plug Connector : P/N. 20632-001R-37

Cable: 20632-001R-37 AWG#30 coaxial cable (jacket diameter 1.37mm)

MHF4 Receptacle Connector: P/N. 20449-001E-**

4. 試験方法 / Method

製品規格(PRS-2008)参照。

Refer to product specification PRS-2008.

4-1 試験順序及び評価数量 / Test Sequence and Sample Quantity

試験項目 / Test Item		Group															
		A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	
(1)	接触抵抗 Contact Resistance					1,3		1,3	1,3	1,5	1,3	1,5	1,3	1,3			
(2)	絶縁抵抗 Insulation resistance									2,6		2,6					
(3)	耐電圧 Dielectric withstanding voltage	1								3,7		3,7					
(4)	VSWR		1														
(5)	挿入力/抜去力 mating force/Unmating force			1													
(6)	水平引張 Cabel retention force at 0 degree				1												
(7)	耐久性 Durability					2											
(8)	半田剥離強度 Shearing strength						1										
(9)	耐振動性 Vibration							2									
(10)	耐衝撃性 Shock								2								
(11)	熱衝撃 Thermal shock									4							
(12)	高温寿命 High temperature life										2						
(13)	湿度(定常状態) Humidity steady state											4					
(14)	塩水噴霧 Salt Water Spray												2				
(15)	硫化水素ガス H ₂ S Gas													2			
(16)	半田付け性 Solder ability														1		
(17)	半田耐熱性 Soldering Heat Resistance															1	
Sample QTY pcs.	Plug	10	10	10	10	10	----	10	10	10	10	10	10	10	----	----	
	Receptacle	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Test Board pcs.		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	

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5.結果/Results

	Test items	Measurements	Spec.	n	Unit	AVE.	MAX.	MIN.	S	Judge	
	試験項目	測定内容	規格	試料数	単位	平均	最大	最小	S	判定	
A	Dielectric withstanding voltage 耐電圧	Initial	Spec : No creeping discharge, flashover, nor insulator breakdown shall occur. 規格: 沿面放電, 空中放電, 絶縁破壊等の異常の無き事							-----	
		20632-001R-37	-----	10	-----	Results : No abnormality(異常無し)			OK		
B	VSWR Plug	20632-001R-37	0.1~3GHz	1.3 MAX.	10	-----	1.087	1.10	1.08	0.006	OK
			3~6GHz	1.45 MAX.	10	-----	1.188	1.22	1.17	0.014	OK
	VSWR Receptacle		0.1~3GHz	1.3 MAX.	10	-----	1.149	1.15	1.14	0.005	OK
			3~6GHz	1.4 MAX.	10	-----	1.131	1.15	1.11	0.022	OK
C	Mating force 挿入力	20632-001R-37	Initial	30 MAX.	10	N	20.25	22.5	18.0	1.45	OK
			30 cycles		10	N	9.77	10.3	9.2	0.40	OK
	Un mating force 抜去力	20632-001R-37	Initial	20 MAX. 5 MIN.	10	N	13.71	15.4	12.3	0.94	OK
			30 cycles	20 MAX. 3 MIN.	10	N	8.80	9.6	7.8	0.47	OK
D	Cable retention force at 0 degree / 水平引張										
	20632-001R-37	Electrical discontinuity 電流瞬断	Spec. : No electrical discontinuity grater than 1 μ s shall occur. 規格 : 試験中、1 μ sを超える電氣的瞬断の無き事。								-----
			-----	10	-----	Results : No discontinuity			OK		
	Appearance 外観	Initial	No abnormality	10	-----	No abnormality (異常無し)			OK		
After testing		No abnormality	10	-----	No abnormality (異常無し)			OK			
E	Durability / 耐久性										
	20632-001R-37	Contact resistance of inner contact / 中心導体接触抵抗									
		Initial	20 MAX.	10	m Ω	6.30	7.3	5.3	0.58	OK	
			After testing	-----	10	m Ω	6.61	7.3	5.7	0.64	-----
			Δ R	20 MAX.	10	m Ω	0.31	1.5	-0.4	0.58	OK
		Contact resistance of ground contact / 外部導体接触抵抗									
		Initial	20 MAX.	10	m Ω	5.56	6.8	5.1	0.56	OK	
			After testing	-----	10	m Ω	6.53	8.2	5.9	0.67	-----
			Δ R	20 MAX.	10	m Ω	0.97	1.7	0.1	0.51	OK
		Appearance 外観	Initial	No abnormality	10	-----	No abnormality (異常無し)			OK	
After testing			No abnormality	10	-----	No abnormality (異常無し)			OK		
F	Shearing strength / 半田剥離強度										
		Direction①		20N MIN.	3	N	37.7	30.1	33.7	-----	OK
		Direction②			3	N	30.8	27.5	25.2	-----	OK
		Direction③			3	N	28.6	25.8	28.4	-----	OK
		Direction④			3	N	26.8	29.8	25.8	-----	OK
G	Vibration / 耐振動性										
	20632-001R-37	Contact resistance of inner contact / 中心導体接触抵抗									
		Initial	20 MAX.	10	m Ω	5.95	7.0	5.4	0.52	OK	
			After testing	-----	10	m Ω	6.71	7.4	6.2	0.47	-----
			Δ R	20 MAX.	10	m Ω	0.76	2.0	0.0	0.59	OK
		Contact resistance of ground contact / 外部導体接触抵抗									
		Initial	20 MAX.	10	m Ω	6.05	6.7	5.4	0.42	OK	
			After testing	-----	10	m Ω	6.94	8.1	5.9	0.73	-----
			Δ R	20 MAX.	10	m Ω	0.89	2.0	-0.6	0.87	OK
		Electrical discontinuity 電流瞬断	Spec. : No electrical discontinuity grater than 1 μ sec. shall occur. 規格: 1 μ 秒以上の電流瞬断の無い事								-----
-----			10	-----	Results : No discontinuity			OK			
Appearance 外観	Initial	No abnormality	10	-----	No abnormality (異常無し)			OK			
	After testing	No abnormality	10	-----	No abnormality (異常無し)			OK			

