IARPB® VERTICAL CONNECTOR

Test Report

Product Standard No. PSS-0041

1	RS1007	August 28, 2024	Y. Imae	H.Kurita	J.Tateishi
0	RS1002	July 8, 2024	Y. Imae	H.Kurita	J.Tateishi
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

We will conduct a performance verification evaluation for the IARPB® VERTICAL CONNECTOR based on product standard PSS-0041.
Regarding terminal evaluation (Table 2 No.6,7,8,14) and environmental performances (Table 3), performance will be confirmed representatively using the 7P.

2. Conclusion

All evaluation items met the required performance standards.

3. Sample

Table 1 Product Specifications

Parts	Material	P/N	Remarks
Housing	Glass Filled PBT (UL94-HB)	V0145-91002-01 (2P) V0145-91004-01 (4P) V0145-91005-01 (5P) V0145-91006-01 (6P) V0145-91007-01 (7P)	Black
Terminal	Brass , Sn （Reflow）	V0145-71001-01	-
Applicable cable	-	BEAMEX SS-ER500	0.3mm^2
Applicable PCB	FR-4	-	-

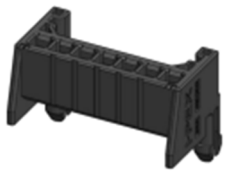


Fig. 1 Housing

Fig. 2 Terminal

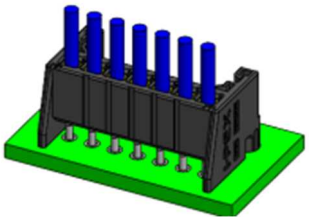


Fig. 3 Assembly

4. Test Results

Tables 2 and 3 below describe the evaluation results.

Table 2-1 Initial characteristics Result list (2P)

No.	Test name		Requirements	n	Unit	Avg.	Max.	Min.	s	Avg.±3s	Judge.
1	Terminal and Housing appearance		No detrimental deformation	8	-	No detrimental deformation					Pass
2	Terminal outer dimension		Satisfy drawing dimension	-	-	Satisfy drawing dimension					Pass
3	Housing outer dimension		Satisfy drawing dimension	-	-	Satisfy drawing dimension					Pass
4	Terminal retention force		30N Min.	40	N	54.88	57.8	51.8	1.46	50.50	Pass
5	Solderability		The land area on both sides of the PCB is wet all around and fillets are formed.	5	-	The land area on both sides of the PCB is wet all around and fillets are formed.					Pass
6	Terminal crimp strength		50N Min.	5	N	73.54	75.3	70.0	2.09	67.27	Pass
7	Voltage drop	(a)1A	2mV/A Max.	35	mV/A	0.252	0.72	0.11	0.121	0.615	Pass
		(b)3A	2mV/A Max.	35	mV/A	0.353	0.82	0.13	0.158	0.827	Pass
8	Dry circuit resistance	(a)10mA	2mΩ Max.	35	mΩ	0.461	0.71	0.37	0.065	0.656	Pass
		(b)1mA	2mΩ Max.	35	mΩ	0.353	0.53	0.16	0.098	0.646	Pass
9	Insulation resistance	(a)between terminals	100MΩ Min.	24	MΩ	100,000MΩ Min.					Pass
		(b)between terminal and earth	100MΩ Min.	24	MΩ	100,000MΩ Min.					Pass
10	Dielectric withstanding voltage	(a)between terminals	No insulation breakdown or erosion	24	-	No insulation breakdown or erosion					Pass
		(b)between terminal and earth	No insulation breakdown or erosion	24	-	No insulation breakdown or erosion					Pass
11	Temperature rise	Single pole	⊿T=40℃ Max.	5	℃	15.69	16.6	15.0	0.61	17.52	Pass
		All poles	⊿T=40℃ Max.	5	℃	21.10	21.5	20.6	0.38	22.24	Pass
12	Leak current		3mA Max.	5	mA	0.01mA Max.					Pass
13	Short break monitor		Not exceed 1μs and 7Ω	5	-	Not exceed 1μs and 7Ω					Pass
14	Resistance variation		20mΩ Max.	5	mΩ	1.306	1.43	1.26	0.071	1.519	Pass
15	Insertion force of terminal to the housing		15N Max.	40	N	2.42	3.3	2.0	0.28	3.26	Pass
16	Terminal/Cavity polarization		Unable to insert terminal incorrectly at 49N	10	-	Unable to insert terminal incorrectly at 49N					Pass
17	PCB retention force	Direction ①	70N Min.	24	N	144.55	154.8	135.1	5.25	128.80	Pass
		Direction ②	70N Min.	24	N	89.45	101.5	81.9	6.10	71.15	Pass
		Direction ③	70N Min.	24	N	135.74	152.1	107.6	15.91	88.01	Pass
		Direction ④	70N Min.	24	N	100.62	119.3	88.5	8.61	74.79	Pass
18	PCB insertion force		50N Max.	24	N	38.57	43.0	33.2	2.71	46.70	Pass

Table 2-2 Initial characteristics Result list (4P)

