



TEST REPORT

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Date: 2021-12-10

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CUSTOMER NAME: JINZHOU KAIMEI POWER CO., LTD

ADDRESS: NO.139.7 SECTION CHONGQING ROAD,LINGHE DISTRICT, JINZHOU CITY,
LIAONING PROVINCE, CHINA./ NO.141 JINYI STREET ,LINGHE
DISTRICT,JINZHOU CITY, LIAONING PROVINCE, CHINA

The following sample's information(s) was/ were submitted and identified on behalf of the client as:

Sample Name : Coin series super capacitor
Test Standards : Refer to AEC Q200REV D-2010 table3 and client's requirement
SGS Ref. No. : TP21-005332
Date of Receipt : 2021-08-27
Testing Start Date : 2021-08-27
Testing End Date : 2021-11-05
Test result(s) : For further details, please refer to the following page(s)

Signed for SGS-CSTC Standards Technical
Services Co., Ltd. Suzhou Branch

Niko Ren Authorized signatory



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Report Declaration:

The test samples were provided and confirmed by the customer in this report, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products manufactured are in conformity with the product sample in this report.

In the territory of the People's Republic of China, the test method is not in CMA accredited scope, the test report shall only be used for client scientific research, teaching, internal quality control, product research and development, etc...and just for client internal reference.

Manufacture Declaration or Comment:

None

Summary of Result(s):

Accord with AEC Q200REV D-2010 table3 and client's requirement, See next page for details

No.	Test Item	Test Method	Quantities	Result	Conclusion
1.	External Visual	MIL-STD-883 Method 2009 and client's requirement	386	See result	Pass
2.	High Temperature Exposure (Storage)	MIL-STD-202 Method 108 and client's requirement	77	See result	Pass
3.	Temperature Cycling	JESD22 Method JA-104 and client's requirement	77	See result	Pass
4.	Operational Life	MIL-STD-202 Method 108 and client's requirement	77	See result	Pass
5.	Physical Dimension	JESD22 Method JB-100 and client's requirement	30	See result	Pass
6.	Terminal Strength (Leaded)	MIL-STD-202 Method 211 and client's requirement	30	See result	Pass
7.	Resistance to Solvents	MIL-STD-202 Method 215 and client's requirement	5	See result	Pass
8.	Vibration	MIL-STD-202 Method 204 and client's requirement	30	See result	Pass
9.	Resistance to Soldering Heat	MIL-STD-202 Method 210 and client's requirement	30	See result	Pass
10.	ESD	AEC-Q200-002 or ISO/DIS 10605 and client's requirement	15	See result	Pass
11.	Solderability	J-STD-002 and client's requirement	15	See result	Pass

Note: Pass: Meet the requirements
 Fail: Does not meet the requirements
 N/A: Not apply to the judgment



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This Report cancels and supersedes the Report No.: SUZRL2021080071_EN, dated: 2021-11-17 issued by SGS Suzhou Branch.

Note: Report modification

Modification	Before	After
Sample information	/	Add test methods and standards



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1. Test Item: External Visual

Sample Description: Capacitance

Quantities of Specimens: 463 PCS for test

Test Standards: MIL-STD-883 Method 2009 and client's requirement

Laboratory Environmental Conditions: 25±10°C,50±25%RH

Evaluation Method:

Inspect device construction, marking and workmanship.

Visual inspection: no damage and no liquid leakage

Test Result(s):

Accord with AEC Q200REV D-2010 table3 and client's requirement, See next page for details

Sample No.	Visual Inspection	Conclusion
S21080071	The appearance is free of damage and liquid leakage	Pass

Test Photo(s):

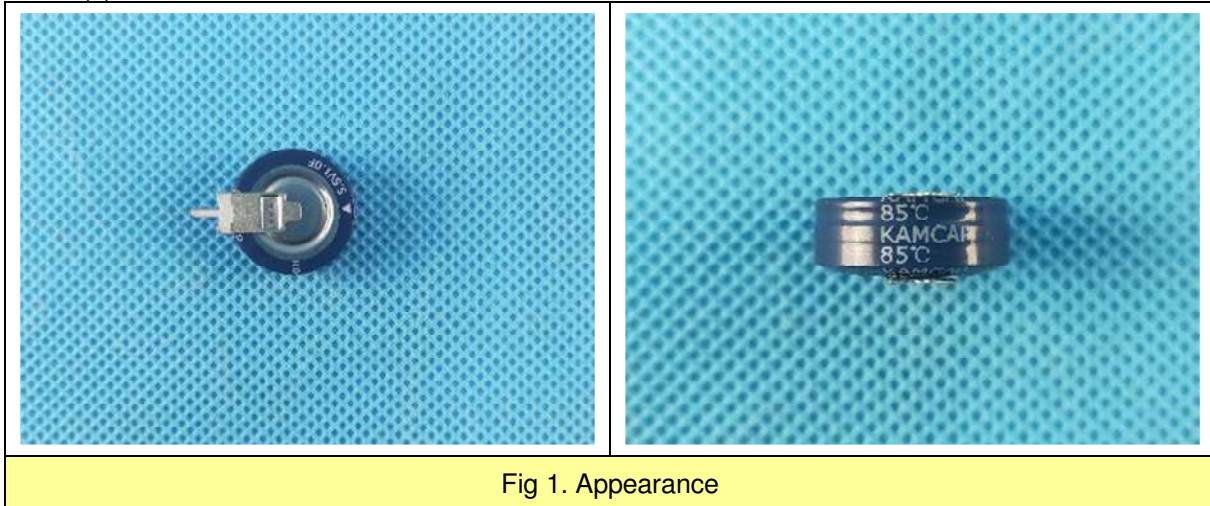


Fig 1. Appearance



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Fig 2. Original sample



Fig 3. Original sample



Fig 4. Original sample



Fig 5. Original sample



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Fig 6. Original sample



Fig 7. Original sample



Fig 8. Original sample



Fig 9. Original sample



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Fig 10. Original sample



Fig 11. Original sample



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2. Test Item: High Temperature Exposure (Storage)

Sample Description: Capacitance

Quantities of Specimens: 77 PCS

Test Standards: MIL-STD-202 Method 108 and client's requirement

Laboratory Environmental Conditions: 25±10°C,50±25%RH

Test condition:

Test Temperature: 85°C

Test duration: 96 hours

Evaluation Method:

Visual inspection: no damage

Electrical: Absolute value of $\Delta C/C \leq 10\%$

ESR $\leq 2^*$ initial ESR@25°C

Test Result(s):

Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
1	normal	0.990	0.963	-2.73%	7.5	8.8	1.17	Pass
2	normal	0.990	0.965	-2.53%	9.3	10.2	1.10	Pass
3	normal	0.990	0.964	-2.63%	7.7	9.4	1.22	Pass
4	normal	0.992	0.964	-2.82%	7.7	8.7	1.13	Pass
5	normal	0.985	0.955	-3.05%	8.8	10.5	1.19	Pass
6	normal	1.000	0.972	-2.80%	8.1	10.0	1.23	Pass
7	normal	0.989	0.967	-2.22%	8.4	9.9	1.18	Pass
8	normal	0.987	0.965	-2.23%	8.5	10.2	1.20	Pass
9	normal	0.986	0.961	-2.54%	8.5	9.4	1.11	Pass
10	normal	0.983	0.962	-2.14%	9.2	11.1	1.21	Pass
11	normal	0.989	0.976	-1.31%	8.9	10.5	1.18	Pass
12	normal	0.976	0.959	-1.74%	8.7	10.1	1.16	Pass
13	normal	0.992	0.976	-1.61%	8.8	9.8	1.11	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
14	normal	0.982	0.955	-2.75%	8.2	9.4	1.15	Pass
15	normal	0.993	0.961	-3.22%	8.0	9.1	1.14	Pass
16	normal	0.988	0.965	-2.33%	8.5	10.2	1.20	Pass
17	normal	0.993	0.964	-2.92%	8.3	9.7	1.17	Pass
18	normal	0.964	0.943	-2.18%	8.7	10.2	1.17	Pass
19	normal	0.990	0.966	-2.42%	8.7	10.1	1.16	Pass
20	normal	0.967	0.948	-1.96%	8.6	10.3	1.20	Pass
21	normal	0.993	0.964	-2.92%	8.3	9.6	1.16	Pass
22	normal	0.996	0.972	-2.41%	7.4	8.4	1.14	Pass
23	normal	0.985	0.955	-3.05%	8.8	10.2	1.16	Pass
24	normal	0.993	0.974	-1.91%	8.5	10.3	1.21	Pass
25	normal	0.996	0.975	-2.11%	8.0	9.5	1.19	Pass
26	normal	0.994	0.966	-2.82%	7.9	8.8	1.11	Pass
27	normal	0.995	0.967	-2.81%	8.6	9.7	1.13	Pass
28	normal	0.991	0.962	-2.93%	8.0	9.8	1.23	Pass
29	normal	0.989	0.973	-1.62%	8.7	10.2	1.17	Pass
30	normal	0.984	0.964	-2.03%	8.8	9.7	1.10	Pass
31	normal	0.995	0.973	-2.21%	9.1	11.2	1.23	Pass
32	normal	0.992	0.962	-3.02%	9.4	10.5	1.12	Pass
33	normal	0.993	0.973	-2.01%	8.9	10.7	1.20	Pass
34	normal	0.981	0.952	-2.96%	9.2	10.8	1.17	Pass
35	normal	0.969	0.946	-2.37%	9.0	10.5	1.17	Pass
36	normal	0.991	0.963	-2.83%	8.0	9.3	1.16	Pass
37	normal	0.988	0.964	-2.43%	8.7	9.7	1.11	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
38	normal	0.990	0.968	-2.22%	8.1	9.3	1.15	Pass
39	normal	0.986	0.955	-3.14%	8.0	9.5	1.19	Pass
40	normal	0.958	0.938	-2.09%	9.1	10.6	1.16	Pass
41	normal	0.982	0.952	-3.05%	8.3	9.8	1.18	Pass
42	normal	0.984	0.961	-2.34%	9.1	11.3	1.24	Pass
43	normal	0.992	0.972	-2.02%	8.1	9.1	1.12	Pass
44	normal	0.992	0.964	-2.82%	8.4	9.5	1.13	Pass
45	normal	1.001	0.973	-2.80%	8.1	9.7	1.20	Pass
46	normal	0.995	0.972	-2.31%	7.9	9.5	1.20	Pass
47	normal	0.994	0.964	-3.02%	8.2	10.2	1.24	Pass
48	normal	1.000	0.968	-3.20%	9.2	10.4	1.13	Pass
49	normal	0.992	0.975	-1.71%	8.7	10.5	1.21	Pass
50	normal	0.992	0.967	-2.52%	8.4	9.5	1.13	Pass
51	normal	0.994	0.962	-3.22%	9.0	10.6	1.18	Pass
52	normal	0.993	0.966	-2.72%	8.6	9.7	1.13	Pass
53	normal	0.990	0.968	-2.22%	8.7	11.2	1.29	Pass
54	normal	0.996	0.972	-2.41%	8.0	9.5	1.19	Pass
55	normal	0.971	0.947	-2.47%	8.3	10.3	1.24	Pass
56	normal	0.998	0.985	-1.30%	8.1	9.7	1.20	Pass
57	normal	0.997	0.974	-2.31%	8.0	9.4	1.18	Pass
58	normal	1.004	0.978	-2.59%	8.4	10.1	1.20	Pass
59	normal	0.990	0.972	-1.82%	8.5	9.8	1.15	Pass
60	normal	0.994	0.964	-3.02%	8.5	9.7	1.14	Pass
61	normal	0.997	0.971	-2.61%	8.4	9.8	1.17	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
62	normal	0.969	0.943	-2.68%	9.0	10.1	1.12	Pass
63	normal	0.995	0.978	-1.71%	8.3	9.9	1.19	Pass
64	normal	0.995	0.976	-1.91%	9.6	11.2	1.17	Pass
65	normal	0.987	0.974	-1.32%	8.2	9.7	1.18	Pass
66	normal	0.997	0.966	-3.11%	8.7	9.6	1.10	Pass
67	normal	0.993	0.961	-3.22%	8.2	9.1	1.11	Pass
68	normal	1.000	0.973	-2.70%	7.9	9.5	1.20	Pass
69	normal	0.991	0.968	-2.32%	8.8	10.4	1.18	Pass
70	normal	0.996	0.975	-2.11%	8.2	9.7	1.18	Pass
71	normal	0.994	0.974	-2.01%	7.4	8.6	1.16	Pass
72	normal	0.993	0.963	-3.02%	8.7	10.2	1.17	Pass
73	normal	0.996	0.966	-3.01%	8.2	9.4	1.15	Pass
74	normal	0.997	0.974	-2.31%	9.2	10.5	1.14	Pass
75	normal	0.987	0.962	-2.53%	8.0	9.7	1.21	Pass
76	normal	0.999	0.973	-2.60%	7.9	9.4	1.19	Pass
77	normal	0.989	0.971	-1.82%	7.3	8.6	1.18	Pass

