

EVAFLEX® 5-SE-GHT

(0.5mm pitch FPC/FFC Conn.)

Part No. 20899-0**E-01

Test Report

Product Specification no. PRS-2470

0	T20052	August 17, 2020	T.Tanigawa	T.Kurachi	Y.Shimada
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of EVAFLEX 5-SE-GHT Connector in accordance with PRS-2470.

2. Specimen

(1) Connector : EVAFLEX 5-SE-GHT (P/N : 20899-0**E-01)

(2) FFC : Made by Sumitomo Electric Industries, Ltd. Thickness Lead : $t=0.3\pm 0.03$ ※Actual measurement: 0.315~0.320mm

3. Test Sequence

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

4. Result

See Table 2-1 to 2-2, Graph 1 to 10.

For the details of the testing conditions and requirements, see PRS-2470.

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

5. Conclusion

All the specimens met the requirements of PRS-2470.

Table 1 Test Sequence and Sample Quantity

Test Item	Group													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
Contact Resistance		2,6				1,3,5	1,3	1,3	1,5	1,5	1,3	1,3		
Insulation Resistance									2,6	2,6				
D. W. Voltage									3,7	3,7				
Temperature rising	1													
Mating Force		1,5												
Unmating Force		3,7												
Durability		4												
Contact Retention Force			1											
Hold down Retention Force				1										
FFC/FPC Retention Force					1									
Vibration						2								
Shock						4								
Thermal Shock							2							
High Temperature Life								2						
Humidity (Steady State)									4					
Humidity (Cycling)										4				
Salt Water Spray											2			
H2S Gas												2		
Solder ability													1	
Soldering Heat Resistance														1
Specimen Quantity.	5 pcs.	5 pcs.	20 pos.	10 pos.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	10 pcs.	10 pcs.

