

AP-10 Power Terminal

Part No. 3531-0001-00T, 3532-0001-00T

Test Report

Product Specification no. PRS-2616

0	T20014	January 28, 2020	T.Yamauchi	-	Y.Shimada
Rev.	ECN	Date	Prepared by	Checked by	Approved by

AP-10 Power Terminal Test Report

1. Purpose

基板対基板の電源端子 AP-10 コネクタの性能を PRS-2616 に基づいて評価する。

To evaluate the performance of AP-10 Connector in accordance with PRS-2616.

2. Specimen

(1) AP-10 PLUG (Part No. 3531-0001-00T)

(2) AP-10 RECEPTACLE (Part No. 3532-0001-00T)

3. Test Sequence

全ての評価は表 1 の試験順序に従って行った。

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

4. Result

表 3-1～3-3、グラフ 1～10 参照。試験条件の詳細は PRS-2616 参照。n 数は測定データを意味する。

See Table 3-1 to 3-3, Graph 1 to 10. For the details of the testing conditions and requirements, see PRS-2616.

The "n" in the tables show the number of measurement points.

5. Conclusion

全ての資料が製品規格（PRS-2616）の必要条件を満足した。

All the specimens met the requirements of PRS-2616.

Table 1 試験順序と試料数 / Test Sequence and Sample Quantity

試験項目 Test Item	グループ / Group												
	A	B	C	D	E	F	G	H	J	K	L	M	N
接触抵抗 Contact Resistance	2,5		1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3			
温度上昇 Temperature rising		1											
挿入力 Mating Force	1,4												
耐久性 Durability	3												
耐振動性 Vibration			2										
耐衝撃性 Shock				2									
高温寿命 High Temperature Life					2								
低温寿命 Low Temperature Life						2							
湿度 (定常状態) Humidity (Steady State)							2						
熱衝撃 Thermal Shock								2					
温湿度サイクリング Temperature and humidity cycling									2				
ガス腐食(SO ₂) SO ₂ gas										2			
Sn ウィスカ Sn whisker											1		
半田付け性 Solder ability												1	
半田耐熱性 Soldering Heat Resistance													1
試料数 Specimen Quantity.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.

※グループ表中の番号は、試験順序を示す。 / Numbers indicate sequence in which tests are performed.