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Test Photo(s):



Fig 12. During Test

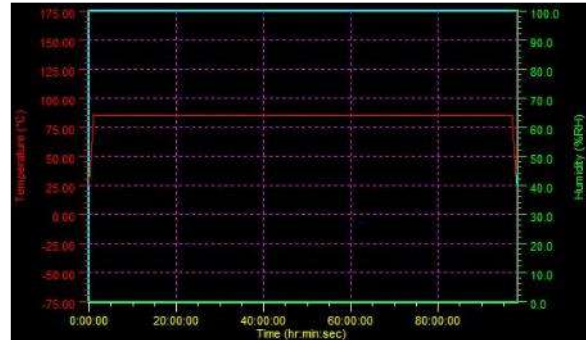


Fig 13. Test Curve



Fig 14. After test



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3. Test Item: Temperature Cycling

Sample Description: Capacitance

Quantities of Specimens: 77 PCS

Test Standards: JESD22 Method JA-104 and client's requirement

Laboratory Environmental Conditions: 25±10°C,50±25%RH

Test condition:

- Low temperature: -40 °C
- High temperature: 85 °C
- Dwell time: 30min
- Transfer time: < 10 s
- Number of test cycles: 5 cycles

Evaluation Method:

- Visual inspection: no damage
- Electrical: Absolute value of $\Delta C/C \leq 10\%$
- ESR $\leq 2^*$ initial ESR@25°C

Test Result(s):

Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (mΩ) (initial)	ESR (mΩ) (after)	ESR (after)/ ESR (initial)	Conclusion
78	normal	0.984	0.970	-1.42%	8.0	8.8	1.10	Pass
79	normal	0.987	0.966	-2.13%	7.9	8.5	1.08	Pass
80	normal	0.976	0.956	-2.05%	8.7	9.3	1.07	Pass
81	normal	0.989	0.972	-1.72%	8.2	9.1	1.11	Pass
82	normal	0.992	0.973	-1.92%	8.7	9.5	1.09	Pass
83	normal	0.987	0.971	-1.62%	8.8	9.5	1.08	Pass
84	normal	0.994	0.974	-2.01%	8.9	10.0	1.12	Pass
85	normal	1.012	0.993	-1.88%	7.7	8.7	1.13	Pass
86	normal	0.998	0.984	-1.40%	8.1	8.8	1.09	Pass
87	normal	0.999	0.973	-2.60%	8.4	9.0	1.07	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
88	normal	0.995	0.971	-2.41%	8.2	8.7	1.06	Pass
89	normal	0.997	0.976	-2.11%	7.7	8.3	1.08	Pass
90	normal	1.004	0.982	-2.19%	8.1	8.6	1.06	Pass
91	normal	0.999	0.976	-2.30%	8.4	9.2	1.10	Pass
92	normal	0.995	0.973	-2.21%	8.4	9.4	1.12	Pass
93	normal	0.989	0.971	-1.82%	7.8	8.3	1.07	Pass
94	normal	0.970	0.955	-1.55%	8.3	9.2	1.11	Pass
95	normal	1.001	0.976	-2.50%	7.1	7.8	1.10	Pass
96	normal	0.975	0.961	-1.44%	8.9	9.7	1.09	Pass
97	normal	0.998	0.973	-2.51%	9.0	9.6	1.07	Pass
98	normal	0.989	0.965	-2.43%	8.7	9.4	1.08	Pass
99	normal	1.002	0.976	-2.59%	9.7	10.3	1.06	Pass
100	normal	0.999	0.981	-1.80%	8.1	8.7	1.07	Pass
101	normal	1.001	0.982	-1.90%	8.2	8.9	1.09	Pass
102	normal	0.996	0.977	-1.91%	7.5	8.3	1.10	Pass
103	normal	0.988	0.972	-1.62%	9.3	10.0	1.07	Pass
104	normal	0.991	0.971	-2.02%	8.1	8.9	1.10	Pass
105	normal	0.993	0.967	-2.62%	8.2	8.9	1.09	Pass
106	normal	0.997	0.982	-1.50%	8.9	9.9	1.11	Pass
107	normal	1.004	0.991	-1.29%	7.7	8.7	1.13	Pass
108	normal	0.994	0.975	-1.91%	7.8	8.5	1.09	Pass
109	normal	0.996	0.976	-2.01%	8.6	9.2	1.07	Pass
110	normal	0.998	0.981	-1.70%	8.4	9.2	1.09	Pass
111	normal	1.006	0.987	-1.89%	7.7	8.3	1.08	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
112	normal	1.005	0.982	-2.29%	7.8	8.3	1.07	Pass
113	normal	0.998	0.971	-2.71%	7.6	8.6	1.13	Pass
114	normal	0.999	0.975	-2.40%	8.1	8.8	1.09	Pass
115	normal	0.999	0.973	-2.60%	9.0	10.0	1.11	Pass
116	normal	1.001	0.981	-2.00%	7.9	8.8	1.12	Pass
117	normal	0.992	0.974	-1.81%	8.9	9.7	1.09	Pass
118	normal	0.997	0.976	-2.11%	8.2	8.9	1.08	Pass
119	normal	0.987	0.972	-1.52%	8.6	9.6	1.12	Pass
120	normal	0.996	0.975	-2.11%	9.2	10.4	1.13	Pass
121	normal	0.991	0.973	-1.82%	8.8	9.5	1.08	Pass
122	normal	0.993	0.971	-2.22%	8.1	8.9	1.10	Pass
123	normal	0.995	0.976	-1.91%	9.4	10.1	1.07	Pass
124	normal	0.987	0.966	-2.13%	7.6	8.4	1.10	Pass
125	normal	0.989	0.975	-1.42%	7.4	8.2	1.11	Pass
126	normal	0.989	0.973	-1.62%	7.6	8.5	1.12	Pass
127	normal	0.976	0.961	-1.54%	8.9	9.7	1.09	Pass
128	normal	0.985	0.963	-2.23%	9.0	9.8	1.09	Pass
129	normal	0.990	0.967	-2.32%	8.0	8.6	1.07	Pass
130	normal	0.994	0.975	-1.91%	7.9	8.4	1.06	Pass
131	normal	1.000	0.973	-2.70%	8.3	9.1	1.10	Pass
132	normal	0.993	0.976	-1.71%	8.6	9.4	1.09	Pass
133	normal	1.004	0.984	-1.99%	7.6	8.4	1.11	Pass
134	normal	0.992	0.974	-1.81%	8.2	9.2	1.12	Pass
135	normal	0.997	0.976	-2.11%	8.8	9.6	1.09	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	ΔC/C	ESR (mΩ) (initial)	ESR (mΩ) (after)	ESR (after)/ESR (initial)	Conclusion
136	normal	0.958	0.934	-2.51%	9.0	9.7	1.08	Pass
137	normal	0.996	0.973	-2.31%	9.2	9.8	1.07	Pass
138	normal	0.999	0.977	-2.20%	8.5	9.4	1.10	Pass
139	normal	0.973	0.951	-2.26%	8.9	9.9	1.11	Pass
140	normal	0.998	0.975	-2.30%	8.2	8.9	1.08	Pass
141	normal	0.988	0.961	-2.73%	7.6	8.3	1.09	Pass
142	normal	1.005	0.987	-1.79%	8.5	9.6	1.13	Pass
143	normal	1.001	0.982	-1.90%	8.1	8.7	1.07	Pass
144	normal	0.990	0.974	-1.62%	8.1	9.2	1.14	Pass
145	normal	0.993	0.976	-1.71%	8.3	9.1	1.10	Pass
146	normal	1.000	0.981	-1.90%	7.9	8.8	1.12	Pass
147	normal	0.997	0.975	-2.21%	7.7	8.5	1.10	Pass
148	normal	0.997	0.981	-1.60%	7.2	7.7	1.07	Pass
149	normal	0.993	0.976	-1.71%	7.7	8.3	1.08	Pass
150	normal	0.995	0.974	-2.11%	8.2	8.7	1.06	Pass
151	normal	0.997	0.973	-2.41%	7.5	8.1	1.08	Pass
152	normal	0.995	0.975	-2.01%	8.8	9.9	1.12	Pass
153	normal	0.989	0.966	-2.33%	8.9	9.8	1.10	Pass
154	normal	0.994	0.975	-1.91%	8.4	9.4	1.12	Pass

