

MHF[®] 4L Connector (AWG#33φ0.95 Cable)

Part No. PLUG: 20565-001R-13 RECEPTACLE: 20449-001E-**

Test Report

Product Specification no. PRS-2051

0	T14184	December 24, 2014	S.Suzuki	K.Yotsutani	T.Takano
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. 目的 / Purpose

MHF4L コネクタについて製品規格(PRS-2051)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-2051.

2. 結果 / Conclusion

全ての試料が製品規格(PRS-2051)の条件を満足した。

All the specimen met the requirements of PRS-2051.

3. 試料 / Sample

MHF4L Plug Connector : P/N. 20565-001R-13

Cable: AWG#33 coaxial cable (jacket diameter 0.95mm)

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

4. 試験方法 / Method

製品規格(PRS-2051)参照。

Refer to product specification PRS-2051.

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	
(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)	ケーブル保持力 Cabel retention force				1											
(7)	耐久性 Durability					2										
(8)	耐振動性 Vibration						2									
(9)	耐衝撃性 Shock							2								
(10)	熱衝撃 Thermal shock								4							
(11)	高温寿命 High temperature life									2						
(12)	湿度(定常状態) Humidity steady state										4					
(13)	塩水噴霧 Salt Water Spray											2				
(14)	硫化水素ガス H ₂ S Gas												2			
(15)	半田付け性 Solder ability														1	
(16)	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	10	-----	-----
	Receptacle	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

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							-----	
		20565-001R-13(φ0.95)	-----	10	-----	Results : No abnormality(異常無し)			OK		
B	VSWR Plug	20565-001R-13 (φ0.95) 0.1~3GHz	1.3 MAX.	10	-----	1.092	1.10	1.08	0.005	OK	
		3~6GHz	1.45 MAX.	10	-----	1.241	1.25	1.22	0.010	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	20565-001R-13 (φ0.95) Initial	30 MAX.	10	N	19.97	21.9	19.3	0.93	OK	
		30 cycles		10	N	8.28	9.4	7.2	0.78	OK	
	Un mating force 抜去力	20565-001R-13 (φ0.95) Initial	20 MAX. 5 MIN.	10	N	14.12	14.7	13.5	0.41	OK	
		30 cycles	20 MAX. 3 MIN.	10	N	8.95	9.3	8.0	0.40	OK	
D	Cable retention force ケーブル保持力	20565-001R-13(φ0.95)	8 MIN.	10	N	13.37	14.6	12.6	0.62	OK	
E Durability / 耐久性											
20565-001R-13 (φ0.95)	Contact resistance of inner contact / 中心導体接触抵抗										
	Initial	20 MAX.	10	mΩ	11.88	13.1	10.1	0.99	OK		
		After testing	-----	10	mΩ	11.90	13.6	10.1	1.27	-----	
		ΔR	20 MAX.	10	mΩ	0.02	2.4	-1.5	1.54	OK	
	Contact resistance of ground contact / 外部導体接触抵抗										
	Initial	20 MAX.	10	mΩ	6.56	7.0	5.9	0.39	OK		
		After testing	-----	10	mΩ	6.47	7.0	6.0	0.35	-----	
		ΔR	20 MAX.	10	mΩ	-0.09	0.2	-0.4	0.24	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 Vibration / 耐振動性											
20565-001R-13 (φ0.95)	Contact resistance of inner contact / 中心導体接触抵抗										
	Initial	20 MAX.	10	mΩ	10.88	12.0	10.5	0.43	OK		
		After testing	-----	10	mΩ	10.37	12.6	8.7	0.97	-----	
		ΔR	20 MAX.	10	mΩ	-0.51	2.1	-2.1	1.15	OK	
	Contact resistance of ground contact / 外部導体接触抵抗										
	Initial	20 MAX.	10	mΩ	6.14	7.0	5.7	0.41	OK		
		After testing	-----	10	mΩ	5.30	6.9	4.1	0.86	-----	
		ΔR	20 MAX.	10	mΩ	-0.84	0.5	-2.1	0.74	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		
G Shock / 耐衝撃性											
20565-001R-13 (φ0.95)	Contact resistance of inner contact / 中心導体接触抵抗										
	Initial	20 MAX.	10	mΩ	11.37	13.6	9.7	0.97	OK		
		After testing	-----	10	mΩ	11.47	13.0	10.2	0.98	-----	
		ΔR	20 MAX.	10	mΩ	0.10	2.4	-3.0	1.41	OK	
	Contact resistance of ground contact / 外部導体接触抵抗										
	Initial	20 MAX.	10	mΩ	5.30	6.9	4.1	0.86	OK		
		After testing	-----	10	mΩ	5.40	7.0	4.3	0.91	-----	
		ΔR	20 MAX.	10	mΩ	0.10	0.8	-0.4	0.35	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		