Table 3-1 試験結果/Test Result

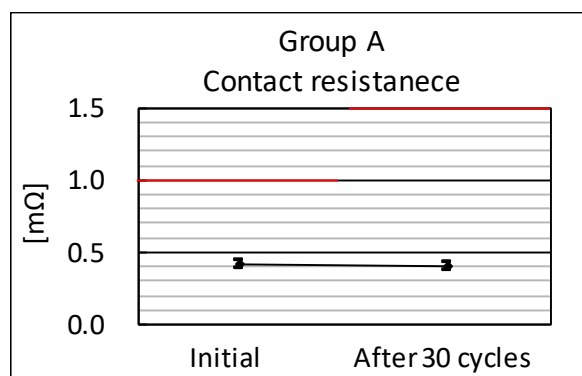
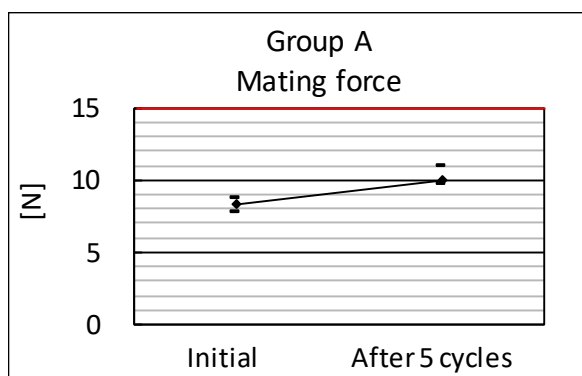
Group	試験項目/Test items	合格基準 Pass criteria	試料数 n	単位 Unit	平均 AVE.	最大 MAX.	最小 MIN.	判定 Judgement	
	測定項目/Measurements								
A	耐久性/Durability								
	挿入力/Mating force								
		Initial	15N MAX.	10	N	8.29	8.7	7.7	Pass
		After 10 cycles	15N MAX.			9.99	11.0	9.6	Pass
	接触抵抗/Contact resistance								
		Initial	1.0mΩ MAX.	10	mΩ	0.417	0.45	0.39	Pass
	After 10 cycles	1.5mΩ MAX.	0.403			0.44	0.38	Pass	
B	温度上昇/Temperature rising								
		Initial	ΔT15℃ MAX.	10	℃	7.30	8.3	6.4	Pass
C	耐振動性/Vibration								
	接触抵抗/Contact resistance								
		Initial	1.0mΩ MAX.	10	mΩ	0.546	0.66	0.45	Pass
		After testing	1.5mΩ MAX.			0.635	0.75	0.52	Pass
	電流瞬断/Electrical discontinuity								
		During test	No discontinuity greater than 1μs.	10	-	瞬断なし/No discontinuity		Pass	
外観/Appearance									
	After testing	No abnormality	10	-	異常なし/No abnormality		Pass		
D	耐衝撃性/Shock								
	接触抵抗/Contact resistance								
		Initial	1.0mΩ MAX.	10	mΩ	0.559	0.60	0.50	Pass
		After testing	1.5mΩ MAX.			0.662	0.76	0.61	Pass
	電流瞬断/Electrical discontinuity								
		During test	No discontinuity greater than 1μs.	10	-	瞬断なし/No discontinuity		Pass	
外観/Appearance									
	After testing	No abnormality	10	-	異常なし/No abnormality		Pass		
E	高温寿命/High Temperature Life								
	接触抵抗/Contact resistance								
		Initial	1.0mΩ MAX.	10	mΩ	0.526	0.58	0.50	Pass
		After testing	1.5mΩ MAX.			0.672	0.79	0.55	Pass
外観/Appearance									
	After testing	No abnormality	10	-	異常なし/No abnormality		Pass		

Table 3-2 試験結果/Test Result

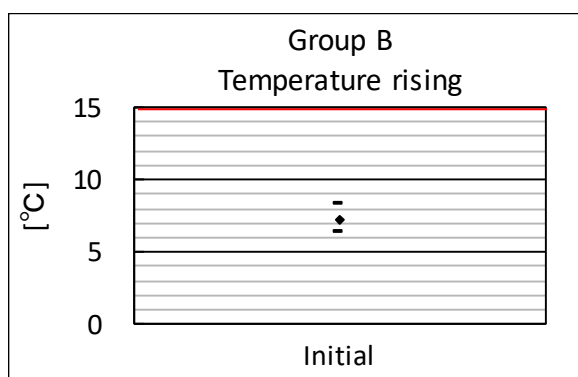
Group	試験項目/Test items	合格基準 Pass criteria	試料数 n	単位 Unit	平均 AVE.	最大 MAX.	最小 MIN.	判定 Judgement
	測定項目/Measurements							
F	低温寿命/Low Temperature Life							
	接触抵抗/Contact resistance							
	Initial	1.0mΩ MAX.	10	mΩ	0.531	0.58	0.47	Pass
	After testing	1.5mΩ MAX.			0.546	0.58	0.47	Pass
	外観/Appearance							
After testing	No abnormality	10	-	異常なし/No abnormality			Pass	
G	湿度 (定常状態) /Humidity (Steady State)							
	接触抵抗/Contact resistance							
	Initial	1.0mΩ MAX.	10	mΩ	0.545	0.61	0.47	Pass
	After testing	1.5mΩ MAX.			0.581	0.70	0.51	Pass
	外観/Appearance							
After testing	No abnormality	10	-	異常なし/No abnormality			Pass	
H	熱衝撃/Thermal Shock							
	接触抵抗/Contact resistance							
	Initial	1.0mΩ MAX.	10	mΩ	0.545	0.56	0.53	Pass
	After testing	1.5mΩ MAX.			0.648	0.73	0.58	Pass
	外観/Appearance							
After testing	No abnormality	10	-	異常なし/No abnormality			Pass	
J	温湿度サイクリング/Temperature and humidity cycling							
	接触抵抗/Contact resistance							
	Initial	1.0mΩ MAX.	10	mΩ	0.532	0.60	0.45	Pass
	After testing	1.5mΩ MAX.			0.568	0.76	0.40	Pass
	外観/Appearance							
After testing	No abnormality	10	-	異常なし/No abnormality			Pass	
K	ガス腐食(SO ₂)/SO ₂ Gas							
	接触抵抗/Contact resistance							
	Initial	1.0mΩ MAX.	10	mΩ	0.532	0.60	0.45	Pass
	After testing	1.5mΩ MAX.			0.588	0.76	0.40	Pass
	外観/Appearance							
Initial	No abnormality	10	-	異常なし/No abnormality			Pass	
After testing	No abnormality			異常なし/No abnormality			Pass	
L	Snウイスカ/Sn whisker							
	Initial	50μm MAX.	10	μm	50μm MAX.			Pass
	After testing	50μm MAX.	10		50μm MAX.			Pass

