

NOVASTACK® 35-HDP

Part No. 20697-0**E-0#-#, 20698-0**E-0#

Test Report

Product Specification no. PRS-2187

8	T25040	May 12, 2025	T.Matsunaga	-	S.Suzuki
7	T24034	June 19, 2024	Y.Fukumoto	-	S.Suzuki
6	T22065	April 25, 2022	H.Lu	Y.Shimizu	M.Takemoto
5	T21153	November 5, 2021	Y.Kuribayashi	S.Suzuki	Y.Hashimoto
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. 目的

依照 PRS-2187 对 NOVASTACK 35-HDP 连接器的性能进行评价。

2. 试样

- (1) NOVASTACK 35-HDP PLUG ASS'Y (P/N: 20697-0**E-0#-#)
- (2) NOVASTACK 35-HDP RECEPTACLE ASS'Y (P/N: 20698-0**E-0#)

3. 试验顺序

所有评价均按照表 1 的试验顺序实施。

4. 结果

参照表 2-1~2-4、图 1~26。试验条件详情参照 PRS-2187。n 数代表测量数据。

5. 结论

所有资料均满足产品标准（PRS-2187）的必要条件。

Table 1 试验顺序与试样数

试验项目	分组											
	A	B	C	D	E	F	G	H	J	K	L	M
接触电阻	2, 6		1, 3, 5	1, 5	1, 3	1, 5	1, 5, 7	1, 3	1, 3			
绝缘电阻				2, 6		2, 6	2, 8					
耐电压				3, 7		3, 7	3, 9					
温度上升												1
插入力	1, 5											
拔出力	3, 7											
耐久性	4						4 (10cycles)					
端子保持力		1, 3										
振动			2									
冲击			4									
热冲击				4								
高温寿命		2			2							
湿度 (稳定状态)						4						
湿度 (循环)							6					
盐水喷雾								2				
气体 (H ₂ S)									2			
可焊性										1		
焊锡耐热性											1	
试样数	5 pcs.	20 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	10 pcs.	10 pcs.	5 pcs.

※电缆表中的编号表示试验顺序。

Table 2-1. 试验结果

分组	测量内容		标准		单位	数量	n	数据					判定	
								AVE.	MAX.	MIN.	S	X±3s		
A	耐久性													
	接触电阻													
	Signal contact	初始	40	MAX.	mΩ	5	210	15.223	17.22	14.15	0.690	17.293	Pass	
		试验后 30 次后	ΔR 40	MAX.				0.324	3.78	-2.91	1.568	5.028	Pass	
	Power contact	初始	20	MAX.			20	2.985	3.78	2.47	0.403	4.194	Pass	
		试验后 30 次后	ΔR 20	MAX.				0.115	0.61	-0.57	0.327	1.096	Pass	
	GND	初始	20	MAX.			10	9.095	10.17	8.50	0.468	10.499	Pass	
		试验后 30 次后	ΔR 20	MAX.				1.162	1.78	0.38	0.434	2.464	Pass	
	插入力													
	16P	初始	32.0	MAX.	N	5	-	21.498	22.35	20.78	-	-	Pass	
		试验后 30 次后						9.630	10.36	9.04	-	-	Pass	
	28P	初始	32.0	MAX.			-	28.318	29.54	27.35	-	-	Pass	
		试验后 30 次后						11.012	12.12	10.24	-	-	Pass	
	34P	初始	38.0	MAX.			-	30.988	31.80	30.17	-	-	Pass	
		试验后 30 次后						12.738	13.33	12.54	-	-	Pass	
	42P	初始	46.0	MAX.			-	32.592	33.71	31.51	-	-	Pass	
		试验后 30 次后						14.194	14.66	13.42	-	-	Pass	
	56P	初始	60.0	MAX.			-	39.758	42.40	38.37	-	-	Pass	
		试验后 30 次后						19.596	21.23	18.08	-	-	Pass	
	62P	初始	66.0	MAX.			-	45.920	47.20	44.10	-	-	Pass	
		试验后 30 次后						21.840	23.00	21.30	-	-	Pass	
	拔出力													
	16P	初始	3.2	MIN.			N	5	-	10.180	10.42	9.99	-	-
		试验后 30 次后			6.456	6.81				5.89	-	-	Pass	
	28P	初始	3.2	MIN.	-	14.360			15.21	13.54	-	-	Pass	
		试验后 30 次后				10.226			11.32	9.43	-	-	Pass	
	34P	初始	3.8	MIN.	-	15.122			15.91	14.34	-	-	Pass	
		试验后 30 次后				10.824			11.39	9.99	-	-	Pass	
	42P	初始	4.6	MIN.	-	15.988			17.88	15.13	-	-	Pass	
		试验后 30 次后				9.942			10.40	9.30	-	-	Pass	
	56P	初始	6.0	MIN.		20.800			21.63	20.45	-	-	Pass	
		试验后 30 次后				13.340			13.93	12.94	-	-	Pass	
	62P	初始	6.6	MIN.	-	18.940			19.60	18.00	-	-	Pass	
		试验后 30 次后				18.060			19.30	16.50	-	-	Pass	
B	端子保持力													
	Plug													
	Signal contact	初始	0.6	MIN.	N	-	20	2.52 MIN.		-	-	Pass		
		试验后						2.07 MIN.		-	-	Pass		
	Power contact	初始						3.80 MIN.		-	-	Pass		
		试验后						3.92 MIN.		-	-	Pass		
	Receptacle													
	Signal contact	初始	0.1	MIN.	N	-	20	0.42 MIN.		-	-	Pass		
		试验后						0.34 MIN.		-	-	Pass		
	Power contact	初始						0.53 MIN.		-	-	Pass		
试验后		0.48 MIN.						-	-	Pass				