No.	Test name		Requirements	n	Unit	Avg.	Max.	Min.	s	Avg.±3s	Judge.
1	Terminal and Housing appearance		No detrimental deformation	8	-	No detrimental deformation					Pass
2	Terminal outer dimension		Satisfy drawing dimension	-	-	Satisfy drawing dimension					Pass
3	Housing outer dimension		Satisfy drawing dimension	-	-	Satisfy drawing dimension					Pass
4	Terminal retention force		30N Min.	40	N	55.50	58.8	52.5	1.52	50.94	Pass
5	Solderability		The land area on both sides of the PCB is wet all around and fillets are formed.	5	-	The land area on both sides of the PCB is wet all around and fillets are formed.					Pass
6	Terminal crimp strength		50N Min.	5	N	73.54	75.3	70.0	2.09	67.27	Pass
7	Voltage drop	(a)1A	2mV/A Max.	35	mV/A	0.252	0.72	0.11	0.121	0.615	Pass
		(b)3A	2mV/A Max.	35	mV/A	0.353	0.82	0.13	0.158	0.827	Pass
8	Dry circuit resistance	(a)10mA	2mΩ Max.	35	mΩ	0.461	0.71	0.37	0.065	0.656	Pass
		(b)1mA	2mΩ Max.	35	mΩ	0.353	0.53	0.16	0.098	0.646	Pass
9	Insulation resistance	(a)between terminals	100MΩ Min.	24	MΩ	100,000MΩ Min.					Pass
		(b)between terminal and earth	100MΩ Min.	24	MΩ	100,000MΩ Min.					Pass
10	Dielectric withstanding voltage	(a)between terminals	No insulation breakdown or erosion	24	-	No insulation breakdown or erosion					Pass
		(b)between terminal and earth	No insulation breakdown or erosion	24	-	No insulation breakdown or erosion					Pass
11	Temperature rise	Single pole	⊿T=40℃ Max.	5	℃	14.33	15.0	13.8	0.51	15.86	Pass
		All poles	⊿T=40℃ Max.	5	℃	20.94	22.3	18.2	1.68	25.98	Pass
12	Leak current		3mA Max.	5	mA	0.01mA Max.					Pass
13	Short break monitor		Not exceed 1μs and 7Ω	5	-	Not exceed 1μs and 7Ω					Pass
14	Resistance variation		20mΩ Max.	5	mΩ	1.306	1.43	1.26	0.071	1.519	Pass
15	Insertion force of terminal to the housing		15N Max.	40	N	2.94	4.0	2.3	0.37	4.05	Pass
16	Terminal/Cavity polarization		Unable to insert terminal incorrectly at 49N	20	-	Unable to insert terminal incorrectly at 49N					Pass
17	PCB retention force	Direction ①	70N Min.	24	N	279.71	296.8	254.6	10.05	249.56	Pass
		Direction ②	70N Min.	24	N	96.65	111.2	80.0	8.42	71.39	Pass
		Direction ③	70N Min.	24	N	224.73	288.1	185.9	28.39	139.56	Pass
		Direction ④	70N Min.	24	N	251.97	296.4	137.9	30.98	159.03	Pass
18	PCB insertion force		50N Max.	24	N	37.94	42.5	33.2	2.35	44.99	Pass

Table 2-2 Initial characteristics Result list (5P)

No.	Test name		Requirements	n	Unit	Avg.	Max.	Min.	s	Avg.±3s	Judge.
1	Terminal and Housing appearance		No detrimental deformation	8	-	No detrimental deformation					Pass
2	Terminal outer dimension		Satisfy drawing dimension	-	-	Satisfy drawing dimension					Pass
3	Housing outer dimension		Satisfy drawing dimension	-	-	Satisfy drawing dimension					Pass
4	Terminal retention force		30N Min.	40	N	54.60	58.8	50.5	1.94	48.78	Pass
5	Solderability		The land area on both sides of the PCB is wet all around and fillets are formed.	5	-	The land area on both sides of the PCB is wet all around and fillets are formed.					Pass
6	Terminal crimp strength		50N Min.	5	N	73.54	75.3	70.0	2.09	67.27	Pass
7	Voltage drop	(a)1A	2mV/A Max.	35	mV/A	0.252	0.72	0.11	0.121	0.615	Pass
		(b)3A	2mV/A Max.	35	mV/A	0.353	0.82	0.13	0.158	0.827	Pass
8	Dry circuit resistance	(a)10mA	2mΩ Max.	35	mΩ	0.461	0.71	0.37	0.065	0.656	Pass
		(b)1mA	2mΩ Max.	35	mΩ	0.353	0.53	0.16	0.098	0.646	Pass
9	Insulation resistance	(a)between terminals	100MΩ Min.	24	MΩ	100,000MΩ Min.					Pass
		(b)between terminal and earth	100MΩ Min.	24	MΩ	100,000MΩ Min.					Pass
10	Dielectric withstanding voltage	(a)between terminals	No insulation breakdown or erosion	24	-	No insulation breakdown or erosion					Pass
		(b)between terminal and earth	No insulation breakdown or erosion	24	-	No insulation breakdown or erosion					Pass
11	Temperature rise	Single pole	⊿T=40℃ Max.	5	℃	19.30	23.6	17.0	2.58	27.04	Pass
		All poles	⊿T=40℃ Max.	5	℃	16.34	17.5	15.8	0.70	18.44	Pass
12	Leak current		3mA Max.	5	mA	0.01mA Max.					Pass
13	Short break monitor		Not exceed 1μs and 7Ω	5	-	Not exceed 1μs and 7Ω					Pass
14	Resistance variation		20mΩ Max.	5	mΩ	1.306	1.43	1.26	0.071	1.519	Pass
15	Insertion force of terminal to the housing		15N Max.	40	N	2.83	3.7	2.4	0.28	3.67	Pass
16	Terminal/Cavity polarization		Unable to insert terminal incorrectly at 49N	25	-	Unable to insert terminal incorrectly at 49N					Pass
17	PCB retention force	Direction ①	70N Min.	24	N	395.99	416.8	373.6	10.10	365.69	Pass
		Direction ②	70N Min.	24	N	106.47	115.0	94.8	4.10	94.17	Pass
		Direction ③	70N Min.	24	N	330.52	389.2	234.3	39.13	213.13	Pass
		Direction ④	70N Min.	24	N	327.39	355.3	301.3	16.80	276.99	Pass
18	PCB insertion force		50N Max.	24	N	37.69	43.8	31.3	3.39	47.86	Pass