Table 3-3 試験結果/Test Result

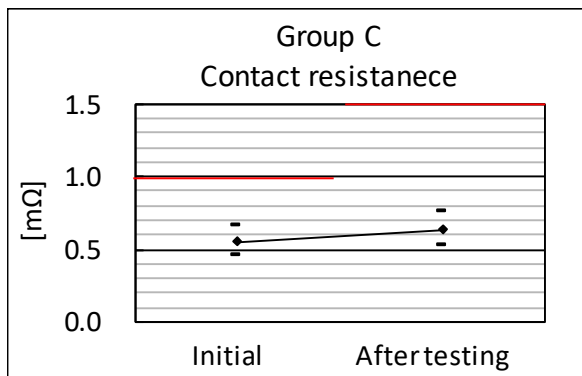
Group	試験項目/Test items	合格基準 Pass criteria	試料数 n	単位 Unit	平均 AVE.	最大 MAX.	最小 MIN.	判定 Judgement
	測定項目/Measurements							
M	半田付け性/Solder ability	合格基準：浸した面線の95%以上に半田がむらなく付着すること。 Pass criteria: More than 95% of the dipped surface shall be evenly wet.						
	After testing	No abnormality	10	-	異常なし/No abnormality			Pass
N	半田耐熱性(リフロー)/Soldering Heat Resistance (Reflow)	合格基準：機能を損なう変形及び欠陥の無き事。 Pass criteria: No abnormality adversely affecting the performance shall not occur.						
	外観/Appearance							
	After testing	No abnormality	10	-	異常なし/No abnormality			Pass