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 Thermal shock / 熱衝撃										
20565-001R-13 (φ0.95)	Contact resistance of inner contact / 中心導体接触抵抗									
	Initial	20 MAX.	10	mΩ	10.14	11.5	9.3	0.72	OK	
	After testing	-----	10	mΩ	10.23	12.9	9.3	1.07	-----	
	ΔR	20 MAX.	10	mΩ	0.09	1.5	-1.8	0.82	OK	
	Contact resistance of ground contact / 外部導体接触抵抗									
	Initial	20 MAX.	10	mΩ	6.22	6.5	5.9	0.21	OK	
	After testing	-----	10	mΩ	6.77	8.4	5.9	0.82	-----	
	ΔR	20 MAX.	10	mΩ	0.55	2.1	-0.6	0.79	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
J High temperature life / 高温寿命										
20565-001R-13 (φ0.95)	Contact resistance of inner contact / 中心導体接触抵抗									
	Initial	20 MAX.	10	mΩ	10.69	12.0	10.3	0.48	OK	
	After testing	-----	10	mΩ	11.19	13.5	10.5	0.89	-----	
	ΔR	20 MAX.	10	mΩ	0.50	1.5	-0.1	0.47	OK	
	Contact resistance of ground contact / 外部導体接触抵抗									
	Initial	20 MAX.	10	mΩ	5.96	6.5	5.4	0.35	OK	
	After testing	-----	10	mΩ	8.55	9.9	6.9	1.12	-----	
	ΔR	20 MAX.	10	mΩ	2.59	4.2	1.0	1.05	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 Humidity(Steady State) / 湿度(定常状態)									
	20565-001R-13 (φ0.95)	Contact resistance of inner contact / 中心導体接触抵抗								
		Initial	20 MAX.	10	mΩ	11.24	12.2	10.7	0.48	OK
		After testing	-----	10	mΩ	10.94	12.2	10.5	0.63	-----
ΔR		20 MAX.	10	mΩ	-0.30	0.0	-1.0	0.33	OK	
Contact resistance of ground contact / 外部導体接触抵抗										
Initial		20 MAX.	10	mΩ	6.06	6.4	5.7	0.23	OK	
After testing		-----	10	mΩ	7.50	8.6	6.3	0.79	-----	
ΔR		20 MAX.	10	mΩ	1.44	2.6	0.4	0.69	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	

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 Salt water spray / 塩水噴霧									
20565-001R-13 (φ0.95)	Contact resistance of inner contact / 中心導体接触抵抗								
	Initial	20 MAX.	10	mΩ	11.31	13.0	10.3	0.96	OK
	After testing	-----	10	mΩ	10.48	13.7	9.4	1.34	-----
	∠R	20 MAX.	10	mΩ	-0.83	1.5	-3.1	1.37	OK
	Contact resistance of ground contact / 外部導体接触抵抗								
	Initial	20 MAX.	10	mΩ	5.91	6.7	5.4	0.38	OK
	After testing	-----	10	mΩ	7.38	9.0	6.4	0.89	-----
	∠R	20 MAX.	10	mΩ	1.47	3.0	0.0	1.01	OK
	Appearance 外観	Initial	No abnormality	10	-----	No abnormality (異常無し)			
	After testing	No abnormality	10	-----	No abnormality (異常無し)				OK
M H2S Gas / 硫化水素ガス									
20565-001R-13 (φ0.95)	Contact resistance of inner contact / 中心導体接触抵抗								
	Initial	20 MAX.	10	mΩ	12.29	13.3	11.6	0.56	OK
	After testing	-----	10	mΩ	11.54	12.8	10.7	0.83	-----
	∠R	20 MAX.	10	mΩ	-0.75	0.7	-1.7	0.71	OK
	Contact resistance of ground contact / 外部導体接触抵抗								
	Initial	20 MAX.	10	mΩ	6.22	6.7	6.0	0.23	OK
	After testing	-----	10	mΩ	4.91	6.1	3.7	0.68	-----
	∠R	20 MAX.	10	mΩ	-1.31	-0.4	-2.4	0.56	OK
	Appearance 外観	Initial	No abnormality	10	-----	No abnormality (異常無し)			
	After testing	No abnormality	10	-----	No abnormality (異常無し)				OK
N 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
P 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