*外观标准：没有损害功能的异常

Table 2-2. 试验结果

分组	测量内容		标准		单位	数量	n	数据					判定	
								AVE.	MAX.	MIN.	S	X±3s		
C	震动 → 冲击													
	接触电阻													
	Signal contact	初始	40	MAX.	mΩ	5	210	15.200	17.04	13.96	0.685	17.255	Pass	
		震动后	ΔR 40	MAX.				-0.500	0.32	-1.31	0.474	0.922	Pass	
		冲击后						-0.505	0.44	-1.39	0.393	0.674	Pass	
	Power contact	初始	20	MAX.			20	2.783	3.31	2.18	0.362	3.869	Pass	
		震动后	ΔR 20	MAX.				0.166	0.72	-0.20	0.268	0.970	Pass	
		冲击后						0.324	0.87	-0.29	0.363	1.413	Pass	
	GND	初始	20	MAX.			10	8.145	9.28	7.38	0.585	9.900	Pass	
		震动后	ΔR 20	MAX.				0.149	0.55	-0.20	0.281	0.992	Pass	
		冲击后						0.163	0.77	-0.27	0.288	1.027	Pass	
	供电瞬断													
		试验中	1	MAX.	μs	5	-	无瞬断					Pass	
外观														
	试验后	*		-	5	-	无瞬断					Pass		

D	热冲击														
	接触电阻														
	Signal contact	初始	40	MAX.	mΩ	5	210	15.962	18.86	13.46	1.198	19.556	Pass		
		试验后	ΔR 40	MAX.				0.769	4.46	-2.70	1.376	4.897	Pass		
	Power contact	初始	20	MAX.			20	2.680	3.48	1.67	0.537	4.291	Pass		
		试验后	ΔR 20	MAX.				0.420	1.09	-0.15	0.308	1.344	Pass		
	GND	初始	20	MAX.			10	8.865	9.38	8.45	0.356	9.933	Pass		
		试验后	ΔR 20	MAX.				-0.067	0.61	-0.84	0.413	1.172	Pass		
	绝缘电阻														
		初始	1000	MIN.			MΩ	5	-	1.77 x 10 ⁵ Min.					Pass
		试验后	500	MIN.						1.43 x 10 ⁵ Min.					Pass
	耐电压														
		试验后	*	*	-	5	-	无异常					Pass		
外观															
	试验后	*		-	5	-	无异常					Pass			

E	高温寿命														
	接触电阻														
	Signal contact	初始	40	MAX.	mΩ	5	210	15.949	18.73	13.20	1.215	19.594	Pass		
		试验后	ΔR 40	MAX.				0.529	3.44	-2.26	1.110	3.859	Pass		
	Power contact	初始	20	MAX.			20	2.718	3.33	2.21	0.363	3.807	Pass		
		试验后	ΔR 20	MAX.				-0.095	0.76	-0.80	0.437	1.216	Pass		
	GND	初始	20	MAX.			10	8.208	8.67	7.46	0.441	9.531	Pass		
		试验后	ΔR 20	MAX.				-0.098	0.75	-0.75	0.465	1.297	Pass		
	外观														
		试验后	*				-	5	-	无异常					Pass

*外观标准：没有损害功能的异常

**耐电压标准：没有沿面放电、閃燃、绝缘体故障的异常

Table 2-3. 试验结果

分组	测量内容		标准		单位	数量	n	数据					判定
								AVE.	MAX.	MIN.	S	X±3s	
F	湿度(稳定状态)												
	接触电阻												
	Signal contact	初始	40	MAX.	mΩ	5	210	16.158	18.74	13.94	1.143	19.587	Pass
		试验后	ΔR 40	MAX.				0.865	3.37	-1.63	1.103	4.174	Pass
	Power contact	初始	20	MAX.			20	2.786	3.62	2.18	0.393	3.965	Pass
		试验后	ΔR 20	MAX.				0.190	1.13	-0.84	0.582	1.936	Pass
	GND	初始	20	MAX.			10	8.295	8.78	7.56	0.378	9.429	Pass
		试验后	ΔR 20	MAX.				-0.186	0.30	-0.91	0.420	1.074	Pass
	绝缘电阻												
		初始	1000	MIN.	MΩ	5	-	1.28 x 10 ⁵ Min.					Pass
		试验后	500	MIN.				1.04 x 10 ⁵ Min.					Pass
	耐电压												
		试验后	* *		-	5	-	无异常					Pass
	外观												
		试验后	*		-	5	-	无异常					Pass

G	湿度(循环)												
	接触电阻												
	Signal contact	初始	40	MAX.	mΩ	5	210	15.793	17.74	13.74	0.842	18.319	Pass
		耐久插拔10次后	ΔR 40	MAX.				-0.719	1.60	-2.52	0.786	1.639	Pass
		试验后						0.493	2.51	-1.63	0.881	3.136	Pass
	Power contact	初始	20	MAX.			20	2.982	3.70	2.33	0.426	4.260	Pass
		耐久插拔10次后	ΔR 20	MAX.				-0.041	1.29	-1.08	0.643	1.888	Pass
		试验后						0.114	1.36	-1.18	0.626	1.992	Pass
	GND	初始	20	MAX.			10	8.164	8.86	7.40	0.399	9.361	Pass
		耐久插拔10次后	ΔR 20	MAX.				-0.070	1.04	-1.31	0.709	2.057	Pass
		试验后						0.134	1.33	-0.46	0.559	1.811	Pass
	绝缘电阻												
		初始	1000	MIN.	MΩ	5	-	1.15 x 10 ⁵ Min.					Pass
		试验后	500	MIN.				1.04 x 10 ⁵ Min.					Pass
	耐电压												
	试验后	* *		-	5	-	无异常					Pass	
外观													
	试验后	*		-	5	-	无异常					Pass	

