

MP-A 01

Part No. 3096-0001

Test Report

Product Specification no. PRS-2048

2	T21134	November 1, 2021	H.Takao	K.Yufu	M.Takemoto
1	T17100	June 16, 2017	M.N		Ken
0	T14115	December 19, 2014	T.Hirakawa	K.Yotsutani	T.Takano
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of MP-A 01 Connector in accordance with PRS-2048.

2. Specimen

MP-A 01 (Part No. 3096-0001)

3. Test Sequence

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

4. Result

See Table 2-1 to 2-5, Graph 1-1 to 1-9. For the details of the testing conditions and requirements, see PRS-2048.
The “n” in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-2048.

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	1,3	1,3	1,3	1,3	1,3		2
Mating force	1,4									
Unmating force	2,5									
Durability	3	2								
Vibration			2							
Shock				2						
Thermal shock					2					
High temperature life						2				
Humidity (Steady State)							2			
Low-temperature test								2		
Solder ability									1	
Soldering heat resistance										1
Specimen quantity.	10	10	5	5	5	5	5	5	5	5

※Numbers indicate test sequences

Table 2-1 Test Result

Test Item	Measurements	Spec.	n	Unit	Data				Judge.	
					AVE.	MAX.	MIN.	σ		
Mating Force										
Cable Clamp 3mm	Initial	25 MAX.	10	N	10.088	11.52	8.49	0.861	OK	
	5cycles				5.588	6.40	4.62	0.505	OK	
Cable Clamp 6mm	Initial		10	N	9.035	10.41	8.16	0.689	OK	
	5cycles				5.664	6.52	4.87	0.540	OK	
Cable Shield ϕ 0.85	Initial		10	N	10.768	11.68	9.57	0.677	OK	
	5cycles				6.123	6.46	5.79	0.212	OK	
Cable Jacket ϕ 0.81	Initial		10	N	8.754	10.63	7.77	0.783	OK	
	5cycles				4.849	5.63	3.70	0.610	OK	
Cable Jacket ϕ 0.95	Initial		10	N	11.028	11.98	9.82	0.734	OK	
	5cycles				5.505	6.14	4.90	0.456	OK	
Un-mating Force										
Cable Clamp 3mm	Initial		3 MIN.	10	N	5.428	6.24	4.35	0.687	OK
	5cycles	1.5 MIN.	3.892			5.04	3.36	0.458	OK	
Cable Clamp 6mm	Initial	3 MIN.	10	N	5.025	6.11	4.24	0.608	OK	
	5cycles	1.5 MIN.			4.082	4.62	3.28	0.424	OK	
Cable Shield ϕ 0.85	Initial	3 MIN.	10	N	5.004	5.87	4.09	0.641	OK	
	5cycles	1.5 MIN.			3.268	4.27	2.54	0.614	OK	
Cable Jacket ϕ 0.81	Initial	3 MIN.	10	N	4.943	5.80	4.25	0.534	OK	
	5cycles	1.5 MIN.			3.820	4.60	3.32	0.397	OK	
Cable Jacket ϕ 0.95	Initial	3 MIN.	10	N	5.057	6.29	4.12	0.677	OK	
	5cycles	1.5 MIN.			3.400	3.85	2.70	0.379	OK	

Durability									
Cable clamp 3mm									
Contact Resistance	Initial	70 MAX	10	m Ω	11.588	12.11	10.70	0.363	OK
	5cycles				11.766	12.51	10.97	0.352	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	10	-	No abnormality				OK
Cable clamp 6mm									
Contact Resistance	Initial	70 MAX	10	m Ω	10.380	11.14	9.04	0.523	OK
	5cycles				11.778	12.56	10.87	0.539	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	10	-	No abnormality				OK
Cable Shield ϕ 0.85									
Contact Resistance	Initial	70 MAX	10	m Ω	10.206	12.47	9.35	0.692	OK
	5cycles				10.413	11.71	9.71	0.448	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	10	-	No abnormality				OK