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Test Photo(s):

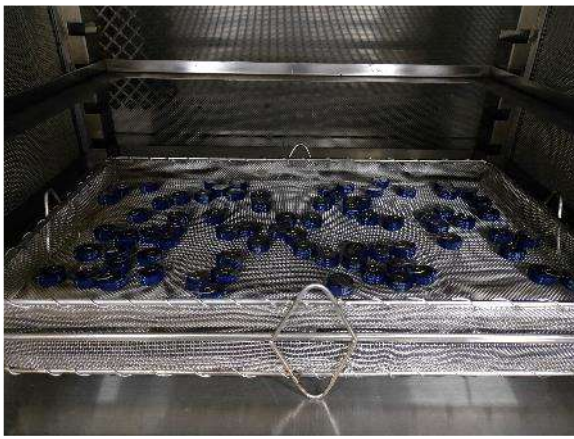


Fig 15. During Test

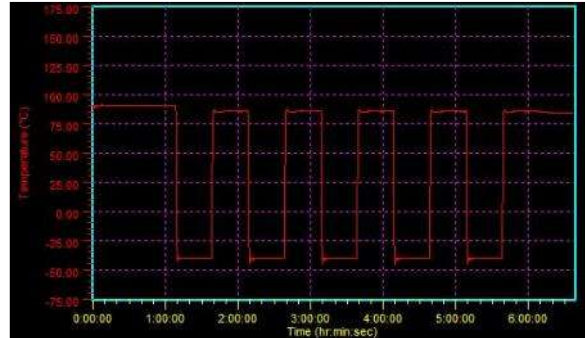


Fig 16. Test Curve



Fig 17. After test



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4. Test Item: Operational Life

Sample Description: Capacitance

Quantities of Specimens: 77 PCS

Test Standards: MIL-STD-202 Method 108 and client's requirement

Laboratory Environmental Conditions: 25±10°C,50±25%RH

Test condition:

Test Temperature: 85°C

Test duration: 1000 hours

Bias voltage: 5V

Evaluation Method:

Visual inspection: no damage

Electrical: Absolute value of $\Delta C/C \leq 30\%$

ESR ≤ 4 * initial ESR@25°C

Test Result(s):

Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
232	normal	0.987	0.843	-14.59%	8.2	10.5	1.28	Pass
233	normal	0.977	0.834	-14.64%	8.4	11.1	1.32	Pass
234	normal	0.991	0.852	-14.03%	8.6	10.9	1.27	Pass
235	normal	0.995	0.834	-16.18%	7.9	10.6	1.34	Pass
236	normal	0.988	0.842	-14.78%	7.9	10.8	1.37	Pass
237	normal	0.996	0.834	-16.27%	8.4	10.8	1.29	Pass
238	normal	0.992	0.829	-16.43%	8.7	11.1	1.28	Pass
239	normal	0.992	0.846	-14.72%	9.1	12.0	1.32	Pass
240	normal	0.998	0.843	-15.53%	8.6	12.1	1.41	Pass
241	normal	0.989	0.824	-16.68%	8.2	10.9	1.33	Pass
242	normal	0.988	0.846	-14.37%	8.6	12.3	1.43	Pass
243	normal	0.991	0.834	-15.84%	8.1	10.4	1.28	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
244	normal	0.996	0.844	-15.26%	8.1	10.3	1.27	Pass
245	normal	0.986	0.829	-15.92%	8.9	11.9	1.34	Pass
246	normal	0.994	0.842	-15.29%	7.5	9.6	1.28	Pass
247	normal	0.998	0.852	-14.63%	8.0	10.7	1.34	Pass
248	normal	0.999	0.849	-15.02%	9.6	13.6	1.42	Pass
249	normal	0.981	0.843	-14.07%	7.7	10.6	1.38	Pass
250	normal	0.991	0.847	-14.53%	8.1	10.2	1.26	Pass
251	normal	0.985	0.846	-14.11%	8.6	11.3	1.31	Pass
252	normal	0.991	0.842	-15.04%	7.7	9.4	1.22	Pass
253	normal	0.993	0.834	-16.01%	9.4	13.3	1.41	Pass
254	normal	0.981	0.819	-16.51%	7.8	10.3	1.32	Pass
255	normal	0.988	0.834	-15.59%	8.5	11.6	1.36	Pass
256	normal	1.004	0.839	-16.43%	7.7	9.6	1.25	Pass
257	normal	0.992	0.837	-15.63%	8.5	12.3	1.45	Pass
258	normal	0.990	0.842	-14.95%	8.5	12.1	1.42	Pass
259	normal	0.982	0.841	-14.36%	7.9	10.4	1.32	Pass
260	normal	0.989	0.846	-14.46%	8.9	11.7	1.31	Pass
261	normal	0.990	0.834	-15.76%	7.9	10.1	1.28	Pass
262	normal	0.991	0.834	-15.84%	8.3	11.1	1.34	Pass
263	normal	0.990	0.829	-16.26%	8.3	10.6	1.28	Pass
264	normal	0.992	0.852	-14.11%	7.8	10.6	1.36	Pass
265	normal	0.986	0.839	-14.91%	8.2	11.2	1.37	Pass
266	normal	0.993	0.829	-16.52%	8.3	11.7	1.41	Pass
267	normal	0.988	0.846	-14.37%	9.2	12.4	1.35	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
268	normal	0.994	0.842	-15.29%	7.1	9.4	1.32	Pass
269	normal	0.999	0.852	-14.71%	8.2	11.8	1.44	Pass
270	normal	0.997	0.829	-16.85%	8.4	12.1	1.44	Pass
271	normal	0.977	0.834	-14.64%	8.3	10.9	1.31	Pass
272	normal	0.997	0.842	-15.55%	8.3	11.3	1.36	Pass
273	normal	0.987	0.843	-14.59%	8.7	11.4	1.31	Pass
274	normal	0.995	0.837	-15.88%	8.0	10.3	1.29	Pass
275	normal	0.993	0.829	-16.52%	8.1	10.8	1.33	Pass
276	normal	0.996	0.846	-15.06%	8.3	11.2	1.35	Pass
277	normal	0.986	0.846	-14.20%	8.9	12.1	1.36	Pass
278	normal	0.987	0.834	-15.50%	8.8	11.3	1.28	Pass
279	normal	0.993	0.837	-15.71%	8.4	11.9	1.42	Pass
280	normal	0.986	0.839	-14.91%	8.0	11.0	1.37	Pass
281	normal	1.002	0.833	-16.87%	8.4	10.6	1.26	Pass
282	normal	0.998	0.837	-16.13%	7.6	10.1	1.33	Pass
283	normal	0.992	0.844	-14.92%	8.0	11.1	1.39	Pass
284	normal	0.986	0.846	-14.20%	9.0	12.0	1.33	Pass
285	normal	0.990	0.842	-14.95%	9.3	13.2	1.42	Pass
286	normal	0.987	0.834	-15.50%	8.0	10.3	1.29	Pass
287	normal	0.992	0.829	-16.43%	8.8	11.1	1.26	Pass
288	normal	0.983	0.843	-14.24%	7.3	10.3	1.41	Pass
289	normal	0.981	0.824	-16.00%	8.3	11.7	1.41	Pass
290	normal	0.998	0.834	-16.43%	8.0	10.9	1.36	Pass
291	normal	1.000	0.837	-16.30%	7.5	9.6	1.28	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
292	normal	0.994	0.839	-15.59%	8.3	11.3	1.36	Pass
293	normal	0.991	0.842	-15.04%	8.3	10.9	1.31	Pass
294	normal	0.988	0.843	-14.68%	8.8	11.1	1.26	Pass
295	normal	0.987	0.829	-16.01%	8.2	11.1	1.35	Pass
296	normal	0.988	0.842	-14.78%	9.3	12.3	1.32	Pass
297	normal	0.996	0.839	-15.76%	8.1	11.6	1.43	Pass
298	normal	0.990	0.843	-14.85%	8.9	12.2	1.37	Pass
299	normal	0.991	0.834	-15.84%	7.8	10.4	1.33	Pass
300	normal	0.990	0.839	-15.25%	8.6	12.2	1.42	Pass
301	normal	0.992	0.837	-15.63%	8.8	11.7	1.33	Pass
302	normal	0.989	0.843	-14.76%	7.4	9.4	1.27	Pass
303	normal	0.999	0.834	-16.52%	8.7	11.8	1.36	Pass
304	normal	1.004	0.839	-16.43%	8.6	11.5	1.34	Pass
305	normal	0.990	0.837	-15.45%	8.0	10.2	1.28	Pass
306	normal	0.984	0.842	-14.43%	9.0	12.0	1.33	Pass
307	normal	1.001	0.843	-15.78%	8.9	12.6	1.42	Pass
308	normal	0.991	0.826	-16.65%	8.1	10.9	1.35	Pass

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Test Photo(s):



Fig 18. During Test



Fig 19. Test curve



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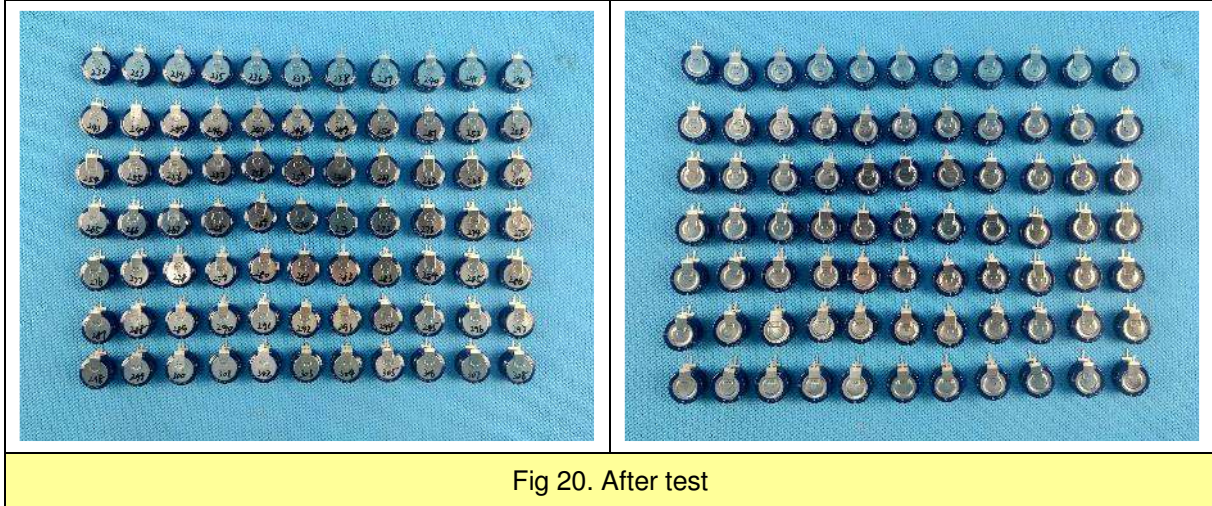


Fig 20. After test



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5. Test Item: Physical Dimension

Sample Description: Capacitance

Quantities of Specimens: 30 PCS

Test Standards: JESD22 Method JB-100 and client's requirement

Laboratory Environmental Conditions: 25±10°C,50±25%RH

Evaluation Method:

Verify physical dimensions to the applicable device detail specification.