H	盐水喷雾												
	接触电阻												
	Signal contact	初始	40	MAX.	mΩ	5	210	15.093	17.07	13.23	0.890	17.763	Pass
		试验后	ΔR 40	MAX.				0.201	3.68	-3.49	1.670	5.211	Pass
	Power contact	初始	20	MAX.			20	2.952	3.36	2.46	0.255	3.717	Pass
		试验后	ΔR 20	MAX.				-0.037	0.98	-0.53	0.382	1.109	Pass
	GND	初始	20	MAX.			10	8.050	8.70	7.55	0.404	9.262	Pass
		试验后	ΔR 20	MAX.				0.036	0.77	-0.61	0.444	1.368	Pass
	外观												
		试验后	*		-	5	-	无异常					Pass

*外观标准: 没有损害功能的异常

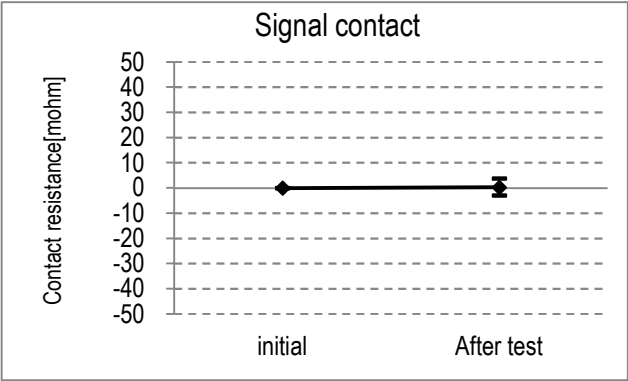
**耐电压标准: 没有沿面放电、閃燃、绝缘体故障的异常

Table 2-4. 试验结果

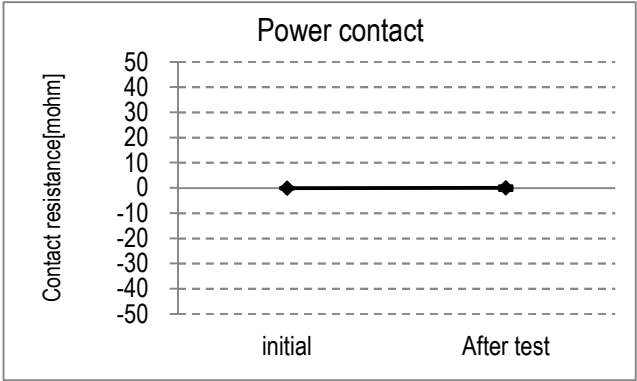
分组	测量内容		标准		单位	数量	n	数据					判定	
								AVE.	MAX.	MIN.	S	X±3s		
J	气体 (H2S)													
	接触电阻													
	Signal contact	初始	40	MAX.	mΩ	5	210	15.721	17.80	13.61	0.920	18.481	Pass	
		试验后	ΔR	40				MAX.	0.599	3.41	-2.34	1.115	3.944	Pass
	Power contact	初始	20	MAX.			20	2.961	3.84	2.24	0.345	3.996	Pass	
		试验后	ΔR	20				MAX.	-0.124	0.92	-1.06	0.550	1.526	Pass
	GND	初始	20	MAX.			10	8.001	8.52	7.50	0.335	9.006	Pass	
		试验后	ΔR	20				MAX.	0.303	0.96	-0.28	0.418	1.557	Pass
	外观													
		试验后	*	-	5	-	无异常					Pass		
K	可焊性													
	焊锡湿润面积													
		试验后	95	MIN.	%	10	-	95 MIN.					Pass	
L	焊锡耐热性													
	外观													
		试验后	*	-	10	-	无异常					Pass		
M	温度上升													
	16P (Signal:0.30A,Power:2.20A)		ΔT	30	MAX.	℃	5	-	8.9 Max.					Pass
	28P (Signal:0.30A,Power:2.20A)								8.7 Max.					Pass
	34P (Signal:0.30A,Power:2.20A)								8.7 Max.					Pass
	42P (Signal:0.29A,Power:2.20A)								8.5 Max.					Pass
	56P (Signal:0.22A,Power:2.20A)								6.9 Max.					Pass
	62P (Signal:0.19A,Power:2.20A)								5.8 Max.					Pass

*外观标准：没有损害功能的异常

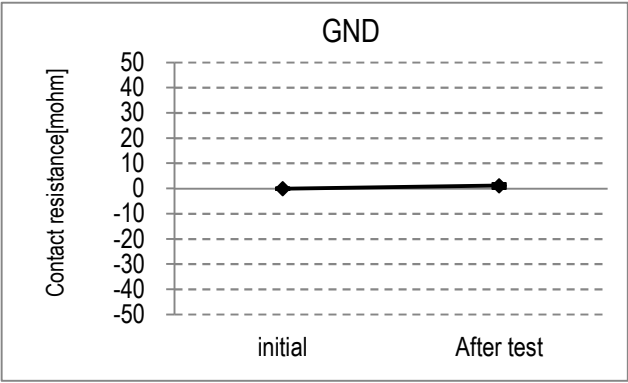
A Group / Durability



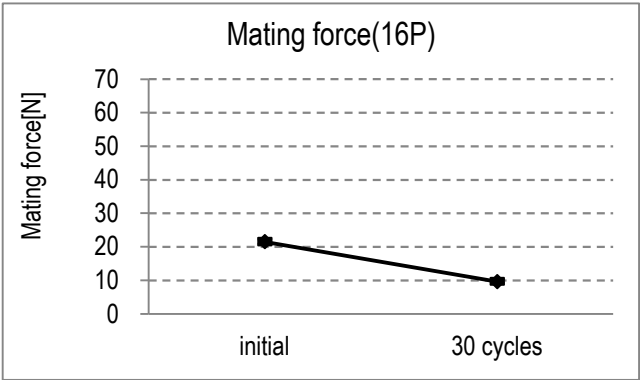
Graph-1. A change of signal contact resistance