Table 2-2 Test Result

Test Item	Measurements	Spec.	n	Unit	Data				Judge.
					AVE.	MAX.	MIN.	σ	
Vibration									
Cable clamp 3mm									
Contact Resistance	Initial	70 MAX	5	mΩ	14.242	14.83	13.11	0.660	OK
	After test				11.866	12.28	11.45	0.330	OK
Electrical discontinuity	Spec. No electrical discontinuity greater than 1μs shall occur.								
	During test	—	5	-	No discontinuity				OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
Cable clamp 6mm									
Contact Resistance	Initial	70 MAX	5	mΩ	13.172	14.46	12.10	1.019	OK
	After test				12.182	12.81	11.15	0.652	OK
Electrical discontinuity	Spec. No electrical discontinuity greater than 1μs shall occur.								
	During test	—	5	-	No discontinuity				OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
Cable Shield φ0.85									
Contact Resistance	Initial	70 MAX	5	mΩ	10.181	11.03	9.79	0.504	OK
	After test				10.421	10.92	10.06	0.334	OK
Electrical discontinuity	Spec. No electrical discontinuity greater than 1μs shall occur.								
	During test	—	5	-	No discontinuity				OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
Shock									
Cable clamp 3mm									
Contact Resistance	Initial	70 MAX	5	mΩ	13.661	14.86	13.07	0.750	OK
	After test				11.167	12.37	9.68	0.996	OK
Electrical discontinuity	Spec. No electrical discontinuity greater than 1μs shall occur.								
	During test	—	5	-	No discontinuity				OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
Cable clamp 6mm									
Contact Resistance	Initial	70 MAX	5	mΩ	12.418	12.71	12.03	0.280	OK
	After test				10.663	11.67	10.03	0.608	OK
Electrical discontinuity	Spec. No electrical discontinuity greater than 1μs shall occur.								
	During test	—	5	-	No discontinuity				OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
Cable Shield φ0.85									
Contact Resistance	Initial	70 MAX	5	mΩ	10.082	11.08	9.61	0.585	OK
	After test				9.585	9.78	9.18	0.258	OK
Electrical discontinuity	Spec. No electrical discontinuity greater than 1μs shall occur.								
	During test	—	5	-	No discontinuity				OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK

Table 2-3 Test Result

Test Item	Measurements	Spec.	n	Unit	Data				Judge.
					AVE.	MAX.	MIN.	σ	
Thermal Shock									
Cable clamp 3mm									
Contact Resistance	Initial	70 MAX	5	mΩ	12.484	12.69	12.39	0.120	OK
	After test				13.703	13.94	13.45	0.217	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
Cable clamp 6mm									
Contact Resistance	Initial	70 MAX	5	mΩ	12.542	12.89	12.19	0.268	OK
	After test				13.273	13.58	12.90	0.294	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
Cable Shield φ0.85									
Contact Resistance	Initial	70 MAX	5	mΩ	11.223	11.48	11.02	0.194	OK
	After test				12.176	12.39	11.91	0.207	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
High temperature life									
Cable clamp 3mm									
Contact Resistance	Initial	70 MAX	5	mΩ	12.604	12.89	12.18	0.277	OK
	After test				12.189	12.29	12.05	0.089	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
Cable clamp 6mm									
Contact Resistance	Initial	70 MAX	5	mΩ	12.531	12.66	12.42	0.114	OK
	After test				11.413	12.10	10.84	0.483	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
Cable Shield φ0.85									
Contact Resistance	Initial	70 MAX	5	mΩ	11.110	11.20	10.90	0.127	OK
	After test				10.364	10.64	9.95	0.289	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK

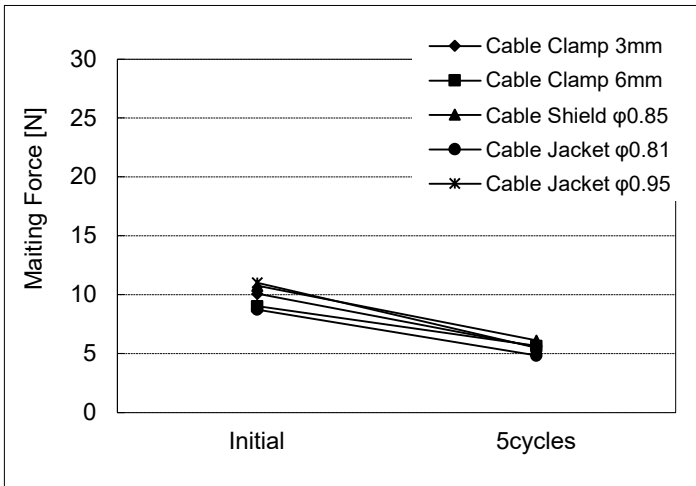
Table 2-4 Test Result

Test Item	Measurements	Spec.	n	Unit	Data				Judge.
					AVE.	MAX.	MIN.	σ	
Humidity (Steady state)									
Cable clamp 3mm									
Contact Resistance	Initial	70 MAX	5	mΩ	12.912	14.33	11.72	0.538	OK
	After test				13.629	14.21	13.10	0.407	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
Cable clamp 6mm									
Contact Resistance	Initial	70 MAX	5	mΩ	11.951	13.10	11.17	0.416	OK
	After test				12.702	12.99	12.33	0.171	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
Cable Shield φ0.85									
Contact Resistance	Initial	70 MAX	5	mΩ	10.769	12.39	9.66	0.748	OK
	After test				12.667	13.38	12.29	0.312	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
G									
Low-temperature test									
Cable clamp 3mm									
Contact Resistance	Initial	70 MAX	5	mΩ	12.465	12.60	12.38	0.084	OK
	After test				11.838	12.75	10.99	0.673	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
Cable clamp 6mm									
Contact Resistance	Initial	70 MAX	5	mΩ	12.586	12.99	12.33	0.261	OK
	After test				11.414	11.85	11.01	0.365	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
Cable Shield φ0.85									
Contact Resistance	Initial	70 MAX	5	mΩ	11.501	12.10	11.14	0.358	OK
	After test				11.311	12.27	10.42	0.776	OK
Appearance	Spec. No abnormality adversely affecting the performance shall occur.								
	After test	—	5	-	No abnormality				OK
H									

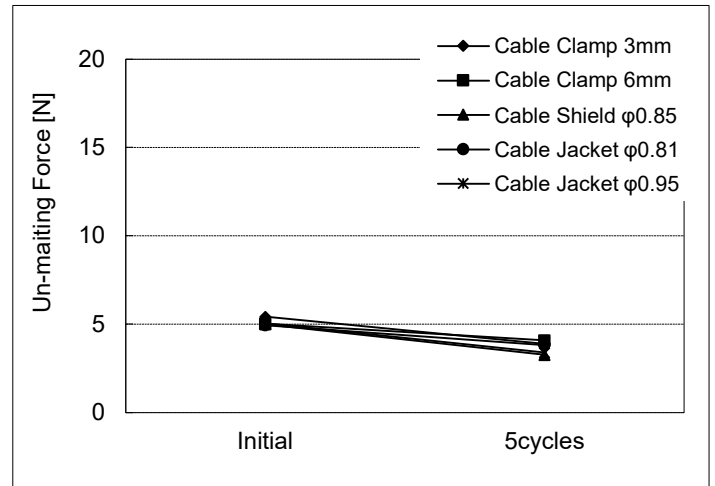
Table 2-5 Test Result

Test Item	Measurements	Spec.	n	Unit	Data				Judge.
					AVE.	MAX.	MIN.	σ	
J	Surface Mount Solderability test								
	Solder wetting area	After test	95 MIN	5	%	95 MIN.			OK

