

# **MP-A 04**

Part No. 3224-000\*

# Test Report

Product Specification no. PRS-2235

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Rev.	ECN	Date	Prepared by	Checked by	Approved by

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# MP-A 04 Test Report

# 1. Purpose

To evaluate the performance of MP-A 04Connector in accordance with PRS-2235.

# 2. Specimen

MP-A 04 (Part No. 3224-000\*)

#### 3. Test Sequence

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

#### 4. Result

See Table 2-1 to 2-3, Graph 1-1 to 1-11. For the details of the testing conditions and requirements, see PRS-2235. The "n" in the tables show the number of measurement points.

#### 5. Conclusion

All the specimens met the requirements of PRS-2235.

Table 1 Test Sequence and Sample Quantity

Test Item	Group											
iest item	Α	В	С	D	Е	F	G	Н	J	K		
Contact resistance		1,3	1,3	1,3	1,3	1,3	1,3	1,3		2		
Mating force	1,4											
Un-mating 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		

<sup>※</sup>Numbers indicate test sequences

OK

No abnormality

# Table 2-1 Test Result

	Test Item		Spec.		Unit		Judge				
	Measuremen	its	Spec.	n	Offic	AVE.	MAX.	MIN.	σ	Judge	
	Mating Force							•			
	Cable Clamp 3mm	Initial		10	Z	9.80	10.4	9.1	0.50	OK	
		5cycles	25 MAX.	10	IN	4.68	5.3	4.1	0.47	OK	
Α	Cable Clamp 6mm	Initial	23 IVIAA.	10	Ν	10.56	11.3	9.3	0.79	OK	
		5cycles		IN	5.65	6.2	5.2	0.46	OK		
٦	Jn-mating Force										
	Cable Clamp 3mm	Initial	3 MIN.	10	N	5.34	5.6	5.0	0.28	OK	
	Cable Clamp Sillin	5cycles	2 MIN.	7 10	IN	4.21	4.9	3.6	0.49	OK	
	Cable Clamp 6mm	Initial	3 MIN.	10	Ν	5.30	6.1	4.6	0.55	OK	
		5cycles	2 MIN.	7 10	IN	4.70	5.1	4.4	0.31	OK	
	Durability										
	Cable clamp 3mm										
	Contact Resistance	Initial	70 MAX 10	10	mΩ	5.70	5.9	5.6	0.13	OK	
		5cycles	7 U IVIAX	10	11122	6.97	7.2	6.8	0.17	OK	
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.									
В	Apearance	After test	1	10	-		No abno	mality		OK	
	Cable clamp 6mm	•	•			•			•		
	Contact Resistance	Initial	70 MAX 10	10	mΩ	5.87	6.1	5.7	0.16	OK	
		5cycles			7.11	7.5	6.5	0.39	OK		
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.									
	Apearance	After test — 10 - No abnormality							OK		
	Vibration										
	Cable clamp 3mm										
	Contact Resistance	Initial	70 MAX	5	mΩ	5.01	5.1	4.9	0.09	OK	
	Contact Nesistance	After test				7.42	8.1	6.8	0.56	OK	
	Electrical discontinuity	Spec. No ele	ectrical discontin	uity g	reater	than 1µs sh	all occur.				
	Liectrical discontinuity	<b>During test</b>	- 5 - No discontinuity							OK	
C Apeara	Angaranaa	Spec. No abnormality adversely affecting the performance shall occur.									
	Apearance	After test	1	5	-		No abno	mality		OK	
	Cable clamp 6mm										
Contact Resistance	Contact Resistance	Initial	70 MAX 5	5	mΩ	6.01	6.2	5.8	0.14	OK	
	Contact Nesistance	After test				6.51	6.7	6.3	0.18	OK	
	Floatrical discontinuity	Spec. No electrical discontinuity greater than 1µs shall occur.									
	Electrical discontinuity	During test – 5 - No discontinuity									
	Angerance	Spec. No ab	normality advers	ely at	ffecting	g the perforn	nance shall	occur.			
	Apearance	4.61	-	T -			AL L	P.A	1	017	