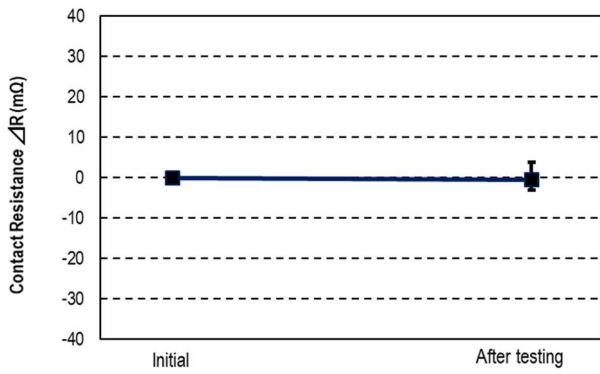
※Numbers indicate test sequences

Table 2-1 Test Result

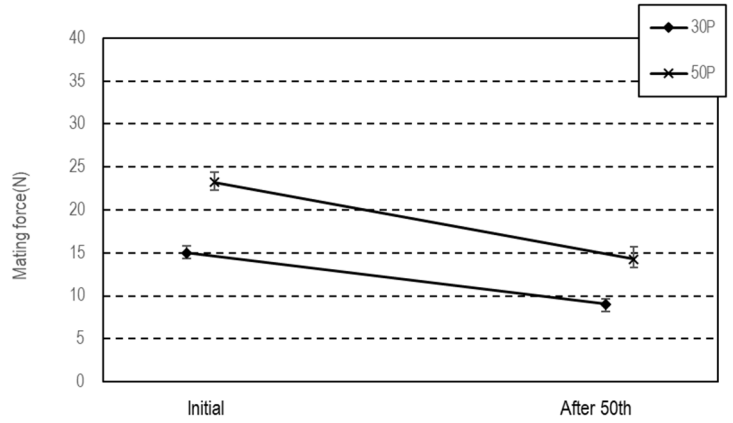
Test Item	Measurements		Spec.	Set	n	Data					Judge	
						AVG.(X)	MAX.	MIN.	s	X±3s		
A Group Temperature rise	50P	0.35A/pin	ΔT=30K(°C) MAX.	5	5	ΔT=18.2K(°C) MAX.					OK	
B Group Durability	30P	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	250	7.850	10.37	5.41	1.160	11.330	OK
			After 50th	ΔR=40mΩ MAX.	5	250	-0.435	3.76	-2.99	1.413	3.804	OK
	30P	Mating force (N)	Initial	22.0N MAX.	5	5	15.016	15.85	14.38	0.560	16.696	OK
			After 50th		5	5	9.026	9.66	8.16	0.543	10.655	OK
	30P	Unmating force (N)	Initial	2.70N MIN.	5	5	5.650	5.78	5.47	0.118	5.296	OK
			After 50th		5	5	5.752	5.91	5.55	0.137	5.341	OK
	50P	Mating force (N)	Initial	36.0N MAX.	5	5	23.244	24.41	22.33	0.825	25.719	OK
			After 50th		5	5	14.280	15.73	13.34	1.005	17.295	OK
		Unmating force (N)	Initial	4.10N MIN.	5	5	8.778	9.24	8.36	0.414	7.536	OK
			After 50th		5	5	8.978	9.39	8.54	0.321	8.015	OK
	C Group Contact retention force (N)			0.30N MIN.	-	20	0.977	1.21	0.76	0.150	0.527	OK
	D Group Hold down retention force (N)			1.47N MIN.	-	10	12.532	12.87	11.76	0.373	11.413	OK
E Group FFC/FPC retention force	30P	FFC retention force (N)		11.7N MIN.	5	5	24.342	25.02	23.32	0.680	22.302	OK
		Appearance		No abnormality	5	5	No abnormality					OK
	50P	FFC retention force (N)		13.1N MIN.	5	5	27.602	28.33	26.73	0.579	25.865	OK
		Appearance		No abnormality	5	5	No abnormality					OK
F Group Vibration ↓ Shock	30P	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	250	7.849	10.81	5.22	1.338	11.863	OK
			After vibration	ΔR=40mΩ MAX.	5	250	-0.238	3.92	-2.97	1.552	4.418	OK
			After shock	ΔR=40mΩ MAX.	5	250	0.087	4.53	-2.93	1.587	4.848	OK
	30P	Discontinuity	During vibration	1μs MAX.	5	5	No discontinuity					OK
			During shock	1μs MAX.	5	5	No discontinuity					OK
	30P	Appearance	After vibration	No abnormality	5	5	No abnormality					OK
			After shock	No abnormality	5	5	No abnormality					OK
	50P	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	250	7.930	10.69	5.52	1.342	11.956	OK
After testing			ΔR=40mΩ MAX.	5	250	0.852	6.66	-3.37	2.144	7.284	OK	
Appearance		No abnormality	5	5	No abnormality					OK		