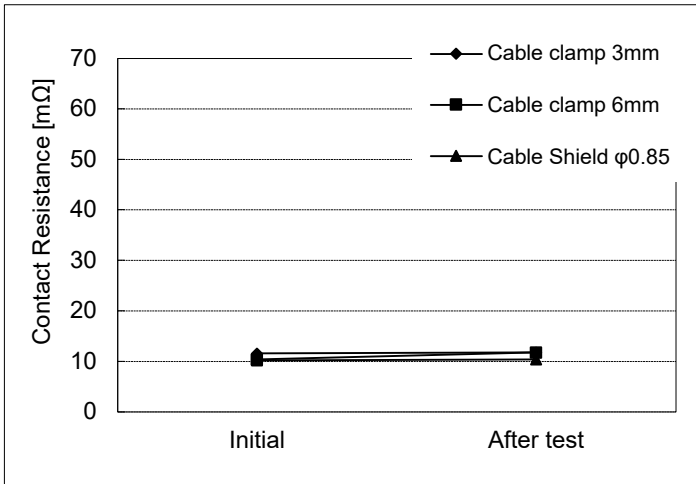
Resistance to Reflow Soldering Heat										
Cable clamp 3mm										
	Contact Resistance	After test	70 MAX	5	mΩ	12.429	12.75	12.14	0.259	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality			OK	
Cable clamp 6mm										
K	Contact Resistance	After test	70 MAX	5	mΩ	11.607	11.95	11.24	0.283	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality			OK	
Cable Shield φ0.85										
	Contact Resistance	After test	70 MAX	5	mΩ	10.349	10.73	9.55	0.486	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality			OK	