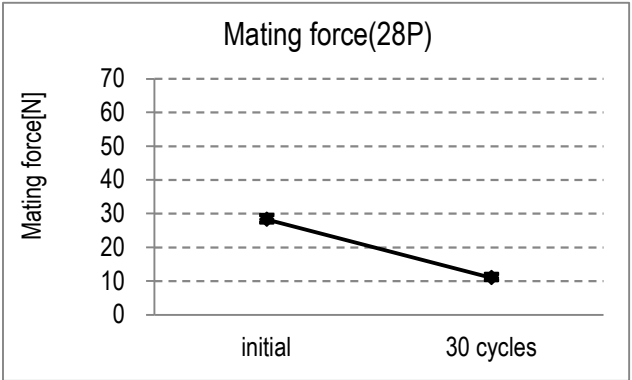
Graph-2. A change of power contact resistance



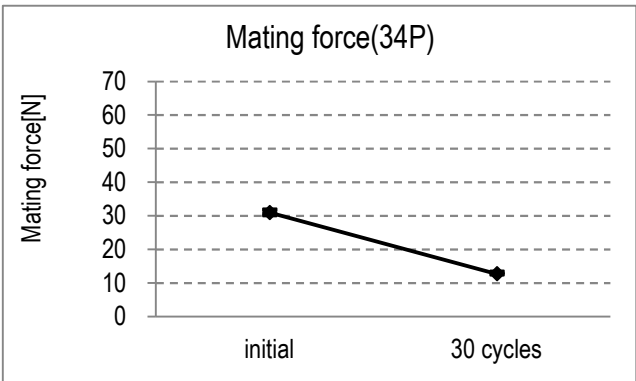
Graph-3. A change of GND contact resistance