Test Result(s):

No.	D (18.7±0.5mm)	L (7.4±0.5mm)	H (20.2±0.5mm)	P (7.6±0.5mm)	w1 (6±0.5mm)	h1 (4.7±0.5mm)	h2 (3.7±0.5mm)	w + (1±0.1mm)	w - (1±0.1mm)	T (0.2±0.05mm)	L1 (7.8±0.5mm)	Conclusion
359#	18.92	7.11	20.46	7.70	6.00	4.87	3.73	1.04	1.03	0.21	7.83	Pass
360#	18.94	7.22	20.31	7.71	6.01	4.85	3.71	1.01	1.02	0.21	7.82	Pass
361#	18.95	7.24	20.29	7.71	6.00	4.79	3.73	1.01	1.03	0.22	7.83	Pass
362#	18.91	7.20	20.34	7.72	6.00	4.81	3.73	1.04	1.00	0.21	7.83	Pass
363#	18.90	7.20	20.37	7.71	6.00	4.84	3.70	1.03	1.01	0.22	7.84	Pass
364#	18.90	7.20	20.33	7.70	6.00	4.82	3.71	1.03	1.00	0.22	7.81	Pass
365#	18.90	7.20	20.27	7.70	6.00	4.78	3.70	1.03	1.00	0.22	7.82	Pass
366#	18.90	7.24	20.30	7.69	6.00	4.78	3.70	1.02	1.00	0.21	7.83	Pass
367#	18.81	7.40	20.31	7.71	6.01	4.86	3.72	1.01	1.01	0.20	7.81	Pass
368#	18.80	7.41	20.29	7.70	6.00	4.86	3.72	1.02	1.00	0.21	7.80	Pass
369#	18.80	7.29	20.29	7.72	6.00	4.87	3.70	1.01	1.01	0.21	7.81	Pass
370#	18.75	7.33	20.28	7.77	6.00	4.85	3.71	1.00	1.02	0.22	7.80	Pass
371#	18.77	7.36	20.31	7.73	6.00	4.84	3.70	1.01	1.01	0.21	7.81	Pass
372#	18.76	7.35	20.30	7.74	6.00	4.80	3.71	1.01	1.00	0.21	7.80	Pass
373#	18.75	7.34	20.27	7.70	6.00	4.84	3.70	1.02	1.00	0.21	7.81	Pass
374#	18.77	7.34	20.26	7.70	6.00	4.84	3.72	1.01	1.00	0.21	7.80	Pass
375#	18.80	7.34	20.25	7.71	6.00	4.80	3.71	1.00	1.01	0.22	7.81	Pass



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No.	D (18.7±0.5mm)	L (7.4±0.5mm)	H (20.2±0.5mm)	P (7.6±0.5mm)	w1 (6±0.5mm)	h1 (4.7±0.5mm)	h2 (3.7±0.5mm)	w + (1±0.1mm)	w - (1±0.1mm)	T (0.2±0.05mm)	L1 (7.8±0.5mm)	Conclusion
376#	18.81	7.36	20.26	7.71	6.00	4.82	3.72	1.00	1.00	0.21	7.80	Pass
377#	18.73	7.37	20.27	7.70	6.00	4.82	3.71	1.01	1.01	0.22	7.81	Pass
378#	18.76	7.32	20.26	7.72	6.00	4.82	3.71	1.02	1.00	0.21	7.80	Pass
379#	18.80	7.31	20.25	7.69	6.00	4.82	3.71	1.00	1.02	0.21	7.81	Pass
380#	18.74	7.32	20.26	7.69	6.00	4.81	3.70	1.03	1.00	0.22	7.81	Pass
381#	18.77	7.34	20.27	7.68	6.01	4.83	3.70	1.04	1.00	0.22	7.80	Pass
382#	18.75	7.36	20.25	7.67	6.00	4.84	3.71	1.00	1.00	0.22	7.82	Pass
383#	18.79	7.37	20.27	7.69	6.00	4.84	3.71	1.01	1.01	0.21	7.80	Pass
384#	18.78	7.39	20.26	7.70	6.00	4.82	3.72	1.01	1.00	0.22	7.80	Pass
385#	18.77	7.37	20.27	7.71	6.00	4.82	3.71	1.02	1.00	0.21	7.79	Pass
386#	18.76	7.35	20.27	7.72	6.00	4.82	3.70	1.01	1.00	0.21	7.80	Pass
387#	18.76	7.34	20.26	7.70	6.00	4.83	3.72	1.00	1.00	0.22	7.81	Pass
388#	18.75	7.35	20.28	7.70	6.00	4.84	3.70	1.01	1.02	0.21	7.82	Pass



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Test Photo(s):

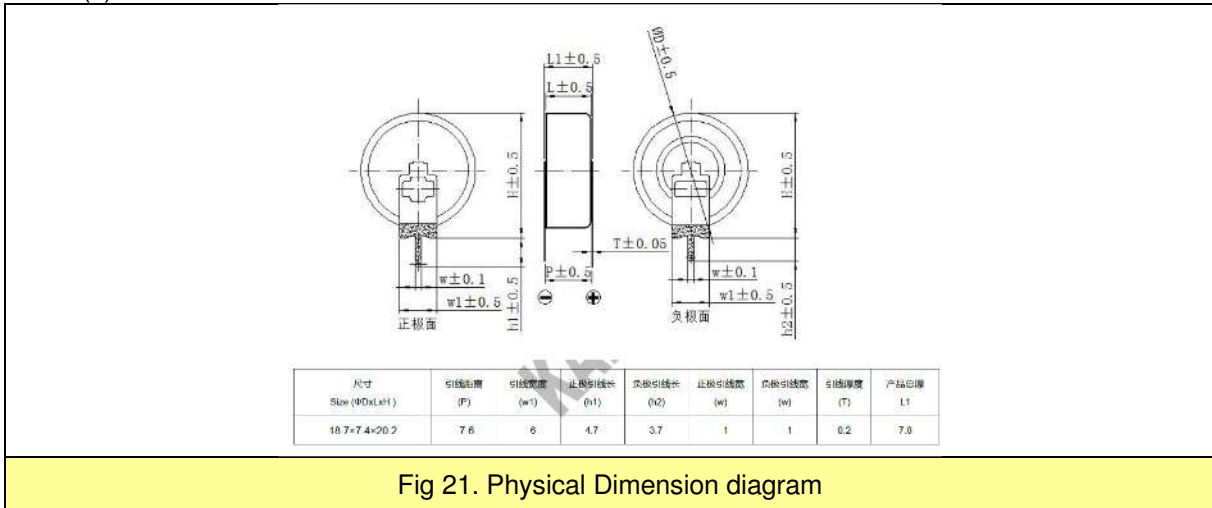


Fig 21. Physical Dimension diagram



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6. Test Item: Terminal Strength (Leaded)