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Apearance

After test

# Table 2-2 Test Result

	Test Item			n	Unit		Judge				
	Measurements		Spec.	- ''	Orin	AVE.	MAX.	MIN.	σ	ouuge.	
	Shock								·		
	Cable clamp 3mm										
	Contact Resistance	Initial	70 MAX	5	mΩ	6.50	6.6	6.2	0.17	OK	
	Contact Nesistance	After test				6.45	6.7	6.2	0.21	OK	
	Electrical discontinuity	Spec. No electrical discontinuity greater than 1µs shall occur.									
		During test	_	5	-		No disco	ntinuity		OK	
	A	Spec. No abnormality adversely affecting the performance shall occur.									
D	Apearance	After test	_	5	-		No abnoi	mality		OK	
	Cable clamp 6mm	•			•	•		-			
	Contact Booletones	Initial	70 MAY	_		5.74	5.9	5.4	0.23	OK	
	Contact Resistance	After test	70 MAX	5	mΩ	5.77	6.1	5.4	0.25	OK	
		Spec. No ele	ectrical discontinu	uity g	reater	than 1µs sha	all occur.	•	ļ.		
	Electrical discontinuity	During test	_	5	-	i i	No disco	ntinuity		OK	
			normality advers	ely al	fectin	g the perform	nance shall	occur.			
	Apearance	After test	_	5	-	Ĭ	No abnoi			OK	
	1					1			ı		
	Thermal Shock										
	Cable clamp 3mm										
	Contact Resistance	Initial	70 1407	T _		6.60	6.8	6.4	0.12	OK	
		After test	70 MAX	5	mΩ	6.54	7.1	6.0	0.48	OK	
	•		normality advers	ely at	fectin			occur.			
Ε	Apearance	After test		T 5	-	Ĭ	No abnoi			OK	
	Cable clamp 6mm		<u> </u>								
	·	Initial	70 MAX 5 r	_		6.00	6.1	5.9	0.06	OK	
	Contact Resistance	After test		mΩ	6.22	6.4	6.1	0.11	OK		
	_	Spec. No abnormality adversely affecting the performance shall occur.									
	Apearance	After test		T 5	- <sup>'</sup>	Ĭ	No abnoi			OK	
				ļ <u>.</u>							
	High temperature life										
	Cable clamp 3mm										
	·	Initial	70 MAX	T_	mΩ	5.62	5.9	5.3	0.24	OK	
	Contact Resistance	After test		5		7.45	8.0	6.9	0.43	OK	
		Spec. No abnormality adversely affecting the performance shall occur.									
F	Apearance	After test		5	_	] <u>p</u>	No abnoi			OK	
	Cable clamp 6mm										
	·	Initial				5.48	5.9	5.1	0.31	OK	
	Contact Resistance	After test	70 MAX	5	mΩ	5.99	6.3	5.8	0.17	OK	
			l normality advers	elv at	I fectio				0.17		
	Apearance		abnormality adversely affecting the performance shall occur.  - 5 - No abnormality					OK			
	1	After test	ı —	ıo	ı -	Ī .	INO ADITIO	manly		UN	