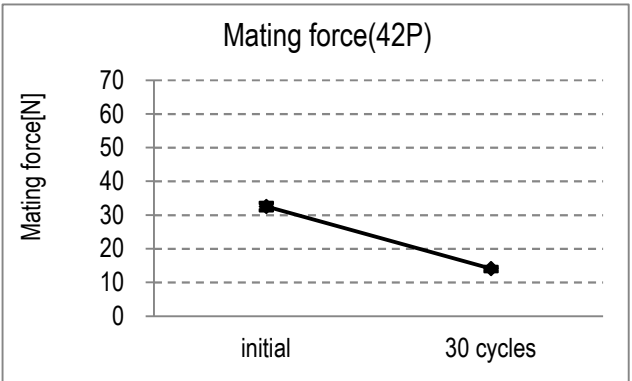
Graph-4-1. A change of mating force 16P



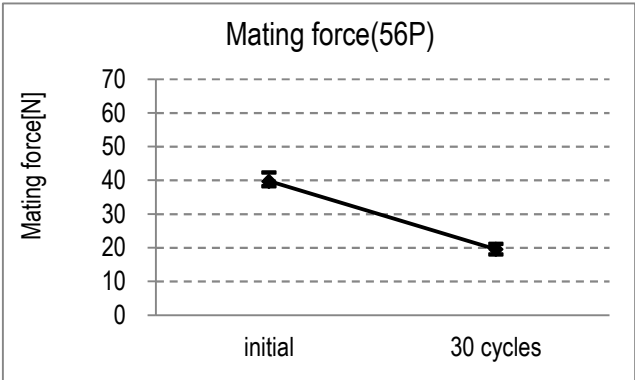
Graph-4-2. A change of mating force 28P



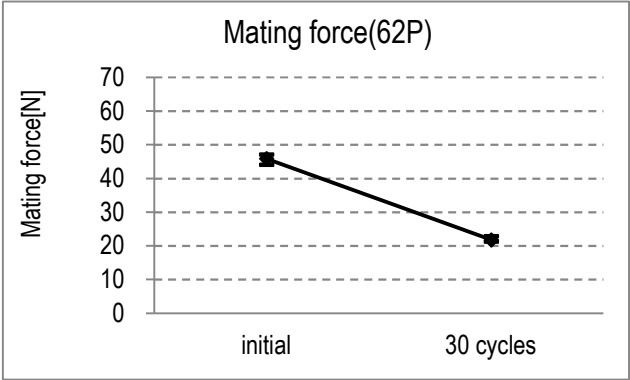
Graph-4-3. A change of mating force 34P



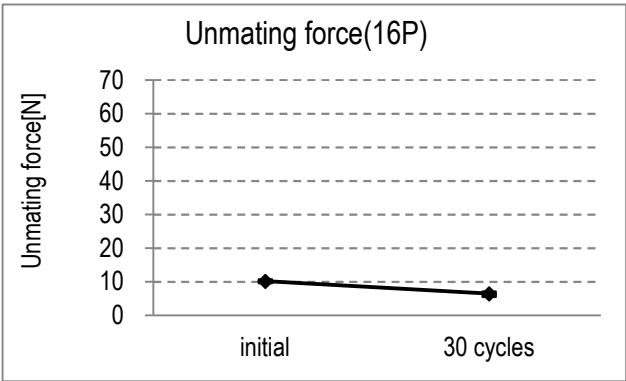
Graph-4-4. A change of mating force 42P



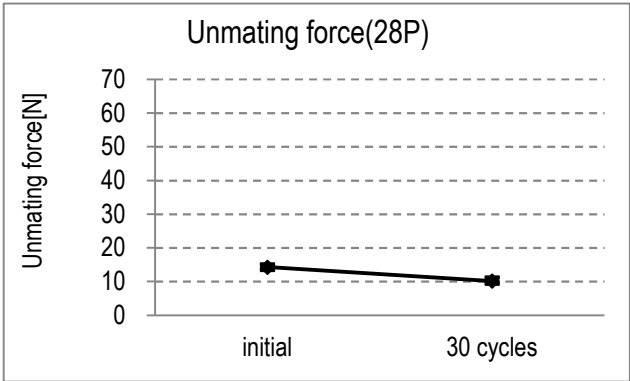
Graph-4-5. A change of mating force 56P



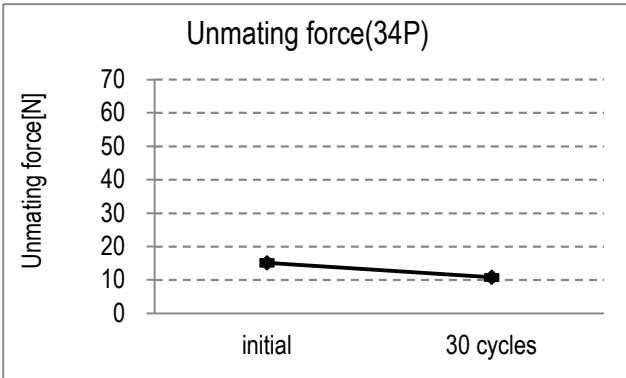
Graph-4-6. A change of mating force 62P



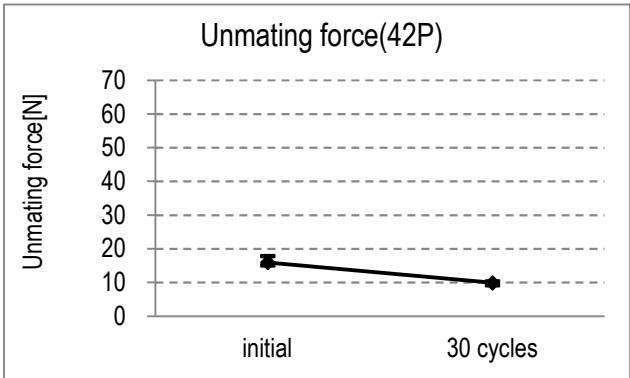
Graph-5-1. A change of unmating force 16P



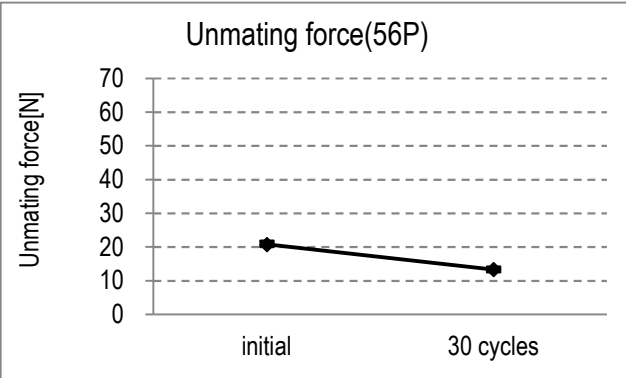
Graph-5-2. A change of unmating force 28P



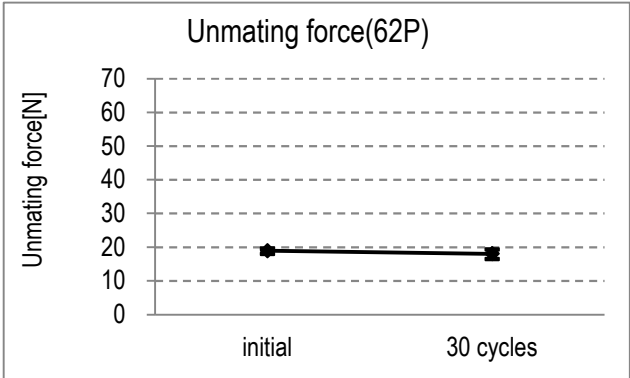
Graph-5-3. A change of unmating force 34P