Table 2-2 Initial characteristics Result list（6P）

No.	Test name		Requirements	n	Unit	Avg.	Max.	Min.	s	Avg.±3s	Judge.
1	Terminal and Housing appearance		No detrimental deformation	4	-	No detrimental deformation					Pass
2	Terminal outer dimension		Satisfy drawing dimension	-	-	Satisfy drawing dimension					Pass
3	Housing outer dimension		Satisfy drawing dimension	-	-	Satisfy drawing dimension					Pass
4	Terminal retention force		30N Min.	24	N	50.53	53.8	47.3	1.85	44.98	Pass
5	Solderability		The land area on both sides of the PCB is wet all around and fillets are formed.	5	-	The land area on both sides of the PCB is wet all around and fillets are formed.					Pass
6	Terminal crimp strength		50N Min.	5	N	73.54	75.3	70.0	2.09	67.27	Pass
7	Voltage drop	(a)1A	2mV/A Max.	35	mV/A	0.252	0.72	0.11	0.121	0.615	Pass
		(b)3A	2mV/A Max.	35	mV/A	0.353	0.82	0.13	0.158	0.827	Pass
8	Dry circuit resistance	(a)10mA	2mΩ Max.	35	mΩ	0.461	0.71	0.37	0.065	0.656	Pass
		(b)1mA	2mΩ Max.	35	mΩ	0.353	0.53	0.16	0.098	0.646	Pass
9	Insulation resistance	(a)between terminals	100MΩ Min.	12	MΩ	100,000MΩ Min.					Pass
		(b)between terminal and earth	100MΩ Min.	12	MΩ	100,000MΩ Min.					Pass
10	Dielectric withstanding voltage	(a)between terminals	No insulation breakdown or erosion	12	-	No insulation breakdown or erosion					Pass
		(b)between terminal and earth	No insulation breakdown or erosion	12	-	No insulation breakdown or erosion					Pass
11	Temperature rise	Single pole	⊿T=40℃ Max.	5	℃	20.70	21.9	19.2	1.14	24.12	Pass
		All poles	⊿T=40℃ Max.	5	℃	15.58	16.2	14.8	0.56	17.26	Pass
12	Leak current		3mA Max.	5	mA	0.01mA Max.					Pass
13	Short break monitor		Not exceed 1μs and 7Ω	5	-	Not exceed 1μs and 7Ω					Pass
14	Resistance variation		20mΩ Max.	5	mΩ	1.306	1.43	1.26	0.071	1.519	Pass
15	Insertion force of terminal to the housing		15N Max.	24	N	2.62	3.6	2.1	0.39	3.79	Pass
16	Terminal/Cavity polarization		Unable to insert terminal incorrectly at 49N	30	-	Unable to insert terminal incorrectly at 49N					Pass
17	PCB retention force	Direction ①	70N Min.	12	N	468.60	476.5	454.1	8.79	442.23	Pass
		Direction ②	70N Min.	12	N	94.57	105.2	83.6	6.70	74.47	Pass
		Direction ③	70N Min.	12	N	243.72	275.9	212.3	23.20	174.12	Pass
		Direction ④	70N Min.	12	N	363.25	435.2	291.3	35.86	255.67	Pass
18	PCB insertion force		50N Max.	12	N	37.97	42.0	31.9	3.52	48.53	Pass