Sample Description: Capacitance

Quantities of Specimens: 30 PCS

Test Standards: MIL-STD-202 Method 211 and client's requirement

Laboratory Environmental Conditions: 25±10°C,50±25%RH

Test condition:

Test condition A (pull test)

Applied force: 454 g

Duration of applied force: 10s

Evaluation Method:

Visual inspection: no damage

Electrical: Absolute value of $\Delta C/C \leq 10\%$

ESR $\leq 2^*$ initial ESR@25°C

Test Result(s):

Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
359	normal	0.989	0.989	0.00%	8.9	8.9	1.00	Pass
360	normal	0.997	0.996	-0.10%	8.1	8.2	1.01	Pass
361	normal	1.001	0.999	-0.20%	8.5	8.6	1.01	Pass
362	normal	0.984	0.984	0.00%	8.8	8.8	1.00	Pass
363	normal	0.995	0.994	-0.10%	8.5	8.6	1.01	Pass
364	normal	0.994	0.993	-0.10%	8.1	8.1	1.00	Pass
365	normal	0.994	0.994	0.00%	8.1	8.2	1.01	Pass
366	normal	0.988	0.988	0.00%	9.1	9.1	1.00	Pass
367	normal	0.995	0.994	-0.10%	7.3	7.4	1.01	Pass
368	normal	1.003	1.001	-0.20%	8.1	8.2	1.01	Pass
369	normal	0.995	0.994	-0.10%	9.1	9.2	1.01	Pass
370	normal	0.972	0.971	-0.10%	8.5	8.6	1.01	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
371	normal	0.990	0.989	-0.10%	8.2	8.2	1.00	Pass
372	normal	0.989	0.989	0.00%	8.2	8.3	1.01	Pass
373	normal	1.001	0.999	-0.20%	7.5	7.6	1.01	Pass
374	normal	0.995	0.994	-0.10%	8.0	8.1	1.01	Pass
375	normal	0.990	0.989	-0.10%	8.0	8.0	1.00	Pass
376	normal	0.993	0.992	-0.10%	7.8	7.9	1.01	Pass
377	normal	1.000	0.999	-0.10%	8.0	8.1	1.01	Pass
378	normal	0.996	0.994	-0.20%	8.3	8.4	1.01	Pass
379	normal	1.003	1.002	-0.10%	8.2	8.2	1.00	Pass
380	normal	0.993	0.992	-0.10%	8.8	8.8	1.00	Pass
381	normal	0.993	0.991	-0.20%	8.9	8.9	1.00	Pass
382	normal	0.989	0.989	0.00%	8.1	8.2	1.01	Pass
383	normal	0.994	0.993	-0.10%	8.5	8.6	1.01	Pass
384	normal	0.997	0.995	-0.20%	9.0	9.1	1.01	Pass
385	normal	0.984	0.982	-0.20%	8.2	8.3	1.01	Pass
386	normal	1.004	1.002	-0.20%	7.9	8.0	1.01	Pass
387	normal	0.990	0.990	0.00%	8.1	8.2	1.01	Pass
388	normal	0.995	0.994	-0.10%	8.3	8.4	1.01	Pass

Since the above data and / or information is provided by the applicant, the relevant results or conclusions of this report are only made for these data and / or information, SGS is not responsible for the authenticity, integrity and results of the data and information



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Test Photo(s):