Graph-5-4. A change of unmating force 42P

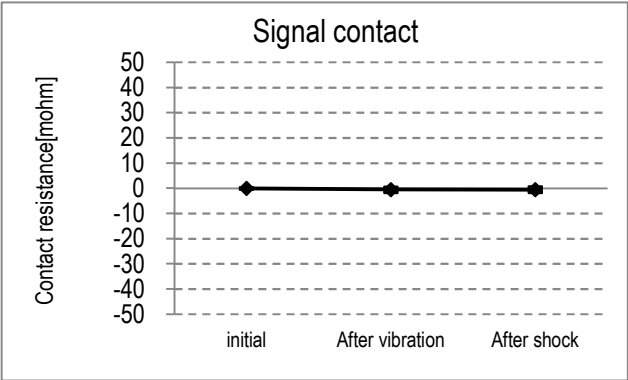


Graph-5-5. A change of unmating force 56P

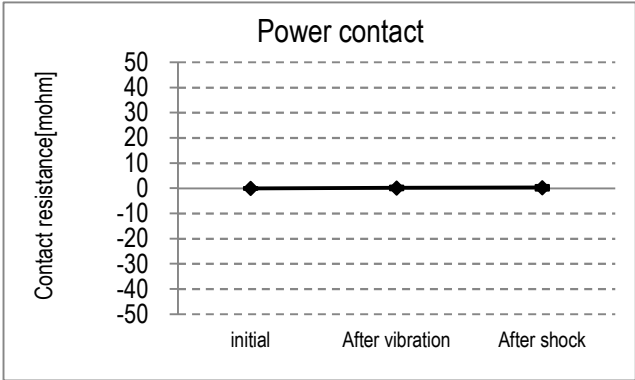


Graph-5-6. A change of unmating force 62P

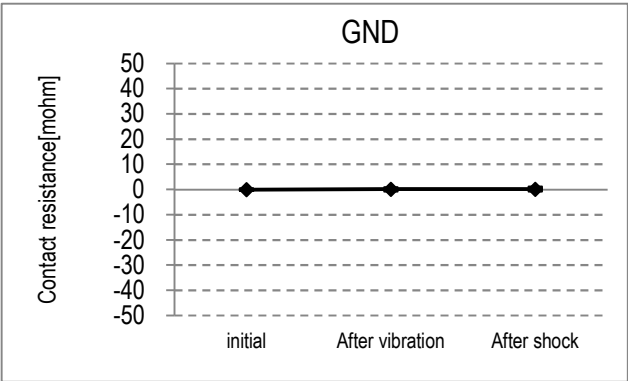
C Group / Vibration → Shock



Graph-6. A change of signal contact resistance

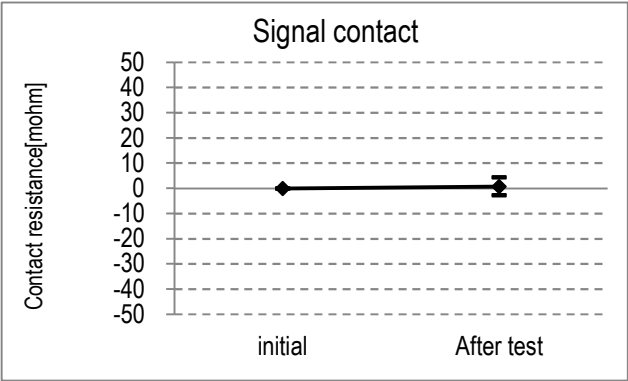


Graph-7. A change of power contact resistance

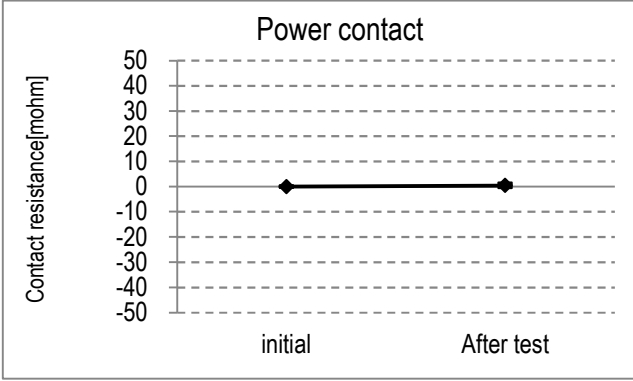


Graph-8. A change of GND contact resistance

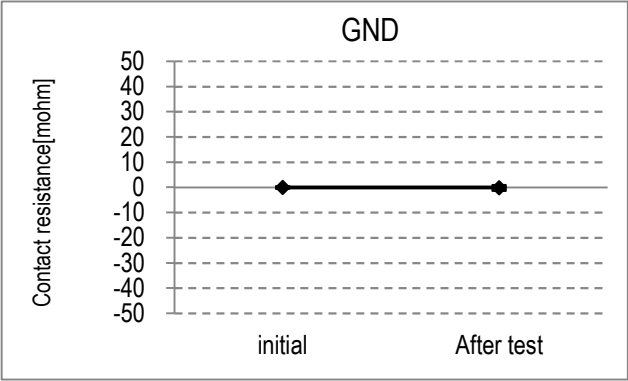
D Group / Thermal Shock



Graph-9. A change of signal contact resistance

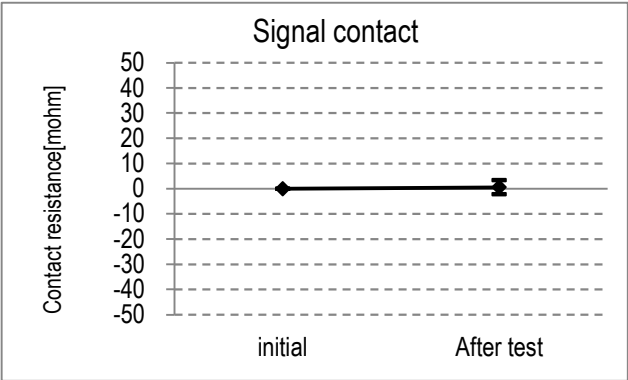


Graph-10. A change of power contact resistance

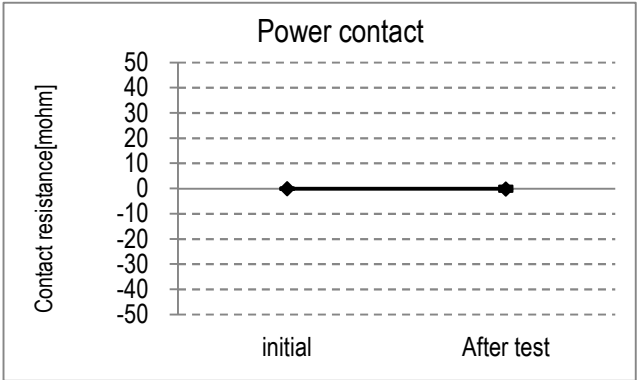


