

MHF®-TI Connector

Part No. Plug: 20859-001R-0* Receptacle: 20860-001E-0*

Test Report

Product Specification no. PRS-2573

3	T25005	January 30, 2025	T. Takuno	-	K. Yufu
2	T21044	June 24, 2021	S. Taguchi	-	M. Takemoto
1	T20043	July 7, 2020	K. Tanaka	Y. Fukumoto	T. Yamauchi
0	T20012	January 28, 2020	K. Tanaka	T. Yamauchi	Y. Shimada
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of MHF-TI Connector in accordance with PRS-2573.

2. Specimen

(1) MHF-TI PLUG (Part No. 20859-001R-01)
Cable: AWG#25 coaxial cable (jacket diameter 3.00 mm)
(2) MHF-TI RECEPTACLE (Part No. 20860-001E-0*)

3. Test Sequence

All the evaluations were performed in accordance with Table 1, Test Sequence.

4. Result

See Table 2, and graphs following Graph 1-13. For the details of the testing conditions and requirements, see PRS-2573. The "n" in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-2573.

Table 1 Test Sequence and Sample Quantity

Took Home								Gro	oup							
Test Item	Α	В	С	D	Е	F	G	Н	I	J	K	L	М	N	Р	Q
Contact Resistance			1,3			1,3	1,3	1,3	1,3	1,5	1,5	1,5	1,3			
Insulation Resistance										2,6	2,6	2,6				
D. W. Voltage										3,7	3,7	3,7				
VSWR	1															
Mating Force		1														
Durability			2													
Mating lock strength				1												
Cable Retention Force					1											
Vibration						2										
Shock							2									
High Temperature Life								2								
Low Temperature Life									2							
Humidity(Steady state)										4						
Thermal shock											4					
Temperature and humidity cycling												4				
SO ₂ gas													2			
Sn whisker														1		
Solder ability															1	
Soldering heat resistance																1
Specimen Quantity.	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

*Numbers indicate sequence in which tests are performed.

Table 2-1 Test Result

Group	Test items	Pass criteria	n		AVE.	MAX.	MIN.	S	Judgement		
	Measurements	- Fass Cilleria	"	Unit	AVL.	IVIAA.	IVIIIN.	3	Judgement		
Α	Transmission characteristics										
	Voltage Standing Wave Ratio										
	0.1∼3.0GHz	1.5 MAX.	5	-	1.248	1.29	1.20	0.034	Pass		
	3.0∼6.0GHz	1.5 MAX.	3	-	1.363	1.40	1.34	0.018	Pass		
В	Mating force										
	Initial	45 N MAX.	F	NI NI	11.45	13.4	9.2	1.58	Pass		
	After 30 cycles	45 N MAX.	5	N	5.96	6.9	4.6	1.03	Pass		
С	Durability										
	Contact resistance of main contact										
	Initial	20mΩ MAX.	5		4.97	5.1	4.7	0.15	Pass		
	After testing	30mΩ MAX.	5	mΩ	4.75	4.9	4.5	0.18	Pass		
	Contact resistance of ground contact										
	Initial	15mΩ MAX.	5	mΩ	2.15	2.4	1.8	0.29	Pass		
	After testing	25mΩ MAX.	3	11122	2.38	2.6	2.1	0.24	Pass		
D	Mating lock strength										
	After testing	110 N MIN.	5	N	185.96	194.3	175.5	3.27	Pass		
E	Cable retention force										
	After testing	90 N MIN.	5	N	142.72	150.3	136.6	5.48	Pass		
F	Vibration										
	Contact resistance of main conta	act									
	Initial	20mΩ MAX.	_	0	5.07	5.2	4.9	0.14	Pass		
	After testing	30mΩ MAX.	5	mΩ	6.14	7.5	5.4	0.89	Pass		
	外部導体接触抵抗/Contact	resistance of ground contact									
	Initial	15mΩ MAX.	5	mΩ	2.69	2.8	2.6	0.10	Pass		
	After testing	25mΩ MAX.	3	11122	2.73	2.9	2.2	0.30	Pass		
	Electrical discontinuity										
		discontinuity greater than 1µs		_	1				_		
	After testing	-	5	-	No discontinit	:y			Pass		
	Appearance	T	Г	T	T						
	After testing	No abnormality	5	-	No abnormal	ity			Pass		