Table 2-2 Initial characteristics Result list（7P）

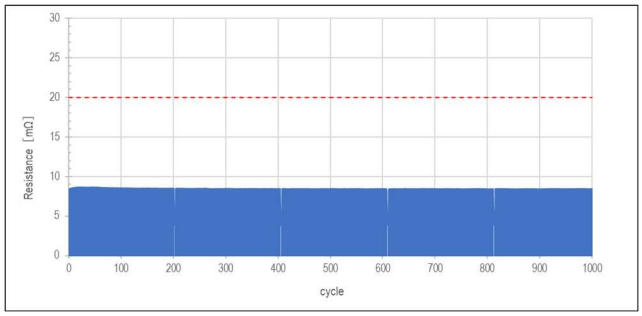
No.	Test name		Requirements	n	Unit	Avg.	Max.	Min.	s	Avg.±3s	Judge.
1	Terminal and Housing appearance		No detrimental deformation	4	-	No detrimental deformation					Pass
2	Terminal outer dimension		Satisfy drawing dimension	-	-	Satisfy drawing dimension					Pass
3	Housing outer dimension		Satisfy drawing dimension	-	-	Satisfy drawing dimension					Pass
4	Terminal retention force		30N Min.	28	N	53.65	60.1	49.0	2.53	46.06	Pass
5	Solderability		The land area on both sides of the PCB is wet all around and fillets are formed.	5	-	The land area on both sides of the PCB is wet all around and fillets are formed.					Pass
6	Terminal crimp strength		50N Min.	5	N	73.54	75.3	70.0	2.09	67.27	Pass
7	Voltage drop	(a)1A	2mV/A Max.	35	mV/A	0.252	0.72	0.11	0.121	0.615	Pass
		(b)3A	2mV/A Max.	35	mV/A	0.353	0.82	0.13	0.158	0.827	Pass
8	Dry circuit resistance	(a)10mA	2mΩ Max.	35	mΩ	0.461	0.71	0.37	0.065	0.656	Pass
		(b)1mA	2mΩ Max.	35	mΩ	0.353	0.53	0.16	0.098	0.646	Pass
9	Insulation resistance	(a)between terminals	100MΩ Min.	12	MΩ	100,000MΩ Min.					Pass
		(b)between terminal and earth	100MΩ Min.	12	MΩ	100,000MΩ Min.					Pass
10	Dielectric withstanding voltage	(a)between terminals	No insulation breakdown or erosion	12	-	No insulation breakdown or erosion					Pass
		(b)between terminal and earth	No insulation breakdown or erosion	12	-	No insulation breakdown or erosion					Pass
11	Temperature rise	Single pole	⊿T=40℃ Max.	5	℃	17.13	17.5	16.7	0.37	18.24	Pass
		All poles	⊿T=40℃ Max.	5	℃	17.33	18.2	16.3	0.77	19.64	Pass
12	Leak current		3mA Max.	5	mA	0.01mA Max.					Pass
13	Short break monitor		Not exceed 1μs and 7Ω	5	-	Not exceed 1μs and 7Ω					Pass
14	Resistance variation		20mΩ Max.	5	mΩ	1.306	1.43	1.26	0.071	1.519	Pass
15	Insertion force of terminal to the housing		15N Max.	28	N	2.95	3.6	2.3	0.43	4.24	Pass
16	Terminal/Cavity polarization		Unable to insert terminal incorrectly at 49N	35	-	Unable to insert terminal incorrectly at 49N					Pass
17	PCB retention force	Direction ①	70N Min.	12	N	480.77	487.4	474.1	3.95	468.92	Pass
		Direction ②	70N Min.	12	N	103.14	114.1	96.7	4.44	89.82	Pass
		Direction ③	70N Min.	12	N	324.81	366.8	225.7	37.04	213.69	Pass
		Direction ④	70N Min.	12	N	436.23	506.1	385.5	39.19	318.66	Pass
18	PCB insertion force		50N Max.	12	N	36.44	41.5	33.1	2.82	44.90	Pass