Table 2-2 Test Result

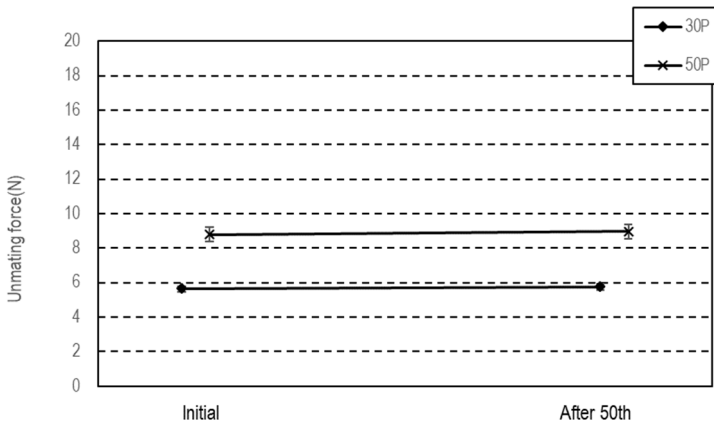
Test Item	Measurements		Spec.	Set	n	Data					Judge
						AVG.(X)	MAX.	MIN.	s	X±3s	
H Group High temperature life	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	250	7.746	10.96	5.20	1.299	11.643	OK
		After testing	ΔR=40mΩ MAX.	5	250	0.039	3.99	-2.00	1.396	4.227	OK
	Appearance		No abnormality	5	5	No abnormality					OK
J Group Humidity (Steady State)	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	250	7.980	10.47	5.27	1.494	12.462	OK
		After testing	ΔR=40mΩ MAX.	5	250	2.839	8.98	-2.52	2.180	9.379	OK
	Insulation resistance (Contact-Contact)	Initial	500MΩ MIN.	5	245	4.0×10 ⁴ MΩ MIN.					OK
		After testing	500MΩ MIN.	5	245	2.4×10 ⁴ MΩ MIN.					OK
	Dielectric strength (Contact-Contact)	Initial	No abnormality	5	245	No abnormality					OK
		After testing	No abnormality	5	245	No abnormality					OK
Appearance		No abnormality	5	5	No abnormality					OK	
K Group Humidity (Cycling)	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	250	8.049	10.81	5.53	1.333	12.048	OK
		After testing	ΔR=40mΩ MAX.	5	250	0.217	4.83	-2.46	1.561	4.900	OK
	Insulation resistance (Contact-Contact)	Initial	500MΩ MIN.	5	245	4.1×10 ⁴ MΩ MIN.					OK
		After testing	500MΩ MIN.	5	245	2.2×10 ⁴ MΩ MIN.					OK
	Dielectric strength (Contact-Contact)	Initial	No abnormality	5	245	No abnormality					OK
		After testing	No abnormality	5	245	No abnormality					OK
Appearance		No abnormality	5	5	No abnormality					OK	
L Group Salt water spray	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	250	7.952	10.91	5.71	1.333	11.951	OK
		After testing	ΔR=40mΩ MAX.	5	250	1.204	9.23	-2.99	2.735	9.409	OK
	Appearance		No abnormality	5	5	No abnormality					OK
M Group H ₂ S gas	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	250	7.998	10.47	5.44	1.391	12.171	OK
		After testing	ΔR=40mΩ MAX.	5	250	-0.146	2.91	-3.20	1.089	3.121	OK
	Appearance		No abnormality	5	5	No abnormality					OK
N Group Solder ability	Appearance		Wetness :95% MIN.	10	10	95%MIN.was wet.					OK
P Group Solder heat resistance	Appearance		No abnormality	10	10	No abnormality					OK



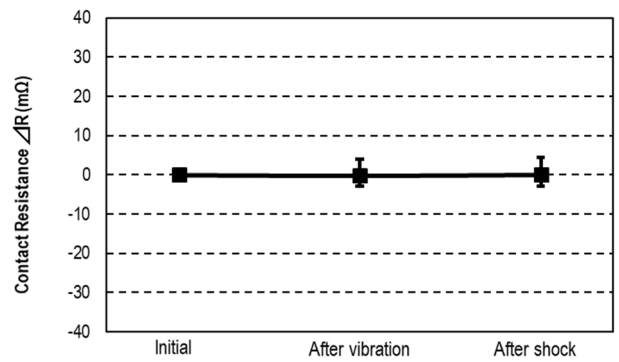
Graph1. A change of contact resistance (B Group : Durability)



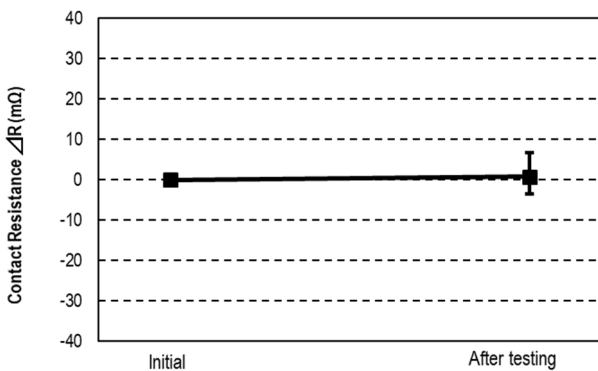
Graph2. A change of mating force (B Group : Durability)