Table 2-2 Test Result

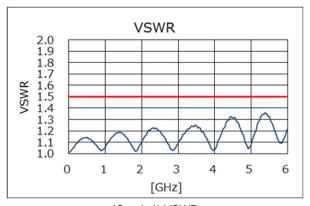
		<u></u>									
Group	Test items	Pass criteria	n	Unit	AVE.	MAX.	MIN.	S	Judgement		
	Measurements										
G	Shock										
	Contact resistance of main contact										
	Initial	20mΩ MAX.	- 5	mΩ	5.10	5.2	5.0	0.08	Pass		
	After testing	30mΩ MAX.	3	11122	6.06	7.3	5.5	0.71	Pass		
	Contact resistance of ground contact										
	Initial	15mΩ MAX.	- 5	mΩ	2.72	2.8	2.6	0.07	Pass		
	After testing	25mΩ MAX.	3	11122	2.91	3.2	2.7	0.25	Pass		
	Electrical discontinuity										
	Pass criteria: No electrical discontinuity greater than 1µs shall occur.										
	After testing	-	5	-	No discontin	ity			Pass		
	Appearance										
	After testing	No abnormality	5	-	No abnorma	lity			Pass		
Н	High Temperature Life										
	Contact resistance of main con	tact									
	Initial	20mΩ MAX.			4.99	5.2	4.9	0.10	Pass		
	After testing	30mΩ MAX.	- 5	mΩ	10.00	12.6	7.8	2.04	Pass		
	Contact resistance of ground contact										
	Initial	15mΩ MAX.	_		2.66	2.8	2.6	0.07	Pass		
	After testing	25mΩ MAX.	5	mΩ	4.51	5.8	2.9	1.13	Pass		
	Insulation resistance										
	Initial	500 MΩ MIN.	_		10,000 MΩ I	MIN.			Pass		
	After testing	100 MΩ MIN.	- 5	mΩ	10,000 MΩ	MIN.			Pass		
	Appearance										
	After testing	No abnormality	5	T -	No abnorma	litv			Pass		
\dashv		The desired states			110 0011011110						
'	Low temperature life										
	Contact resistance of main con					1		1			
	Initial	20mΩ MAX.	5	mΩ	5.00	5.1	4.9	0.07	Pass		
	After testing	30mΩ MAX.			5.52	5.9	5.2	0.34	Pass		
	Contact resistance of ground co				1			1	T		
	Initial	15mΩ MAX.	- 5	mΩ	2.76	2.9	2.7	0.06	Pass		
	After testing	25mΩ MAX.		22	2.78	3.0	2.6	0.19	Pass		
	Insulation resistance										
	Initial	500 MΩ MIN.	5	5 mΩ 10,000 MΩ MIN.				Pass			
	After testing	100 MΩ MIN.		11132	10,000 MΩ I	MIN.			Pass		
	Appearance					·					
	Initial	No abnormality	_		No abnorma	lity			Pass		
	After testing	No abnormality	5	-	No abnorma			••••••	Pass		
				1	1						