Table 3-1 Environmental Performances Result list（7P）

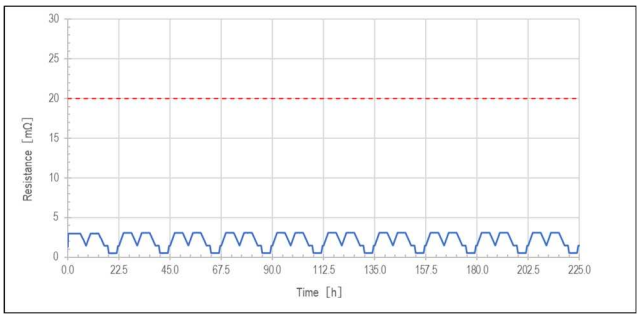
Item	Test name		Requirements	n	Unit	Avg.	Max.	Min.	s	Avg.±3s	Judge.
1	High temperature aging	Terminal and Housing appearance	No detrimental deformation	12	-	No detrimental deformation					Pass
		Terminal retention force	30N Min.	28	N	51.05	57.4	44.5	3.42	40.79	Pass
		Voltage drop (a)1A	3mV/A Max.	35	mV/A	0.276	0.48	0.13	0.078	0.510	Pass
		Voltage drop (b)3A	3mV/A Max.	35	mV/A	0.286	0.49	0.12	0.106	0.604	Pass
		Dry circuit resistance (a)10mA	3mΩ Max.	35	mΩ	0.250	0.38	0.14	0.066	0.448	Pass
		Dry circuit resistance (b)1mA	3mΩ Max.	35	mΩ	0.336	0.55	0.11	0.129	0.723	Pass
		Temperature rise Single pole	⊿T=40℃ Max.	5	℃	18.93	19.4	18.6	0.32	19.89	Pass
		Temperature rise All poles	⊿T=40℃ Max.	5	℃	18.30	19.0	17.1	0.76	20.58	Pass
2	Low temperature aging	Terminal and Housing appearance	No detrimental deformation	12	-	No detrimental deformation					Pass
		Terminal retention force	30N Min.	28	N	51.94	58.8	47.3	2.91	43.21	Pass
		Voltage drop (a)1A	3mV/A Max.	35	mV/A	0.307	0.54	0.17	0.079	0.544	Pass
		Voltage drop (b)3A	3mV/A Max.	35	mV/A	0.217	0.45	0.11	0.087	0.478	Pass
		Dry circuit resistance (a)10mA	3mΩ Max.	35	mΩ	0.212	0.34	0.11	0.064	0.404	Pass
		Dry circuit resistance (b)1mA	3mΩ Max.	35	mΩ	0.294	0.57	0.11	0.117	0.645	Pass
		Temperature rise Single pole	⊿T=40℃ Max.	5	℃	18.55	19.4	17.6	0.73	20.74	Pass
		Temperature rise All poles	⊿T=40℃ Max.	5	℃	17.03	18.0	15.2	1.33	21.02	Pass
3	Thermal shock	Terminal and Housing appearance	No detrimental deformation	12	-	No detrimental deformation					Pass
		Terminal retention force	30N Min.	28	N	53.32	60.5	49.6	2.5	45.82	Pass
		Voltage drop (a)1A	3mV/A Max.	35	mV/A	0.830	1.03	0.64	0.103	1.139	Pass
		Voltage drop (b)3A	3mV/A Max.	35	mV/A	0.721	0.95	0.54	0.107	1.042	Pass
		Dry circuit resistance (a)10mA	3mΩ Max.	35	mΩ	0.606	0.98	0.19	0.192	1.182	Pass
		Dry circuit resistance (b)1mA	3mΩ Max.	35	mΩ	0.648	1.11	0.26	0.193	1.227	Pass
		Temperature rise Single pole	⊿T=40℃ Max.	5	℃	18.88	20.2	18.0	0.89	21.55	Pass
		Temperature rise All poles	⊿T=40℃ Max.	5	℃	17.40	18.0	16.3	0.69	19.47	Pass
		Resistance variation	20mΩ Max.	5	mΩ	8.738	9.16	8.41	0.288	9.602	Pass
4	Temperature/humidity cycle Ⅰ	Terminal and Housing appearance	No detrimental deformation	12	-	No detrimental deformation					Pass
		Terminal retention force	30N Min.	28	N	53.36	59.2	47.5	2.94	44.54	Pass
		Voltage drop (a)1A	3mV/A Max.	35	mV/A	0.649	1.02	0.49	0.127	1.030	Pass
		Voltage drop (b)3A	3mV/A Max.	35	mV/A	0.845	1.01	0.65	0.105	1.160	Pass
		Dry circuit resistance (a)10mA	3mΩ Max.	35	mΩ	0.478	0.81	0.24	0.133	0.877	Pass
		Dry circuit resistance (b)1mA	3mΩ Max.	35	mΩ	0.522	0.88	0.27	0.175	1.047	Pass
		Insulation resistance between (a) terminals	100MΩ Min.	12	MΩ	237MΩ Min.					Pass
		Insulation resistance between (b) terminal and earth	100MΩ Min.	12	MΩ	41,800MΩ Min.					Pass
		Dielectric withstanding voltage between (a) terminals	No insulation breakdown or erosion	12	-	No insulation breakdown or erosion					Pass
		Dielectric withstanding voltage between (b) terminal and earth	No insulation breakdown or erosion	12	-	No insulation breakdown or erosion					Pass
		Leak current	3mA Max.	12	mA	0.01mA Max.					Pass
		Resistance variation	20mΩ Max.	5	mΩ	3.133	3.35	2.95	0.152	3.589	Pass
	Temperature/humidity cycle Ⅱ	Terminal and Housing appearance	No detrimental deformation	12	-	No detrimental deformation					Pass
		Terminal retention force	30N Min.	28	N	53.55	58.2	49.5	2.38	46.41	Pass
		Voltage drop (a)1A	3mV/A Max.	35	mV/A	0.453	0.88	0.32	0.117	0.804	Pass
		Voltage drop (b)3A	3mV/A Max.	35	mV/A	0.792	0.98	0.42	0.111	1.125	Pass
		Dry circuit resistance (a)10mA	3mΩ Max.	35	mΩ	0.466	0.93	0.15	0.160	0.946	Pass
		Dry circuit resistance (b)1mA	3mΩ Max.	35	mΩ	0.457	0.94	0.25	0.158	0.931	Pass
		Insulation resistance between (a) terminals	100MΩ Min.	12	MΩ	100,000MΩ Min.					Pass
		Insulation resistance between (b) terminal and earth	100MΩ Min.	12	MΩ	100,000MΩ Min.					Pass
		Dielectric withstanding voltage between (a) terminals	No insulation breakdown or erosion	12	-	No insulation breakdown or erosion					Pass
		Dielectric withstanding voltage between (b) terminal and earth	No insulation breakdown or erosion	12	-	No insulation breakdown or erosion					Pass
		Leak current	3mA Max.	12	mA	0.01mA Max.					Pass
		Resistance variation	20mΩ Max.	5	mΩ	3.064	3.60	2.87	0.302	3.970	Pass
5	Humidity	Terminal and Housing appearance	No detrimental deformation	12	-	No detrimental deformation					Pass
		Terminal retention force	30N Min.	28	N	52.52	56.6	48.0	2.14	46.10	Pass
		Voltage drop (a)1A	3mV/A Max.	35	mV/A	0.859	1.07	0.67	0.108	1.183	Pass
		Voltage drop (b)3A	3mV/A Max.	35	mV/A	0.719	1.05	0.49	0.162	1.205	Pass
		Dry circuit resistance (a)10mA	3mΩ Max.	35	mΩ	0.864	1.11	0.65	0.116	1.212	Pass
		Dry circuit resistance (b)1mA	3mΩ Max.	35	mΩ	0.870	1.07	0.70	0.093	1.149	Pass
		Insulation resistance between (a) terminals	100MΩ Min.	12	MΩ	100,000MΩ Min.					Pass
		Insulation resistance between (b) terminal and earth	100MΩ Min.	12	MΩ	100,000MΩ Min.					Pass
		Dielectric withstanding voltage between (a) terminals	No insulation breakdown or erosion	12	-	No insulation breakdown or erosion					Pass
		Dielectric withstanding voltage between (b) terminal and earth	No insulation breakdown or erosion	12	-	No insulation breakdown or erosion					Pass
		Leak current	3mA Max.	12	mA	0.01mA Max.					Pass
6	Corrosion gas	Terminal and Housing appearance	No detrimental deformation	5	-	No detrimental deformation					Pass
		Terminal crimp strength	40N Min.	10	N	74.18	77.9	68.8	3.19	64.61	Pass
		Voltage drop (a)1A	3mV/A Max.	35	mV/A	0.502	1.09	0.15	0.186	1.060	Pass
		Voltage drop (b)3A	3mV/A Max.	35	mV/A	0.485	1.12	0.28	0.198	1.079	Pass
		Dry circuit resistance (a)10mA	3mΩ Max.	35	mΩ	0.521	0.91	0.32	0.157	0.992	Pass
		Dry circuit resistance (b)1mA	3mΩ Max.	35	mΩ	0.521	0.95	0.32	0.171	1.034	Pass