Graph-11. A change of GND contact resistance

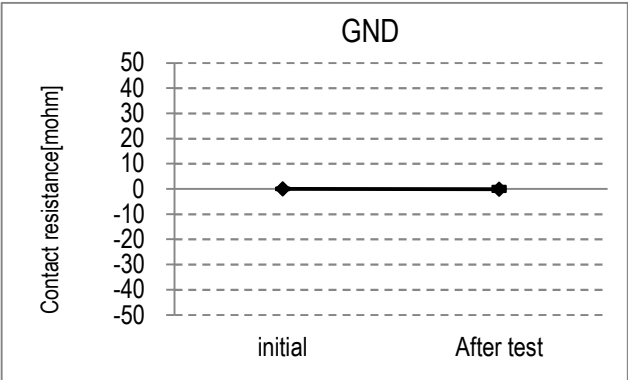
E Group / High Temperature Life



Graph-12. A change of signal contact resistance

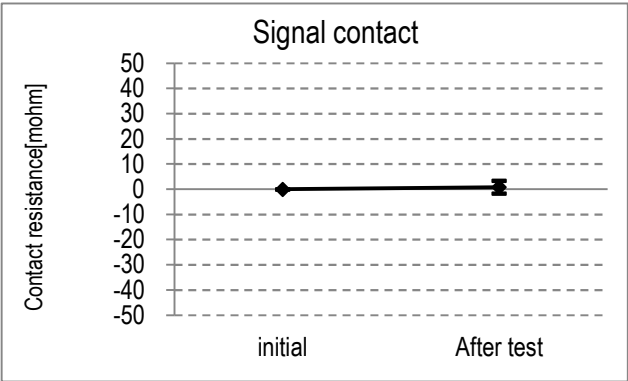


Graph-13. A change of power contact resistance

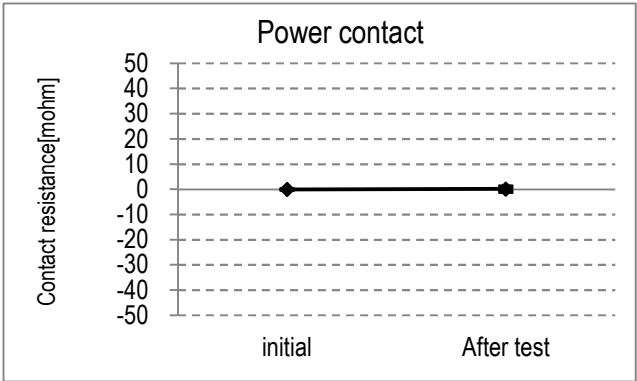


Graph-14. A change of GND contact resistance

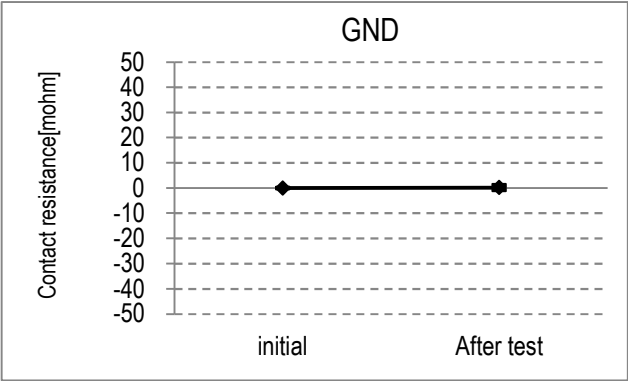
F Group / Humidity (Steady State)



Graph-15. A change of signal contact resistance

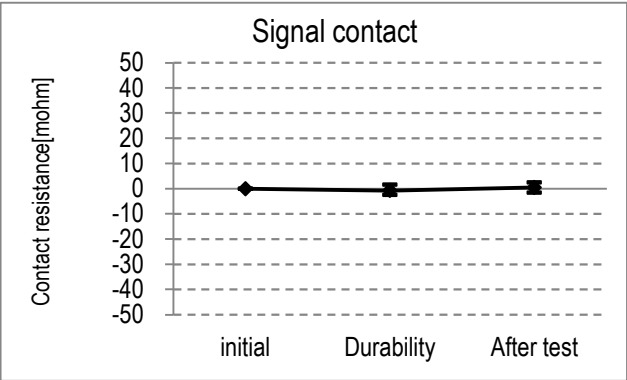


Graph-16. A change of power contact resistance

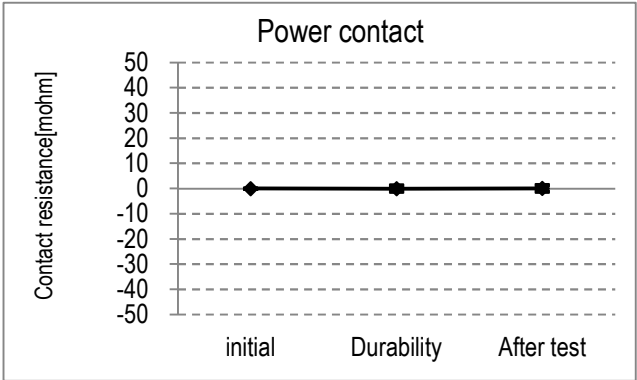


Graph-17. A change of GND contact resistance

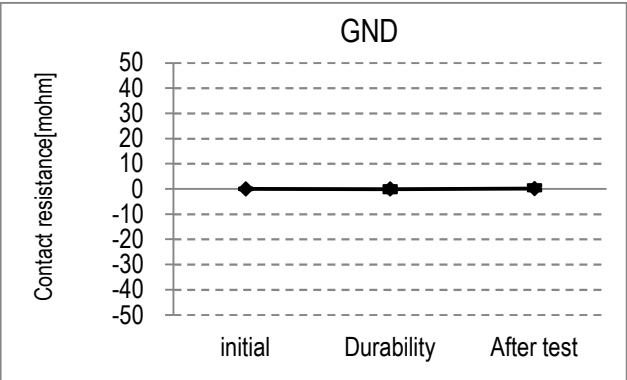
G Group / Humidity (Cycling)