Table 2-3 Test Result

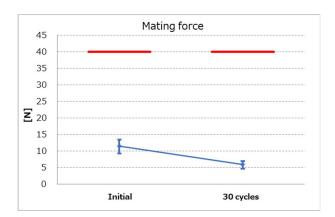
		<u>10</u>	DIE Z-3 TES	ot recount							
Group	Test items Measurements	Pass criteria	n	Unit	AVE.	MAX.	MIN.	S	Judgemen		
J	Humidity(Steady state)			•					•		
	Contact resistance of main contact										
	Initial	20mΩ MAX.	E	m0	5.08	5.3	5.0	0.13	Pass		
	After testing	30mΩ MAX.	- 5	mΩ	5.93	6.2	5.7	0.20	Pass		
	Contact resistance of ground contact										
	Initial	15mΩ MAX.	-	0	2.73	2.8	2.6	0.07	Pass		
	After testing	25mΩ MAX.	5	mΩ	2.50	2.6	2.3	0.14	Pass		
	Insulation resistance		•	•		•		•	•		
	Initial	500 MΩ MIN.	_		10,000 MΩ N	ЛIN.			Pass		
	After testing	100 MΩ MIN.	- 5	mΩ	10,000 MΩ N	ЛIN.			Pass		
	Dielectric withstanding voltage										
	No creeping discharge, flashover, nor insulator breakdown shall occur.										
	After testing - 5 - No abnormality										
	Appearance										
	Initial	No abnormality			No abnorma	itv			Pass		
	After testing	No abnormality	- 5	-	No abnorma				Pass		
17		TVO abhormality			INO abilioilila	ity			1 433		
K	Thermal shock										
	Contact resistance of main cont				1	1	T				
	Initial	20mΩ MAX.	5	mΩ	5.21	5.3	5.1	0.09	Pass		
	After testing	30mΩ MAX.			8.44	10.4	6.9	1.42	Pass		
	Contact resistance of ground co							ı			
	Initial	15mΩ MAX.	- 5	mΩ	2.71	2.8	2.6	0.08	Pass		
	After testing	25mΩ MAX.		<u> </u>	6.62	7.0	6.1	0.35	Pass		
	Insulation resistance										
	Initial	500 MΩ MIN.	5	mΩ	10,000 MΩ N	Pass					
	After testing 100 MΩ MIN. 10,000 MΩ MIN.										
	Dielectric withstanding voltage										
	No creeping discharge, flashover, nor insulator breakdown shall occur.										
	After testing	-	5	-	No abnorma	ity			Pass		
	Appearance										
	Initial	No abnormality	5	_	No abnorma	Pass					
	After testing	No abnormality	3		No abnorma	ity			Pass		
L	Temperature and humidity cycling	1									
	Contact resistance of main cont	act									
	Initial	20mΩ MAX.	_		5.19	5.5	5.0	0.21	Pass		
	After testing	30mΩ MAX.	- 5	mΩ	5.27	6.0	4.4	0.63	Pass		
	Contact resistance of ground co		1	1		1					
	Initial	15mΩ MAX.			2.64	2.8	2.5	0.10	Pass		
	After testing	25mΩ MAX.	5	mΩ	2.83	3.5	2.2	0.51	Pass		
	Insulation resistance	201112 1117 04.	1	1	2.00	1 0.0		0.01	1 400		
	Initial			Τ	10,000 MΩ N	ЛIN			Pass		
	After testing	100 MΩ MIN.	- 5	mΩ	10,000 ΜΩ Ν	Pass					
		TOO IVISE IVITIN.		1	10,000 10122 1	ATTIN.			F 455		
	Dielectric withstanding voltage										
	No creeping discharge, flashover, nor insulator breakdown shall occur.										
	After testing	-	5	-	No abnorma	ity			Pass		
	Appearance								Pass		
	Initial	No abnormality	5	_	No abnormality						
ŀ	After testing	No abnormality			No abnorma	ity			Pass		