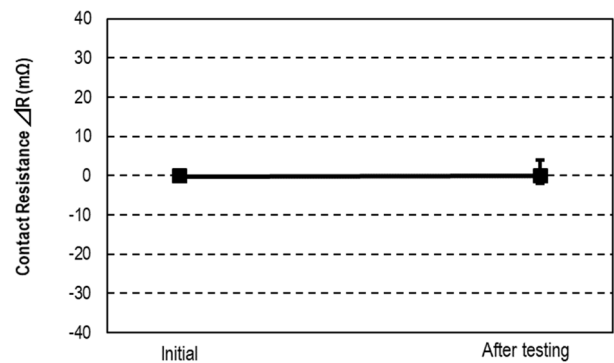
Graph3. A change of un mating force (B Group : Durability)



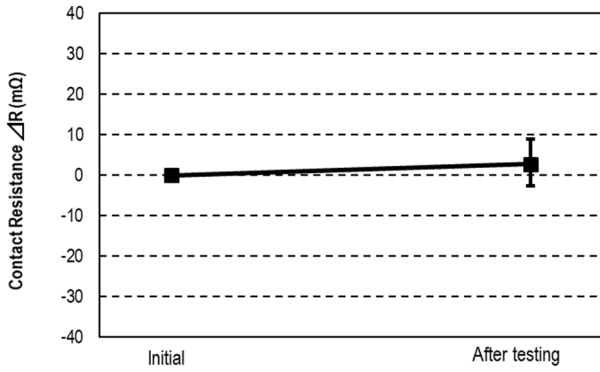
Graph4. A change of contact resistance (F Group : Vibration→Shock)



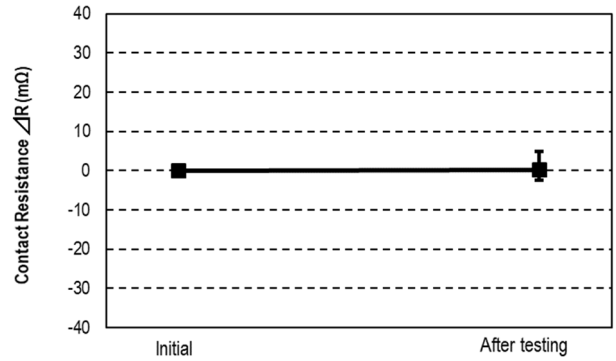
Graph5. A change of contact resistance (G Group : Thermal shock)



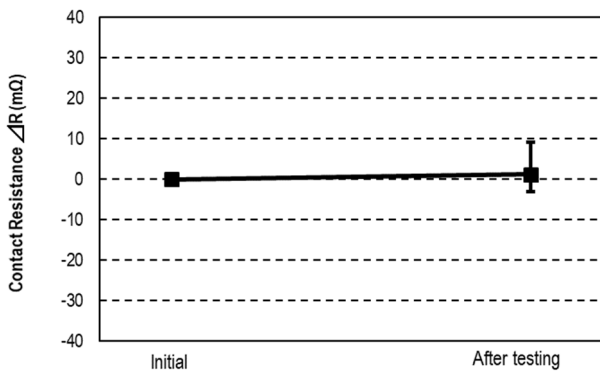
Graph6. A change of contact resistance (H Group : High temperature life)



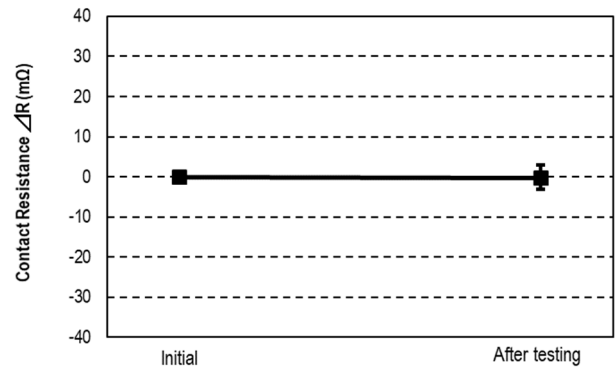
Graph7. A change of contact resistance (J Group : Humidity (Steady state))



Graph8. A change of contact resistance (K Group : Humidity (Cycling))



Graph9. A change of contact resistance (L Group : Salt water spray)



Graph10. A change of contact resistance (M Group : H₂S gas)