Graph-18. A change of signal contact resistance

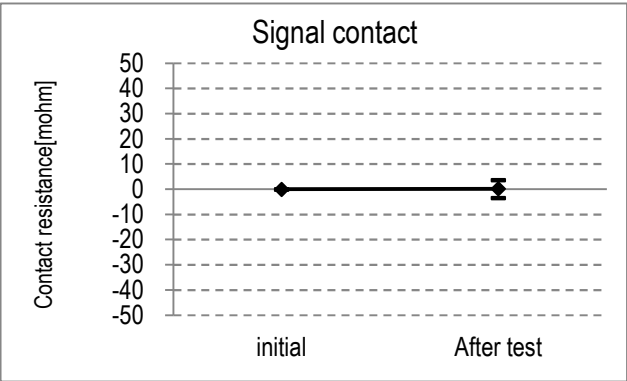


Graph-19. A change of power contact resistance

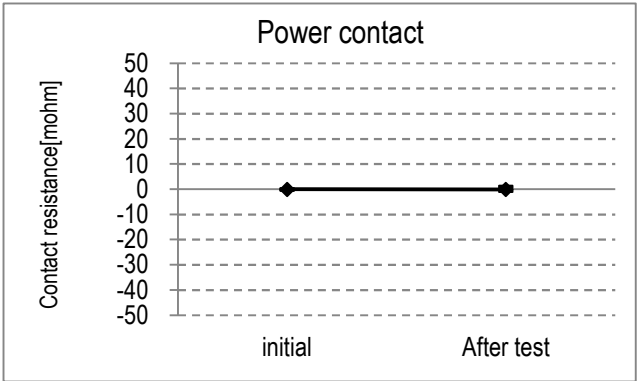


Graph-20. A change of GND contact resistance

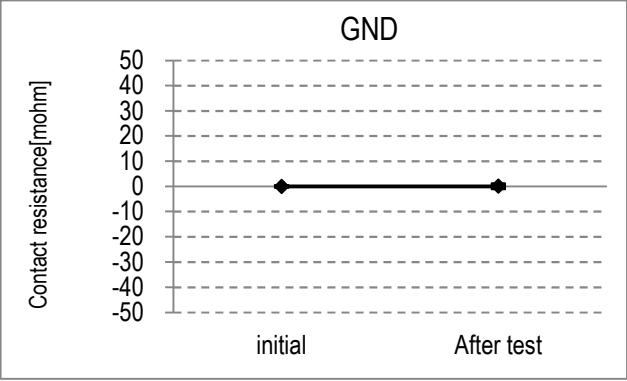
H Group / Salt Water Spray



Graph-21. A change of signal contact resistance

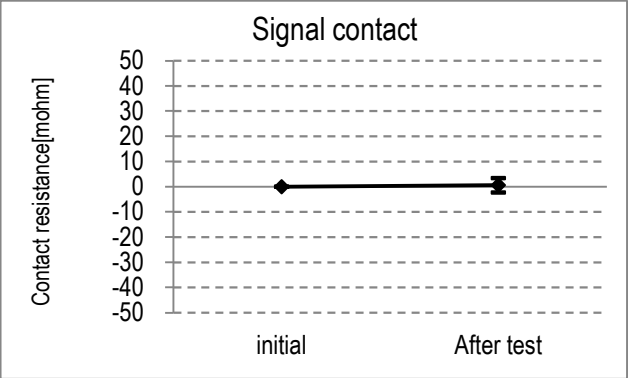


Graph-22. A change of power contact resistance

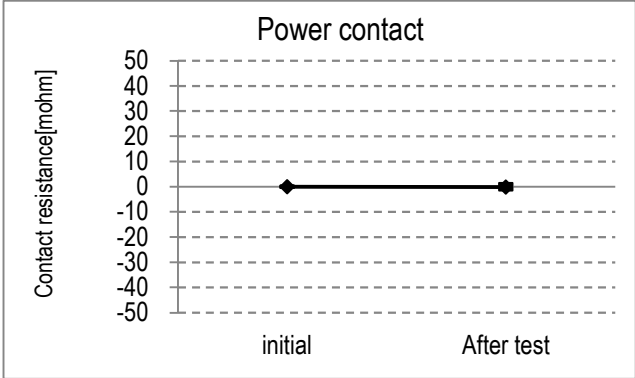


Graph-23. A change of GND contact resistance

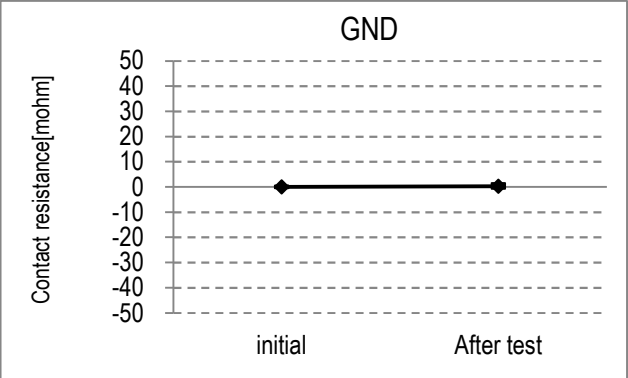
J Group / Gas



Graph-24. A change of signal contact resistance



Graph-25. A change of power contact resistance



Graph-26. A change of GND contact resistance