MHF®-SW23

Part No. 20549-001E-**

Test Report

Product Specification no. PRS-1672

Rev.	ECN	Date	Prepared by	Checked by	Approved by
6	T21111	October 26, 2021	K.Motomura	K. Yufu	M.Takemoto
5	T20033	April 16, 2020	Y. Imaji	K. Yufu	Y. Hashimoto
4	T18048	May 2, 2018	M.Nomoto	K.Yufu	K.Yotsutani
3	T17022	January 31, 2017	Y.Imaji	Y.Hashimoto	K.Yotsutani

1. Purpose

To evaluate the performance of MHF-SW23 in accordance with PRS-1672.

2. Specimen

(1) MHF-SW23 （Part No. 20549-001E-**）
(2) MHF-SW23 SMA ADPTER CABLE （Part No. 90582-0400）

3. Test Sequence

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

4. Test Result

See Table 2 to 5, Graph 1 to 9. For the details of the testing conditions and requirements, see PRS-1672.
The “n” in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-1672.

Table 1 Test Sequence and Sample Quantity

Test Item	Group									
	A	B	C	D	E	F	G	H	J	K
Contact Resistance			1,3	1,3,5	1,3	1,3	1,3	1,3		
Insulation Resistance	1				4	4	4	4		
D.W Voltage	2									
VSWR		1								
Insertion Loss		2								
Isolation		3								
Durability			2							
Vibration				2						
Shock				4						
Humidity (Steady State)					2					
Thermal Shock						2				
Dry Heat							2			
Cold								2		
Salt Water Spray									1	
Resistance to Soldering Heat										1
Specimen Quantity (pcs)	5	5	5	5	5	5	5	5	5	5

※Numbers indicate sequence in which tests are performed.

Table 2-1 Test result

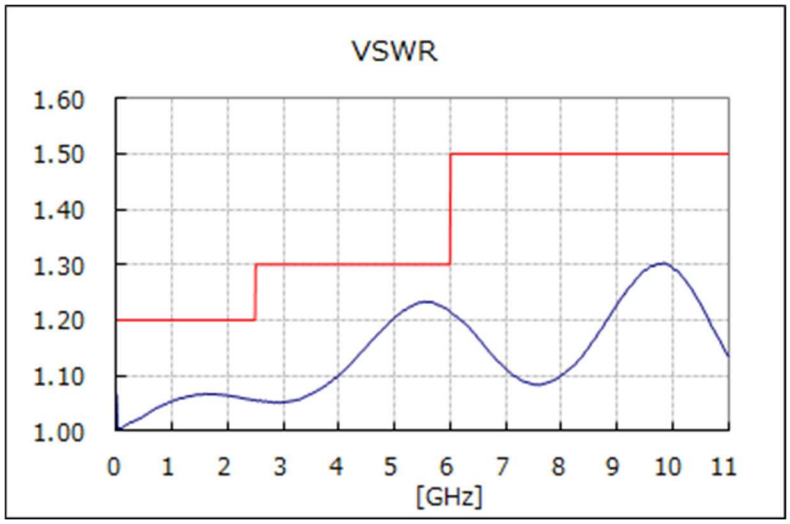
Group	Test items / Measurements	Spec.	n	Unit	AVE.	MAX.	MIN.	Judge
A	Insulation resistance							
	Initial	1000MΩ MIN.	5	MΩ	$2.36x10^4$ MIN.			Pass
	Dielectric withstanding voltage							
	Spec: No abnormality adversely affecting the performance shall occur.							
	Initial	-	5	-	No abnormality			Pass
B	(On State) VSWR							
	300K-2.5GHz	1.2 MAX.	5	-	1.083	1.11	1.07	Pass
	2.5-6.0GHz	1.3 MAX.		-	1.251	1.27	1.23	Pass
	6.0-11.0GHz	1.5 MAX.		-	1.285	1.30	1.28	Pass
	(On State) Insertion Loss							
	300K-2.5GHz	0.15 MAX.	5	dB	0.072	0.08	0.06	Pass
	2.5-6.0GHz	0.20 MAX.			0.154	0.17	0.14	Pass
	6.0-11.0GHz	0.40 MAX.			0.181	0.20	0.16	Pass
	(Off State) Isolation							
	300K-3.0GHz	20 MIN.	5	dB	36.58	36.6	36.5	Pass
	3.0-6.0GHz	15 MIN.			22.58	22.7	22.5	Pass
	6.0-11.0GHz	12 MIN.			17.86	18.2	17.4	Pass
C	Durability							
	<R1> (On state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	18.93	20.0	18.4	Pass
	After 100 cycles				20.41	22.3	19.0	Pass
	<R2> (Off state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	12.65	13.6	11.7	Pass
	After 100 cycles				12.16	13.1	11.0	Pass
	<R3> (Off state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	10.58	10.7	10.3	Pass
	After 100 cycles				10.79	10.9	10.7	Pass
D	Vibration → Shock							
	<R1> (On state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	18.70	19.9	16.9	Pass
	After Vibration				20.51	21.5	18.8	Pass
	After Shock				20.28	21.9	19.8	Pass
	<R2> (Off state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	12.13	13.0	11.7	Pass
	After Vibration				13.30	13.9	12.5	Pass
	After Shock				12.26	14.3	11.1	Pass
	<R3> (Off state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	11.61	11.8	11.4	Pass
	After Vibration				11.58	12.0	11.1	Pass
	After Shock				11.96	12.6	10.8	Pass
	Discontinuity							
	During Vibration	1μs MAX.	5	-	No discontinuity			Pass
	During Shock				No discontinuity			Pass