Table 2-4 Test Result

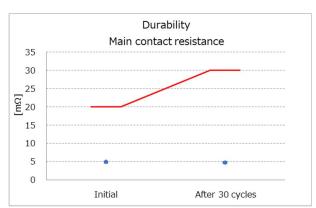
		<u>I a l</u>	ole 2-4 les	et Kesuit					
Group	Test items Measurements	Pass criteria	n	Unit	AVE.	MAX.	MIN.	S	Judgement
М	SO2 Gas]	ļ					
IVI		4							
	Contact resistance of main cont	act 20mΩ MAX.		1	5.05	5.1	5.0	0.06	Pass
	After testing	30mΩ MAX.	- 5	mΩ	9.67	11.6	8.0	1.29	Pass
	Contact resistance of ground co				9.07	11.0	0.0	1.29	F 455
	Initial	15mΩ MAX.		Τ	2.78	2.9	2.6	0.11	Pass
	After testing	25mΩ MAX.	- 5	mΩ	5.49	7.1	4.0	1.13	Pass
	Appearance	2011122 1117 01.			0.10	1 '	1.0	1.10	1 400
	Initial	No abnormality	<u> </u>	Τ	No abnormal	itv			Pass
	After testing	No abnormality	- 5	-	No abnormal	···	Pass		
N	Sn whisker	<u>, </u>				,			
	Appearance								
	''	of whisker more than 50µm.							
	<mating condition=""></mating>								
	Condition 1	50 1111	Τ_			50	NANZ		
	After testing	50μm MAX.	5			50µm	MAX.		Pass
	Condition 2	50 MAY	_			E0m	MAV		D
	After testing	50μm MAX.	5	μm		50µm	WAX.		Pass
	Condition 3	50 1447	_			Γ0	NANZ		Б
	After testing	50μm MAX.	5			50µm	MAX.		Pass
	<plug only=""></plug>	_		•					
	Condition 1 After testing	50μm MAX.	5			50µm		Pass	
	Condition 2 After testing	50µm MAX.	5	μm		50µm		Pass	
	Condition 3 After testing	50μm MAX.	5			50µm		Pass	
	<receptacle only=""></receptacle>		1	1					<u>, l</u>
	Condition 1	FOur MAY	_			50um	MAV		Pass
	After testing	50μm MAX.	5	ma		50µm	IVIAA.		Pass
	Condition 2 After testing	50μm MAX.	5	μm		50µm	MAX.		Pass
	Condition 3	50 MAY				50 -	MAN		
	After testing	50μm MAX.	5			50µm	MAX.		Pass
Р	Solder ability								
	Pass criteria: More than 9	5% of the dipped surface shall	ll be evenly	wet.					
	After testing	-	5	-	No abnormal	ity			Pass
Q	Soldering Heat Resistance								
	Appearance								
		lity adversely affecting the pe	rformance s	hall not occu	ır.				
	After testing	No abnormality	5	-	No abnormal	ity			Pass
	·	•	•	•	•				-