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Test items	Measurements	Spec.	n	Unit	AVE.	MAX.	MIN.	S	Judge	
試験項目	測定内容	規格	試料数	単位	平均	最大	最小	S	判定	
H Shock / 耐衝撃性										
20632-001R-37	Contact resistance of inner contact / 中心導体接触抵抗									
	Initial	20 MAX.	10	mΩ	6.71	7.4	6.2	0.47	OK	
	After testing	-----	10	mΩ	7.19	7.8	6.4	0.43	-----	
	ΔR	20 MAX.	10	mΩ	0.48	1.6	-0.9	0.79	OK	
	Contact resistance of ground contact / 外部導体接触抵抗									
	Initial	20 MAX.	10	mΩ	6.94	8.1	5.9	0.73	OK	
	After testing	-----	10	mΩ	7.32	8.4	6.2	0.70	-----	
	ΔR	20 MAX.	10	mΩ	0.38	1.5	-0.3	0.55	OK	
	Electrical discontinuity 電流瞬断	Spec. : No electrical discontinuity grater than 1μsec. shall occur. 規格:1μ秒以上の電流瞬断の無い事								-----
				10	-----	Results : No discontinuity				OK
	Appearance 外観	Initial	No abnormality	10	-----	No abnormality (異常無し)				OK
		After testing	No abnormality	10	-----	No abnormality (異常無し)				OK
J Thermal shock / 熱衝撃										
20632-001R-37	Contact resistance of inner contact (中心導体接触抵抗)									
	Initial	20 MAX.	10	mΩ	6.23	6.9	5.5	0.42	OK	
	After testing	-----	10	mΩ	6.90	7.6	6.3	0.41	-----	
	ΔR	20 MAX.	10	mΩ	0.68	1.4	-0.4	0.51	OK	
	Contact resistance of ground contact (外部導体接触抵抗)									
	Initial	20 MAX.	10	mΩ	5.69	6.6	5.1	0.65	OK	
	After testing	-----	10	mΩ	6.90	8.0	6.0	0.62	-----	
	ΔR	20 MAX.	10	mΩ	1.21	2.3	-0.5	0.86	OK	
	Insulation resistance	Initial	500 MIN.	10	MΩ	10,000 (minimum vale)				OK
		After testing	100 MIN.	10	MΩ	10,000 (minimum vale)				OK
	Dielectric withstanding voltage	Initial	No abnormality	10	-----	No abnormality (異常無し)				OK
		After testing	No abnormality	10	-----	No abnormality (異常無し)				OK
	Appearance 外観	Initial	No abnormality	10	-----	No abnormality (異常無し)				OK
		After testing	No abnormality	10	-----	No abnormality (異常無し)				OK
	K High temperature life / 高温寿命									
20632-001R-37	Contact resistance of inner contact / 中心導体接触抵抗									
	Initial	20 MAX.	10	mΩ	6.31	7.3	5.4	0.74	OK	
	After testing	-----	10	mΩ	7.00	7.6	6.1	0.44	-----	
	ΔR	20 MAX.	10	mΩ	0.69	2.0	-0.3	0.78	OK	
	Contact resistance of ground contact / 外部導体接触抵抗									
	Initial	20 MAX.	10	mΩ	6.17	6.8	5.4	0.43	OK	
	After testing	-----	10	mΩ	6.77	7.6	6.1	0.52	-----	
	ΔR	20 MAX.	10	mΩ	0.60	2.2	-0.3	0.68	OK	
	Appearance 外観	Initial	No abnormality	10	-----	No abnormality (異常無し)				OK
		After testing	No abnormality	10	-----	No abnormality (異常無し)				OK