# Table 2-3 Test Result

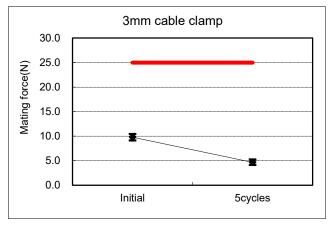
	Test Item		- Spec. n	Unit	Data						
	Measuremer	nts		''	Offic	AVE.	MAX.	MIN.	σ	Judge	
	Humidity (Steady state)					•	•				
	Cable clamp 3mm										
	Contact Resistance	Initial	70 MAX	5	m0	5.20	5.4	4.9	0.19	OK	
		After test		mΩ	7.39	7.8	7.0	0.34	OK		
	Apearance	Spec. No ab	Spec. No abnormality adversely affecting the performance shall occur.								
G		After test	After test - 5 - No abnormality								
	After test   -   5   -   No abnormality   Cable clamp 6mm										
	Contact Desistance	Initial	70 MAY			5.89	6.8	5.5	0.51	OK	
	Contact Resistance	After test	70 MAX	5	mΩ	5.93	6.3	5.5	0.33	OK	
	A	Spec. No ab	normality advers	sely al	ffecting	the perform	nance shall	occur.	•		
	Apearance	After test	_	5	- 1	•	No abnor	mality		OK	
	•	•			•			-	!		
	Low-temperature test										
	Cable clamp 3mm										
	Contact Resistance	Initial	70 MAX	٦,		5.47	5.6	5.3	0.11	OK	
		After test		5	mΩ	7.09	7.2	7.0	0.07	OK	
	Spec. No abnormality adversely affecting the performance shall occur.										
Η	Apearance	After test	_	5	-	No abnormality				OK	
	Cable clamp 6mm										
	Control Desistence	Initial	70 MAX			5.93	6.1	5.6	0.22	OK	
	Contact Resistance	After test		5	mΩ	6.47	6.7	6.3	0.16	OK	
		Spec. No abnormality adversely affecting the performance shall occur.									
	Apearance	After test	_	5	-	•	No abnor			OK	
				ļ				•			
	Surface Mount Solderability	test									
J	Solder wetting area	After test	95 MIN	5	%		95 M	N.		OK	
	· ~	I							ı		
	Resistance to Reflow Solde	ring Heat									
	Cable clamp 3mm										
	Contact Resistance	After test	70 MAX	5	mΩ	5.80	6.1	5.5	0.21	OK	
		Spec. No abnormality adversely affecting the performance shall occur.									
<	Apearance	After test	_	5	<u>-</u>		No abnor			OK	
	Cable clamp 6mm										
	Contact Resistance	After test	70 MAX	5	mΩ	6.05	6.4	5.9	0.20	OK	
		normality advers	•			_		3.20	<u> </u>		
	Apearance	A ()			1				1	017	

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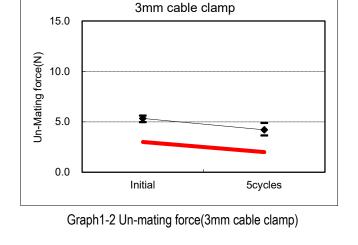
No abnormality

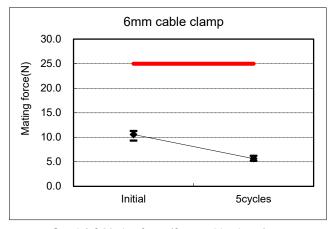
OK

After test

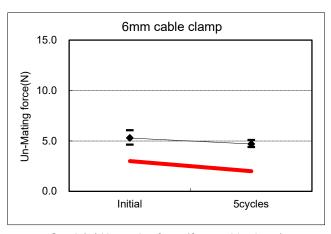


Graph1-1 Mating force(3mm cable clamp)

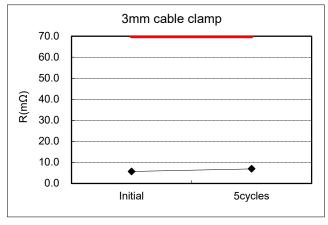


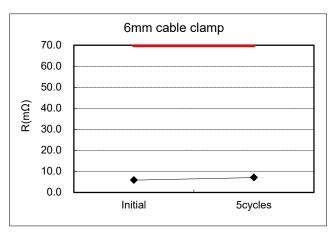


Graph1-3 Mating force (6mm cable clamp)