Table 3-2 Environmental Performances Result list (7P)

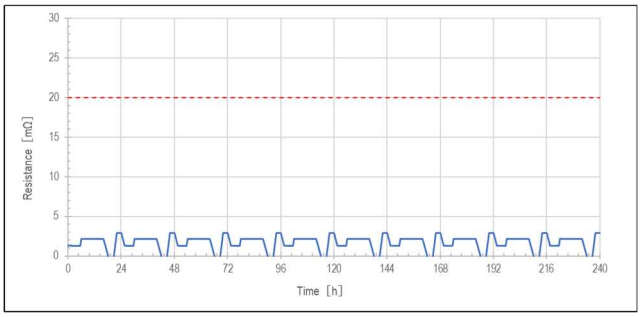
Item	Test name			Requirements	n	Unit	Avg.	Max.	Min.	s	Avg.±3s	Judge.
7	Mechanical vibration Ⅰ	Terminal and Housing appearance		No detrimental deformation	12	-	No detrimental deformation					Pass
		Voltage drop	(a)1A	3mV/A Max.	112	mV/A	0.500	0.87	0.11	0.233	1.199	Pass
			(b)3A	3mV/A Max.	112	mV/A	0.650	1.30	0.31	0.187	1.211	Pass
		Dry circuit resistance	(a)10mA	3mΩ Max.	112	mΩ	0.353	1.07	0.10	0.197	0.944	Pass
			(b)1mA	3mΩ Max.	112	mΩ	0.423	1.23	0.10	0.245	1.158	Pass
		Temperature rise	Single pole	⊿T=40℃ Max.	5	℃	18.68	19.6	17.5	0.78	21.02	Pass
			All poles	⊿T=40℃ Max.	5	℃	17.60	17.9	16.8	0.46	18.98	Pass
		Short break monitor		Not exceed 1μs and 7Ω	12	-	Not exceed 1μs and 7Ω					Pass
	Mechanical vibration Ⅱ	Terminal and Housing appearance		No detrimental deformation	12	-	No detrimental deformation					Pass
		Voltage drop	(a)1A	3mV/A Max.	56	mV/A	0.610	0.86	0.45	0.079	0.847	Pass
			(b)3A	3mV/A Max.	56	mV/A	0.498	0.73	0.40	0.071	0.711	Pass
		Dry circuit resistance	(a)10mA	3mΩ Max.	56	mΩ	0.783	0.94	0.59	0.066	0.981	Pass
			(b)1mA	3mΩ Max.	56	mΩ	0.804	0.99	0.65	0.067	1.005	Pass
		Temperature rise	Single pole	⊿T=40℃ Max.	5	℃	19.36	20.3	18.6	0.62	21.22	Pass
			All poles	⊿T=40℃ Max.	5	℃	16.47	17.4	15.2	0.87	19.08	Pass
		Short break monitor		Not exceed 1μs and 7Ω	12	-	Not exceed 1μs and 7Ω					Pass
8	Mechanical shock Ⅰ	Terminal and Housing appearance		No detrimental deformation	12	-	No detrimental deformation					Pass
		Voltage drop	(a)1A	3mV/A Max.	56	mV/A	0.522	0.81	0.31	0.140	0.942	Pass
			(b)3A	3mV/A Max.	56	mV/A	0.442	0.63	0.27	0.110	0.772	Pass
		Short break monitor		Not exceed 1μs and 7Ω	12	-	Not exceed 1μs and 7Ω					Pass
	Mechanical shock Ⅱ	Terminal and Housing appearance		No detrimental deformation	12	-	No detrimental deformation					Pass
		Voltage drop	(a)1A	3mV/A Max.	56	mV/A	1.312	1.68	1.21	0.101	1.615	Pass
			(b)3A	3mV/A Max.	56	mV/A	1.010	1.55	0.78	0.146	1.448	Pass
		Short break monitor		Not exceed 1μs and 7Ω	12	-	Not exceed 1μs and 7Ω					Pass
9	Over current	Terminal and Housing appearance		No detrimental deformation	5	-	No detrimental deformation					Pass
		Voltage drop	(a)1A	3mV/A Max.	5	mV/A	0.484	0.59	0.41	0.078	0.718	Pass
			(b)3A	3mV/A Max.	5	mV/A	0.386	0.46	0.32	0.056	0.554	Pass
		Dry circuit resistance	(a)10mA	3mΩ Max.	5	mΩ	0.411	0.48	0.36	0.049	0.558	Pass
			(b)1mA	3mΩ Max.	5	mΩ	0.432	0.52	0.39	0.060	0.612	Pass
10	Vibration with temperature change	Terminal and Housing appearance		No detrimental deformation	12	-	No detrimental deformation					Pass
		Terminal retention force		30N Min.	35	N	53.07	64.4	46.8	4.21	40.44	Pass
		Voltage drop	(a)1A	3mV/A Max.	84	mV/A	1.012	1.24	0.74	0.090	1.282	Pass
			(b)3A	3mV/A Max.	84	mV/A	0.590	1.57	0.23	0.184	1.142	Pass
		Dry circuit resistance	(a)10mA	3mΩ Max.	84	mΩ	0.436	1.74	0.12	0.249	1.183	Pass
			(b)1mA	3mΩ Max.	84	mΩ	0.263	1.31	0.11	0.155	0.728	Pass
		Insulation resistance	between (a) terminals	100MΩ Min.	5	MΩ	100,000MΩ Min.					Pass
			between (b) terminal and earth	100MΩ Min.	5	MΩ	100,000MΩ Min.					Pass