Table 2-2 Test result

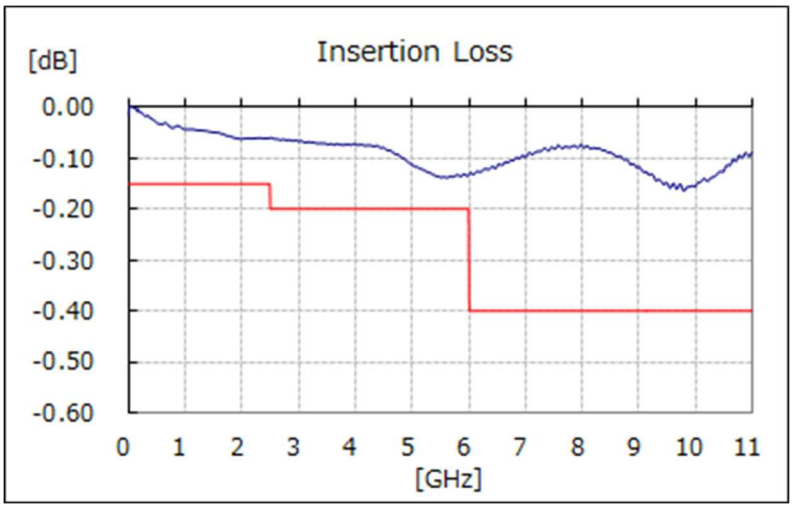
Group	Test items / Measurements	Spec.	n	Unit	AVE.	MAX.	MIN.	Judge
E	Humidity(Steady State)							
	<R1> (On state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	17.16	17.9	16.5	Pass
	After testing				19.78	20.5	19.0	Pass
	<R2> (Off state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	12.96	14.2	11.7	Pass
	After testing				13.16	14.9	11.8	Pass
	<R3> (Off state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	12.04	12.9	11.5	Pass
	After testing				12.32	13.3	11.8	Pass
	Insulation resistance							
	After testing	10MΩ MIN.	5	MΩ	$8.83x10^2$ MIN.			Pass
	Appearance							
	Spec: No abnormality adversely affecting the performance shall occur.							
	After testing	-	5	-	No abnormality			Pass
F	Thermal Shock							
	<R1> (On state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	19.80	20.6	18.7	Pass
	After testing				18.79	21.0	17.4	Pass
	<R2> (Off state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	13.70	14.9	11.7	Pass
	After testing				13.51	14.7	12.3	Pass
	<R3> (Off state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	11.23	11.6	10.7	Pass
	After testing				11.76	12.9	11.0	Pass
	Insulation resistance							
	After testing	10MΩ MIN.	5	MΩ	$1.1x10^5$ MIN.			Pass
	Appearance							
	Spec: No abnormality adversely affecting the performance shall occur.							
	After testing	-	5	-	No abnormality			Pass