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Test items	Measurements	Spec.	n	Unit	AVE.	MAX.	MIN.	S	Judge	
試験項目	測定内容	規格	試料数	単位	平均	最大	最小	S	判定	
L	Humidity(Steady State) / 湿度(定常状態)									
20632-001R-37	Contact resistance of inner contact / 中心導体接触抵抗									
	Initial	20 MAX.	10	mΩ	6.65	7.0	5.9	0.40	OK	
	After testing	-----	10	mΩ	7.03	8.2	6.1	0.74	-----	
	∠R	20 MAX.	10	mΩ	0.38	1.8	-0.9	0.90	OK	
	Contact resistance of ground contact / 外部導体接触抵抗									
	Initial	20 MAX.	10	mΩ	5.94	6.7	5.2	0.51	OK	
	After testing	-----	10	mΩ	6.91	8.1	6.2	0.59	-----	
	∠R	20 MAX.	10	mΩ	0.97	2.2	-0.4	0.86	OK	
	Insulation resistance / 絶縁抵抗									
	Initial	500 MIN.	10	MΩ	10,000 (minimum vale)				OK	
	After testing	100 MIN.	10	MΩ	10,000 (minimum vale)				OK	
	Dielectric withstanding voltage	Initial	No abnormality	10	-----	No abnormality (異常無し)				OK
		After testing	No abnormality	10	-----	No abnormality (異常無し)				OK
Appearance 外観	Initial	No abnormality	10	-----	No abnormality (異常無し)				OK	
	After testing	No abnormality	10	-----	No abnormality (異常無し)				OK	
M	Salt water spray / 塩水噴霧									
20632-001R-37	Contact resistance of inner contact / 中心導体接触抵抗									
	Initial	20 MAX.	10	mΩ	6.47	7.3	5.5	0.68	OK	
	After testing	-----	10	mΩ	7.17	8.3	6.5	0.56	-----	
	∠R	20 MAX.	10	mΩ	0.71	1.5	-0.4	0.60	OK	
	Contact resistance of ground contact / 外部導体接触抵抗									
	Initial	20 MAX.	10	mΩ	6.04	6.8	5.4	0.51	OK	
	After testing	-----	10	mΩ	6.73	7.9	5.9	0.62	-----	
	∠R	20 MAX.	10	mΩ	0.70	1.9	-0.5	0.75	OK	
	Appearance 外観	Initial	No abnormality	10	-----	No abnormality (異常無し)				OK
		After testing	No abnormality	10	-----	No abnormality (異常無し)				OK
	N	H2S Gas / 硫化水素ガス								
	20632-001R-37	Contact resistance of inner contact / 中心導体接触抵抗								
		Initial	20 MAX.	10	mΩ	6.68	7.3	6.1	0.40	OK
After testing		-----	10	mΩ	6.74	7.9	6.1	0.60	-----	
∠R		20 MAX.	10	mΩ	0.05	1.2	-1.2	0.78	OK	
Contact resistance of ground contact / 外部導体接触抵抗										
Initial		20 MAX.	10	mΩ	6.30	6.7	5.7	0.36	OK	
After testing		-----	10	mΩ	7.28	8.1	6.4	0.54	-----	
∠R		20 MAX.	10	mΩ	0.98	1.7	0.0	0.58	OK	
Appearance 外観		Initial	No abnormality	10	-----	No abnormality (異常無し)				OK
		After testing	No abnormality	10	-----	No abnormality (異常無し)				OK
P		Solderability 半田付け性	Spec.:More than 95% of the dipped surface becomes wet and the pinhole that should not gather at one point is less than 5%. 規格:浸した面積の95%以上に半田が付着し、かつピンホール空隙が1箇所集中せず、5%以下である事。							
				10	-----	No abnormality (異常無し)				OK
Q		Reflow soldering heat resistance 半田耐熱性	Spec.:Abnormality adversely affecting the performance should not occur. 規格:機能を損なう変形及び欠陥の無い事。							
			10	-----	No abnormality (異常無し)				OK	