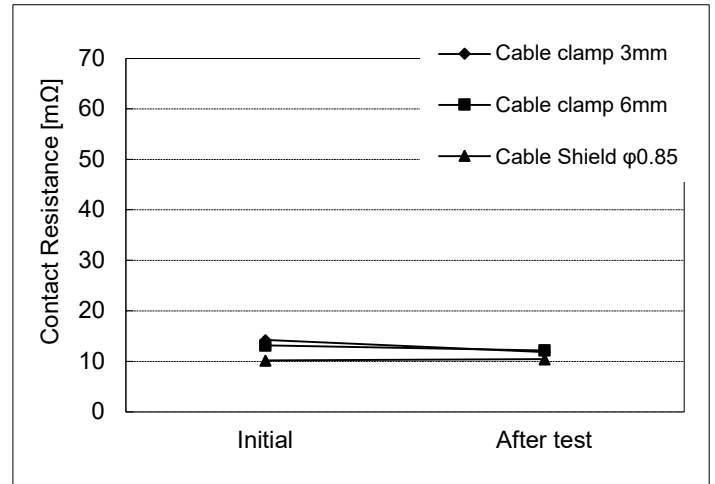
Graph1-1 Mating force



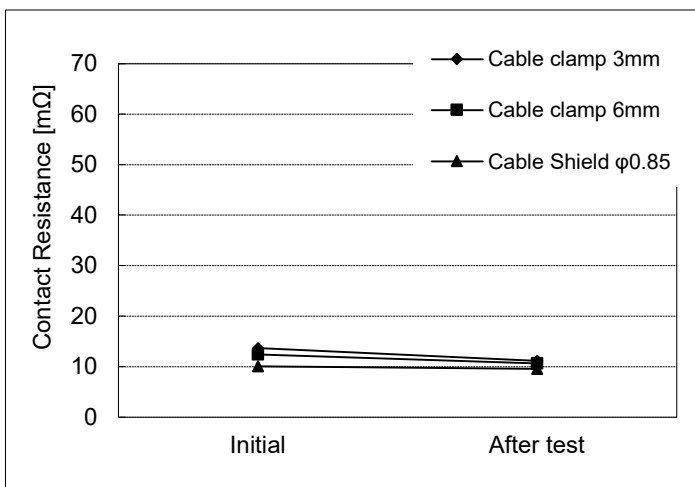
Graph1-2 Unmating force



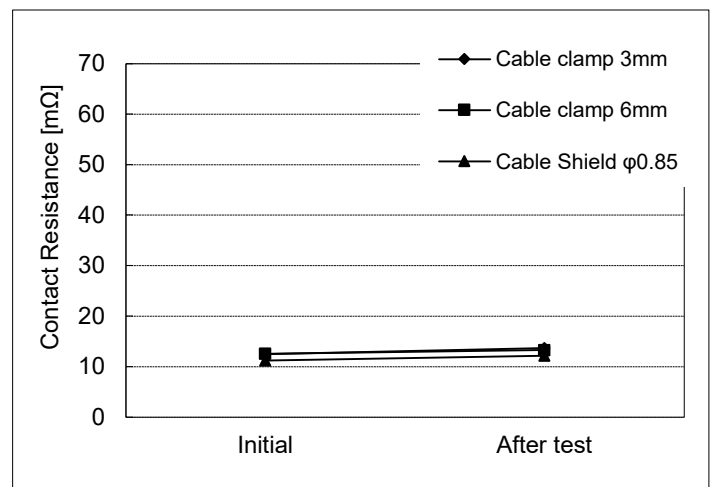
Graph1-3 Durability



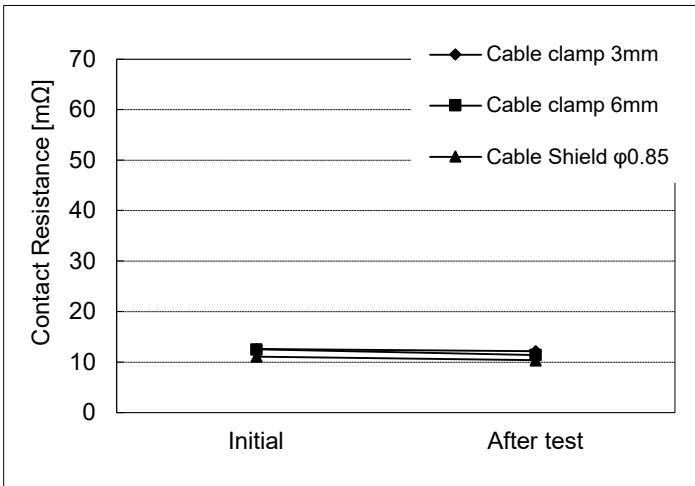
Graph1-4 Vibration



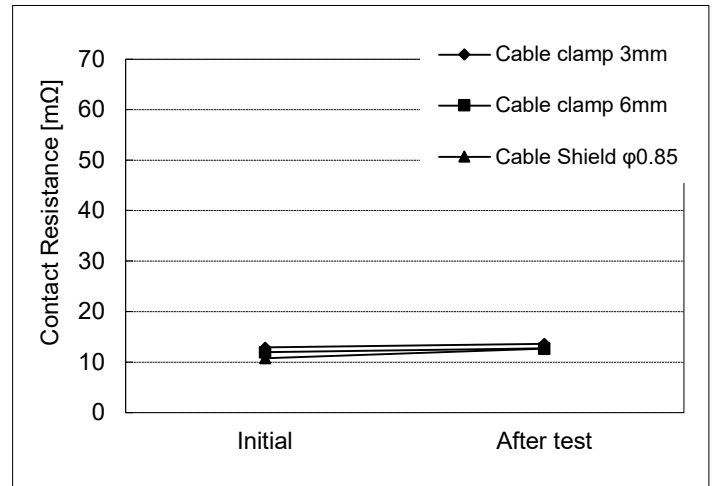
Graph1-5 Shock



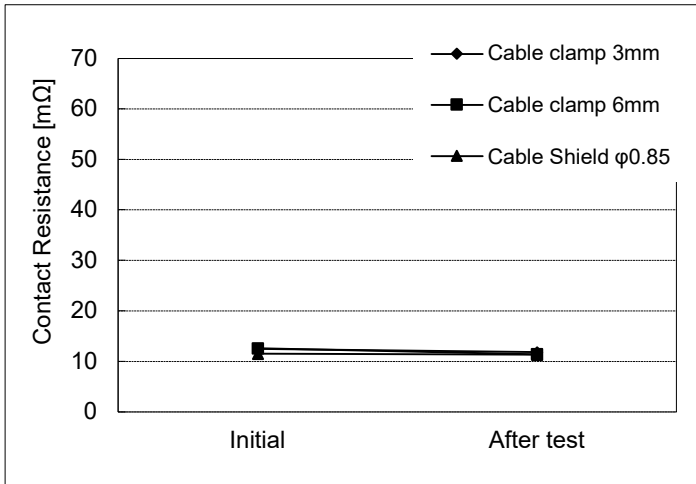
Graph1-6 Thermal shock



Graph1-7 High temperature life



Graph1-8 Humidity (Steady State)



Graph1-9 Low-temperature test