		Dielectric withstanding voltage	between (a) terminals	No insulation breakdown or erosion	5	-	No insulation breakdown or erosion					Pass
			between (b) terminal and earth	No insulation breakdown or erosion	5	-	No insulation breakdown or erosion					Pass
		Temperature rise	Single pole	⊿T=40℃ Max.	5	℃	15.91	16.5	15.3	0.5	17.41	Pass
			All poles	⊿T=40℃ Max.	5	℃	17.32	17.9	16.9	0.47	18.73	Pass
		Leak current		3mA Max.	5	mA	0.01mA Max.					Pass
		Short break monitor		Not exceed 1μs and 7Ω	5	-	Not exceed 1μs and 7Ω					Pass
11	Condensation	Terminal and Housing appearance		No detrimental deformation	12	-	No detrimental deformation					Pass
		Insulation resistance	between (a) terminals	100MΩ Min.	12	MΩ	100,000MΩ Min.					Pass
			between (b) terminal and earth	100MΩ Min.	12	MΩ	100,000MΩ Min.					Pass
		Leak current		3mA Max.	12	mA	0.01mA Max.					Pass
12	Rush current (a)	Terminal and Housing appearance		No detrimental deformation	5	-	No detrimental deformation					Pass
		Voltage drop	(a)1A	3mV/A Max.	35	mV/A	0.411	0.80	0.21	0.128	0.795	Pass
			(b)3A	3mV/A Max.	35	mV/A	0.392	1.09	0.11	0.192	0.968	Pass
		Dry circuit resistance	(a)10mA	3mΩ Max.	35	mΩ	0.293	0.70	0.19	0.130	0.683	Pass
			(b)1mA	3mΩ Max.	35	mΩ	0.332	0.69	0.20	0.132	0.728	Pass
		Temperature rise	Single pole	⊿T=40℃ Max.	5	℃	17.81	19.8	14.9	2.37	24.92	Pass
			All poles	⊿T=40℃ Max.	5	℃	18.44	20.1	16.7	1.36	22.52	Pass
	Rush current (b)	Terminal and Housing appearance		No detrimental deformation	5	-	No detrimental deformation					Pass
		Voltage drop	(a)1A	3mV/A Max.	35	mV/A	0.348	0.84	0.23	0.132	0.744	Pass
			(b)3A	3mV/A Max.	35	mV/A	0.452	0.78	0.15	0.140	0.872	Pass
		Dry circuit resistance	(a)10mA	3mΩ Max.	35	mΩ	0.285	0.64	0.15	0.124	0.657	Pass
			(b)1mA	3mΩ Max.	35	mΩ	0.234	0.81	0.11	0.153	0.693	Pass
		Temperature rise	Single pole	⊿T=40℃ Max.	5	℃	18.44	21.1	16.5	1.88	24.08	Pass
			All poles	⊿T=40℃ Max.	5	℃	18.50	19.3	17.5	0.77	20.81	Pass
13	High temperature operability	Insert terminal into housing		No breaking, damage etc.	12	-	No breaking, damage etc.					Pass
14	Resistance to stress corrosion	Terminal and Housing appearance		No detrimental deformation	5	-	No detrimental deformation					Pass
		Terminal crimp strength		40N Min.	5	N	69.76	75.3	63.9	4.75	55.51	Pass
15	Current cycle	Terminal and Housing appearance		No detrimental deformation	12	-	No detrimental deformation					Pass
		Terminal retention force		30N Min.	28	N	52.28	58.6	49.1	2.74	44.06	Pass
		Terminal crimp strength		40N Min.	10	N	73.64	77.1	70.4	2.48	66.20	Pass
		Voltage drop	(a)1A	3mV/A Max.	35	mV/A	0.849	1.06	0.73	0.065	1.044	Pass
			(b)3A	3mV/A Max.	35	mV/A	0.434	0.65	0.33	0.068	0.638	Pass
		Dry circuit resistance	(a)10mA	3mΩ Max.	35	mΩ	0.553	0.86	0.23	0.138	0.967	Pass
			(b)1mA	3mΩ Max.	35	mΩ	0.585	0.91	0.27	0.136	0.993	Pass
		Temperature rise	Single pole	⊿T=40℃ Max.	5	℃	18.12	18.9	17.3	0.76	20.40	Pass
			All poles	⊿T=40℃ Max.	5	℃	15.99	16.8	14.9	0.76	18.27	Pass
16	Sulfur dioxide gas	Terminal and Housing appearance		No detrimental deformation	5	-	No detrimental deformation					Pass
		Dry circuit resistance	(a)10mA	3mΩ Max.	35	mΩ	0.593	0.91	0.48	0.094	0.875	Pass
			(b)1mA	3mΩ Max.	35	mΩ	0.669	0.91	0.54	0.098	0.963	Pass