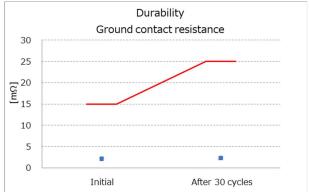


(Graph 1) VSWR

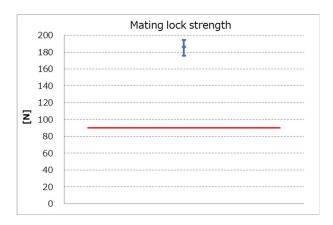


(Graph 2) Mating force

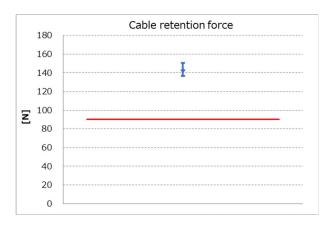




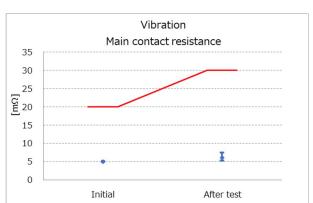
(Graph 3) Durability

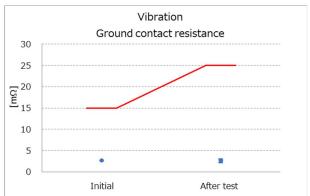


(Graph 4) Mating lock strength

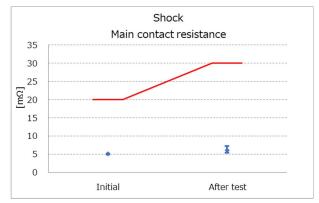


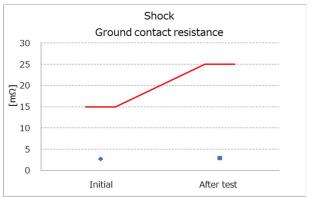
(Graph 5) Cable Retention Force



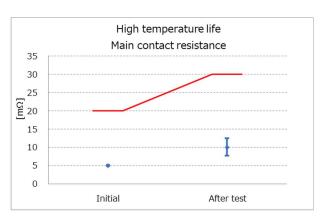


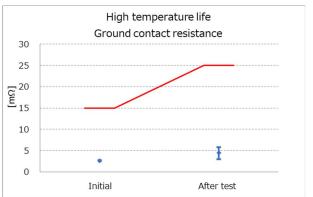
(Graph 6) Vibration



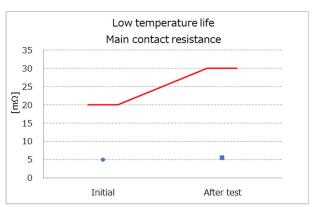


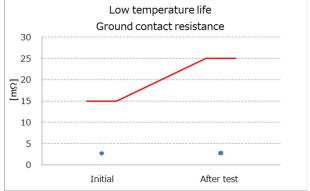
(Graph 7) Shock



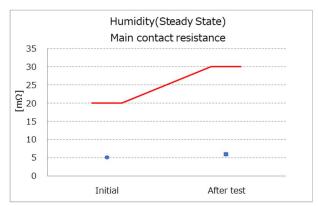


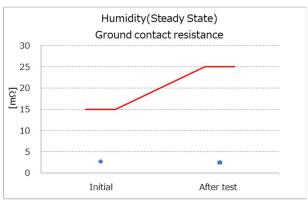
(Graph 8) High Temperature Life





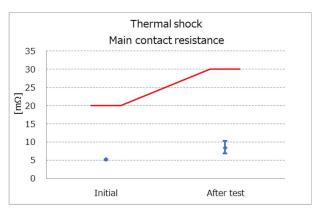
(Graph 9) Low Temperature Life

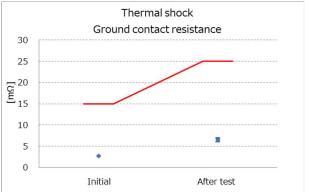




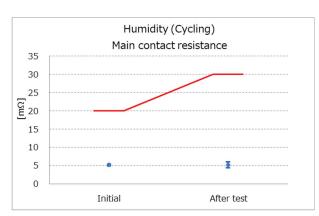
(Graph 10) Humidity(Steady state)

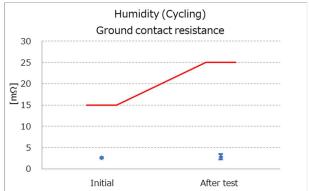
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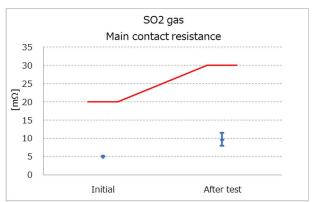


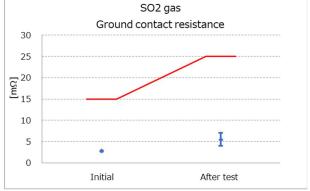
(Graph 11) Thermal shock





(Graph 12) Temperature and humidity cycling





(Graph 13) SO2 gas