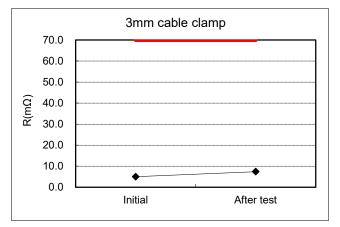


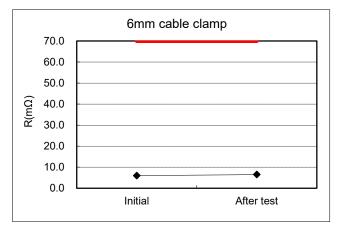
Graph1-4 Un-mating force (6mm cable clamp)



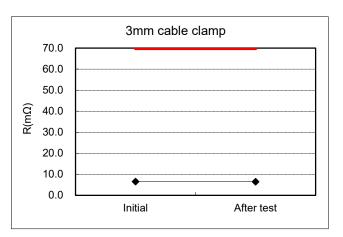


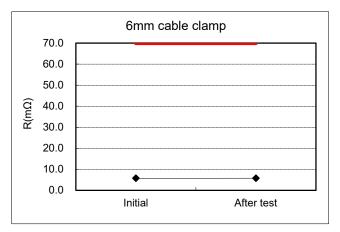
Graph1-5 Durability



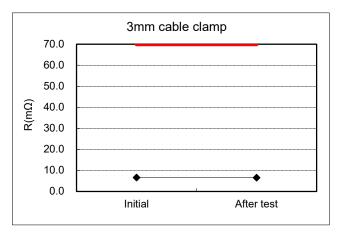


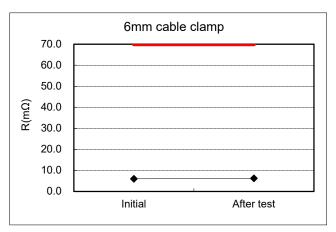
Graph1-6 Vibration



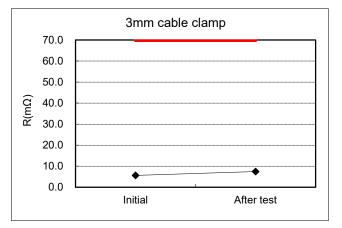


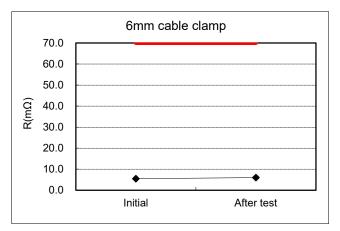
Graph1-7 Shock



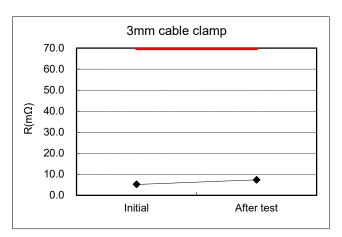


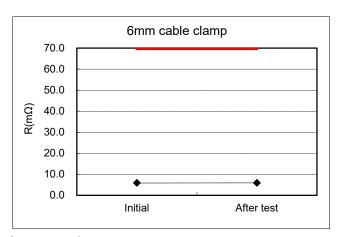
Graph1-8 Thermal Shock



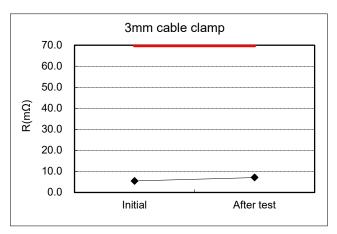


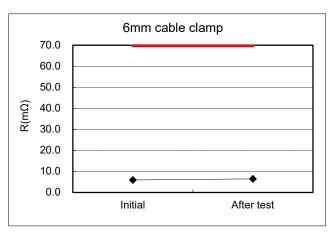
Graph1-9 High temperature life





Graph1-10 Humidity (Steady state)





Graph1-11 Low-temperature test