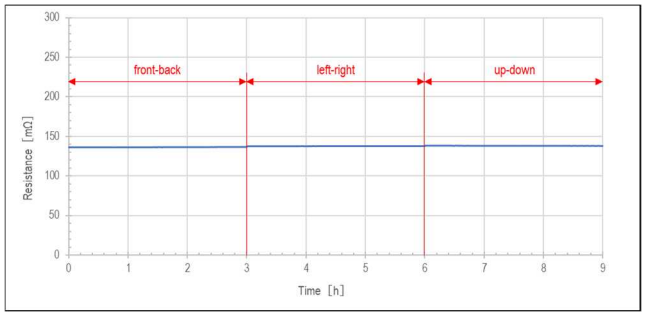
Graph 1 Thermal shock resistance variation



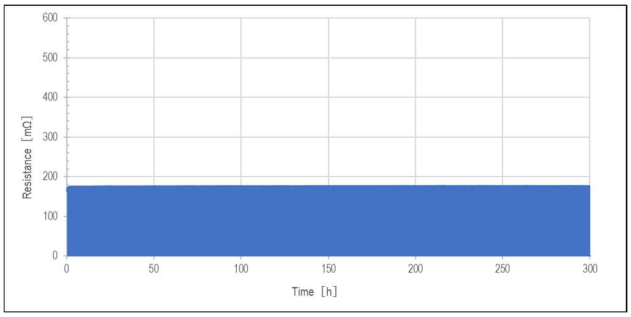
Graph 2 Temperature/humidity cycle Ⅰ resistance variation



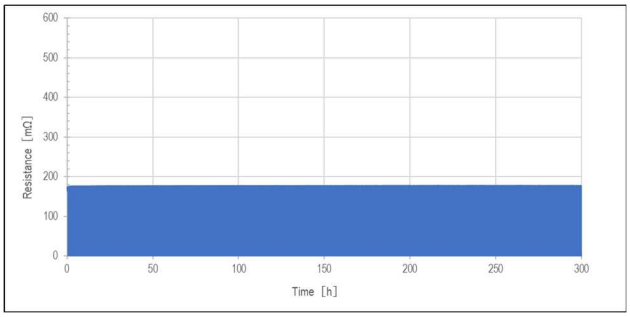
Graph 3 Temperature/humidity cycle Ⅱ resistance variation



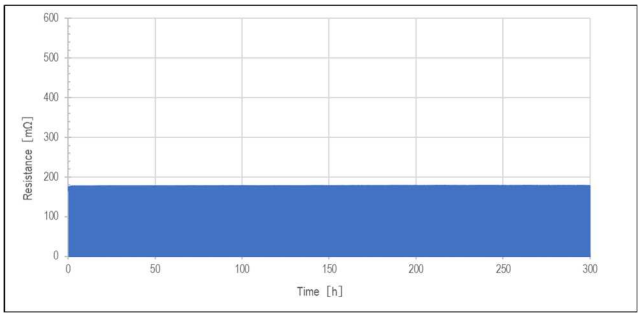
Graph 4 Mechanical vibration Ⅱ resistance variation



Graph 5 Vibration with temperature change (front-back) resistance variation



Graph 6 Vibration with temperature change (left-right) resistance variation



Graph 7 Vibration with temperature change (up-down) resistance variation