Table 2-3　試験結果／Test result

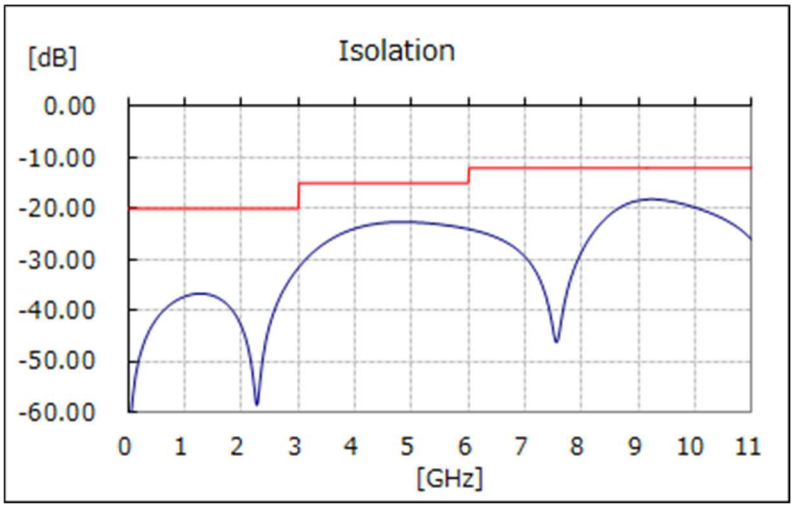
Group	Test items / Measurements	Spec.	n	Unit	AVE.	MAX.	MIN.	Judge
G	Dry Heat							
	<R1> (On state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	19.36	23.1	17.7	Pass
	After testing				20.61	22.0	19.5	Pass
	<R2> (Off state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	12.43	13.6	11.8	Pass
	After testing				13.12	14.1	13.0	Pass
	<R3> (Off state) 接触抵抗／Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	10.30	11.3	9.5	Pass
	After testing				11.28	11.7	10.3	Pass
	Insulation resistance							
	After testing	10MΩ MIN.	5	MΩ	$8.67x10^4$ MIN.			Pass
	Appearance							
	Spec: No abnormality adversely affecting the performance shall occur.							
	After testing	-	5	-	No abnormality			Pass
H	Cold							
	<R1> (On state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	20.49	21.8	19.4	Pass
	After testing				20.51	21.2	19.5	Pass
	<R2> (Off state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	12.87	13.6	11.8	Pass
	After testing				13.58	13.5	11.0	Pass
	<R3> (Off state) Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	10.40	11.4	9.5	Pass
	After testing				11.01	12.5	10.3	Pass
	Insulation resistance							
	After testing	10MΩ MIN.	5	MΩ	$6.94x10^5$ MIN.			Pass
	Appearance							
	Spec: No abnormality adversely affecting the performance shall occur.							
	After testing	-	5	-	No abnormality			Pass
J	Salt water spray							
	Spec: No abnormality adversely affecting the performance shall occur.							
	Appearance	-	5	-	No abnormality			Pass
K	Resistance to soldering heat							
	Spec: No abnormality adversely affecting the performance shall occur.							
	Appearance	-	5	-	No abnormality			Pass



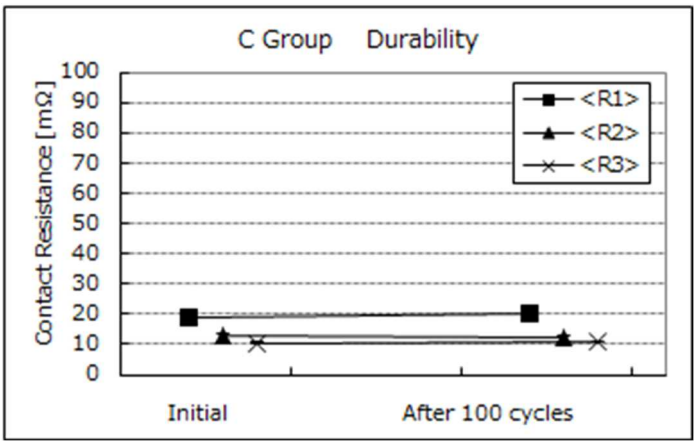
Graph 1　B Group 電圧定在波比/VSWR (On state)



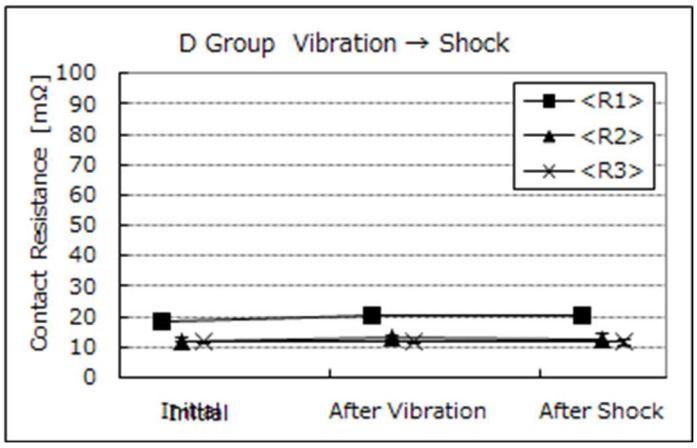
Graph 2　B Group 挿入損失/Insertion Loss (On state)