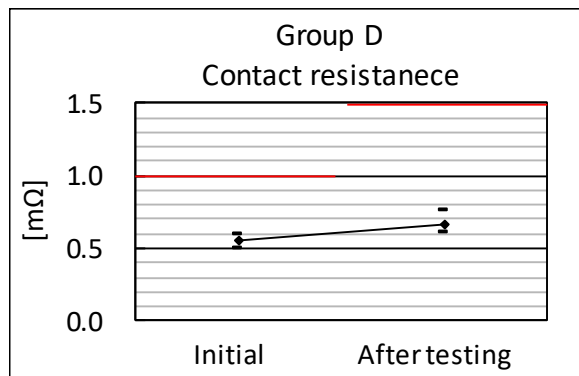
(Graph 1) Group A: Durability



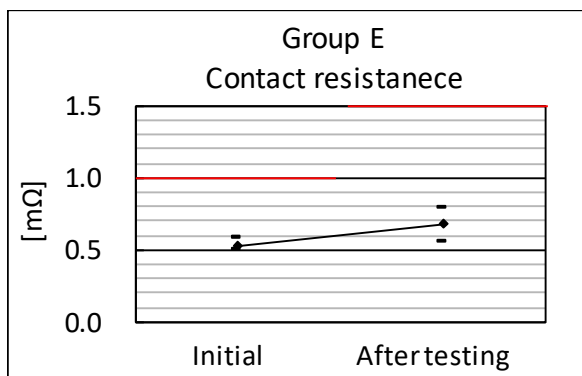
(Graph 2) Group B: Temperature cycling



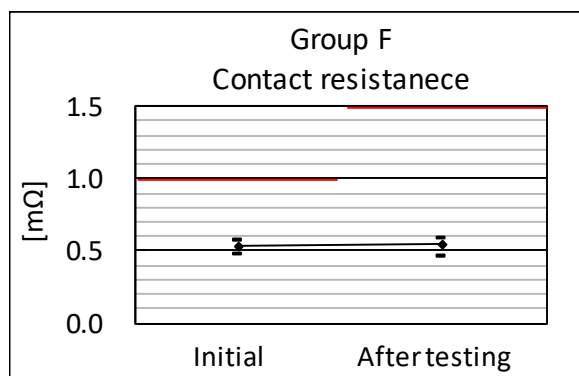
(Graph 3) Group C: Vibration



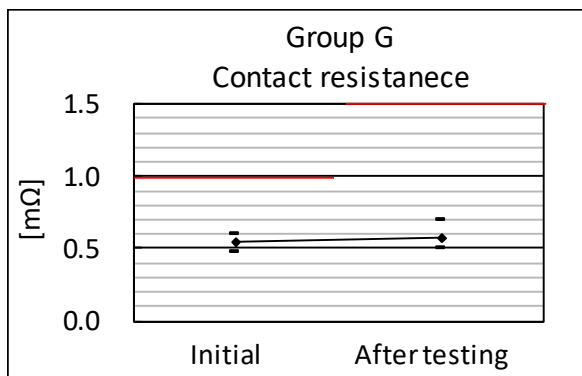
(Graph 4) Group D: Shock



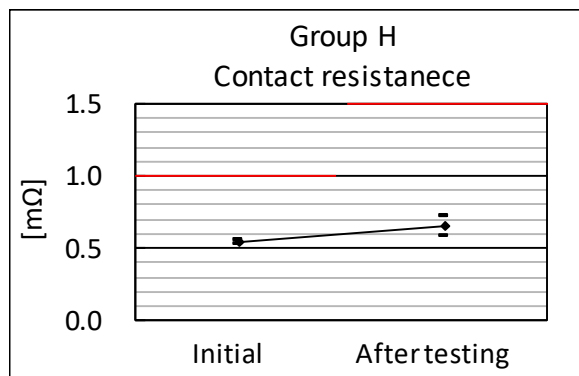
(Graph 5) Group E: High Temperature Life



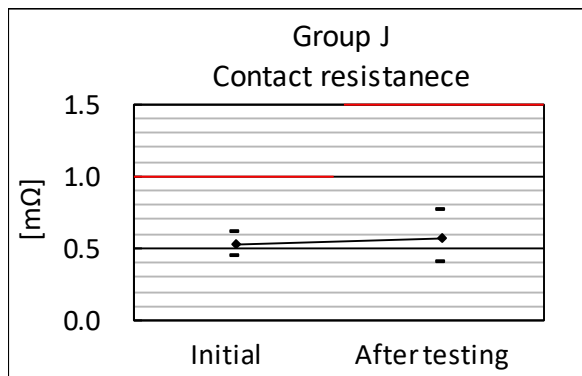
(Graph 6) Group F: Low Temperature Life



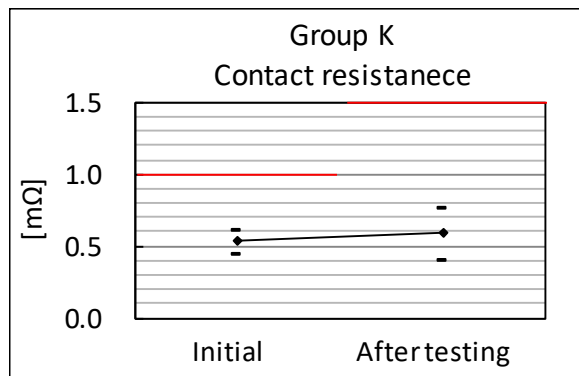
(Graph 7) Group G: Humidity (Steady State)



(Graph 8) Group H: Thermal Shock



(Graph 9) Group J:
Temperature and humidity cycling



(Graph 10) Group K: SO2 Gas