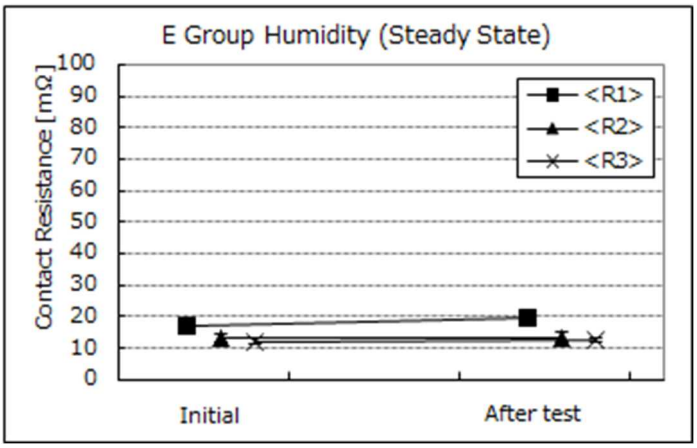
Graph 3　B Group 逆挿入損失/Isolation (Off state)



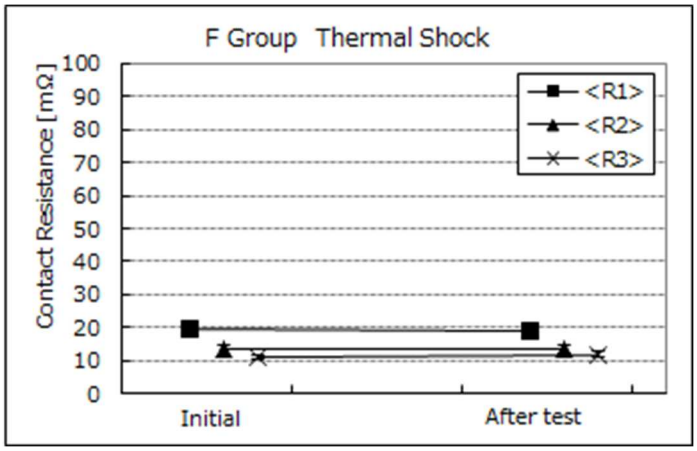
Graph 4 耐久性 / Durability



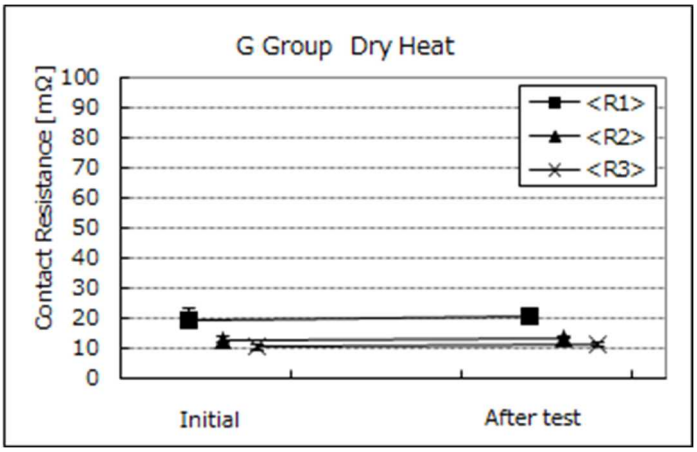
Graph 5 耐振動性→ 耐衝撃性 / Vibration → Shock



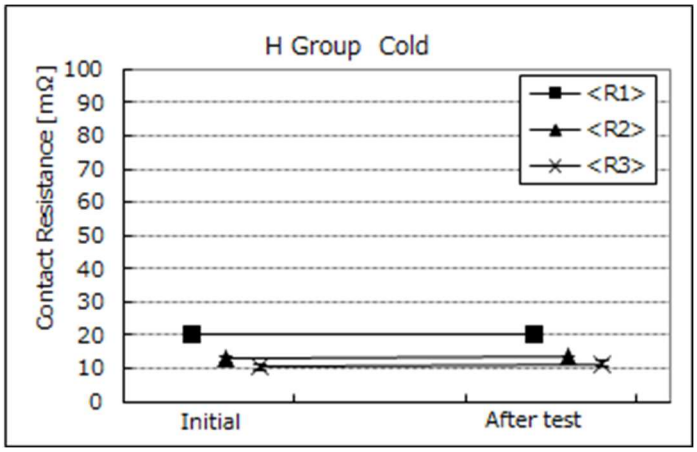
Graph 6 湿度（定常状態） / Humidity



Graph 7 熱衝撃 / Thermal shock



Graph 8 高温試験 / Dry Heat



Graph 9 低温試験 / Cold