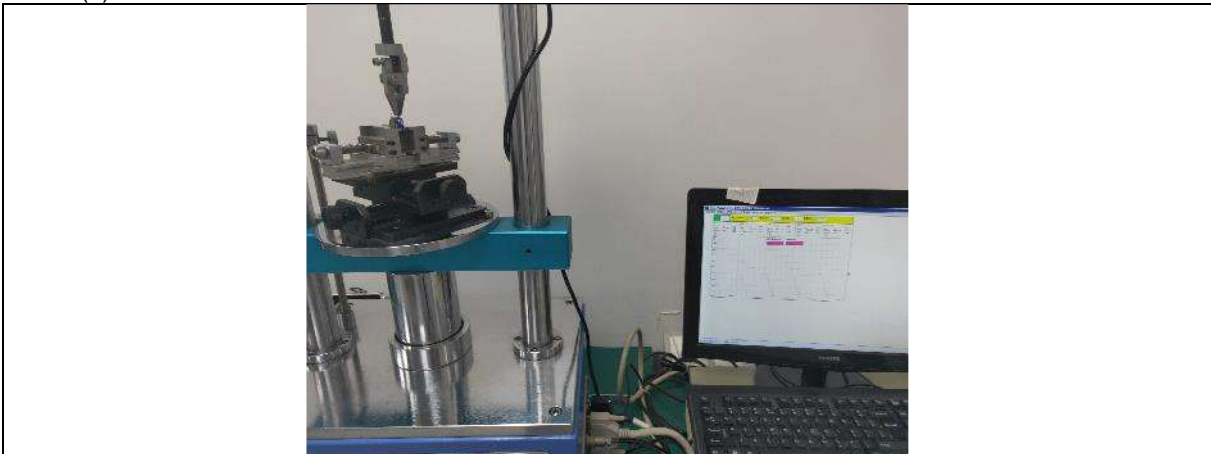


Fig 22. During Test

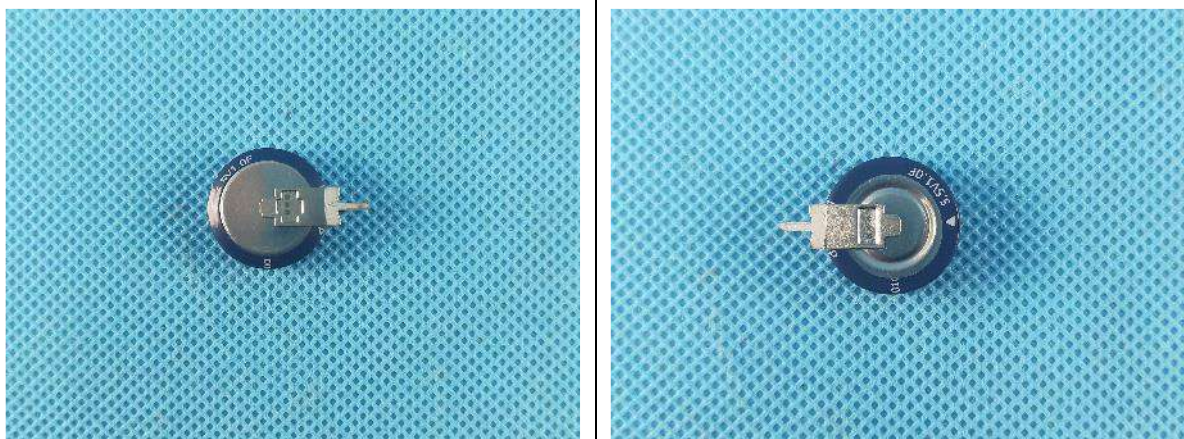


Fig 23. After test



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7. Test Item: Resistance to Solvents

Sample Description: Capacitance

Quantities of Specimens: 5 PCS

Test Standards: MIL-STD-202 Method 215 and client's requirement

Laboratory Environmental Conditions: 25±10°C,50±25%RH

Solvent solutions:

A: A mixture consisting of the following:

1. One part by volume of isopropyl alcohol, American Chemical Society (ACS) reagent grade, or isopropyl alcohol in accordance with TT-I-735, grade A or B, and
2. Three parts by volume of mineral spirits in accordance with MIL-PRF-680, type I, or three parts by volume of a mixture of 80 percent by volume of kerosene and 20 percent by volume ethylbenzene.

C: A terpene defluxer consisting of a minimum of 90 percent d-limonene and 10 percent surfactant

D: A mixture consisting of the following:

1. Forty-two parts by volume water, 1 megohm-cm minimum resistivity.
2. One part by volume of propylene glycol monomethyl ether (glycol ether PM, 1-methoxy-2-propanol).
3. One part by volume of monoethanolamine.

Test condition:

Specimen No.	Reagent	DUT temp	Exposure time	Result
309	A	25±5°C	1) Immersion 3 +.5, -0 minutes 2) Brush 10 strokes (wet bristle) 3) The procedure shall be repeated two more times, for a total of three immersions, followed by brushing	No damage
310	A	25±5°C		No damage
311	C	25±5°C		No damage
312	C	25±5°C		No damage
313	D	63~70°C		No damage

Evaluation Method:

Visual inspection: no damage



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Test Photo(s):

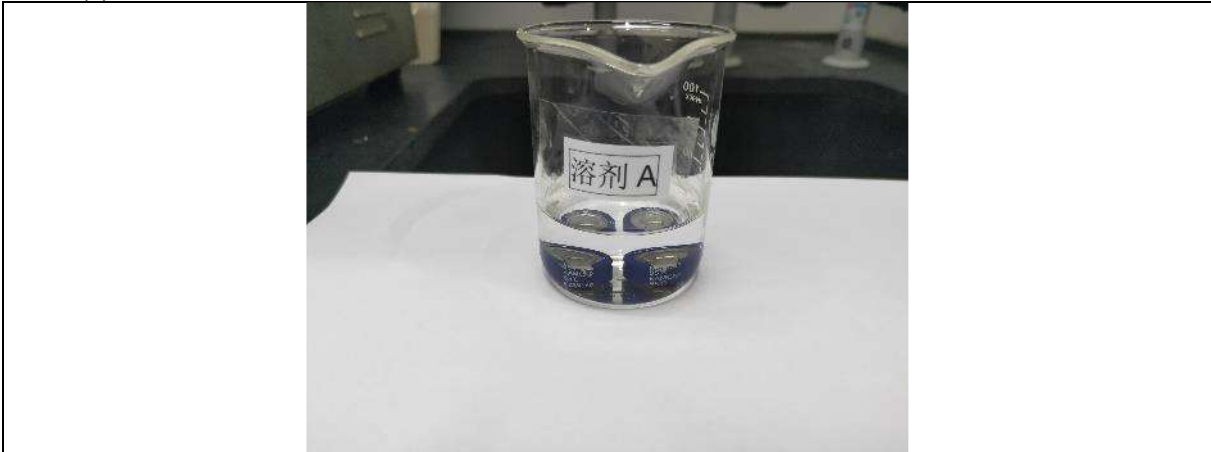


Fig 24. During Test - Regent A

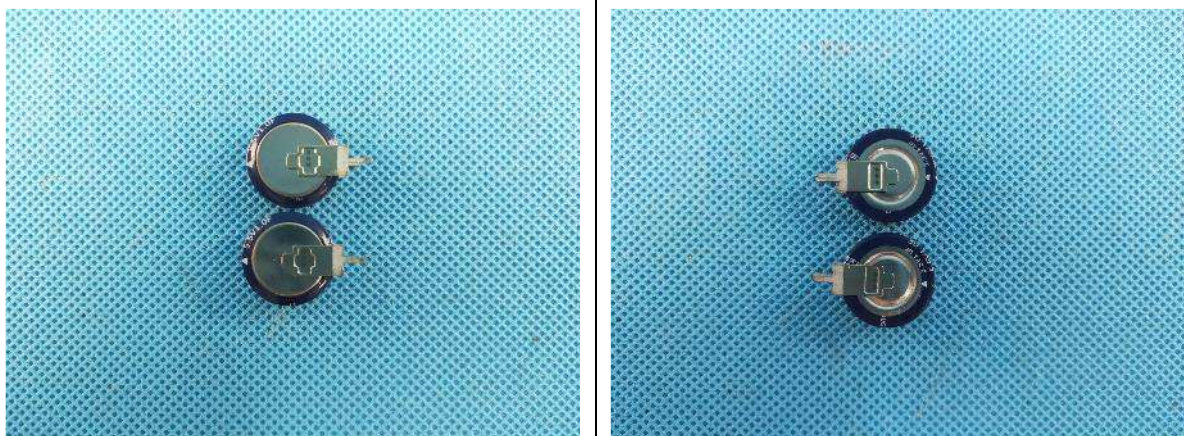


Fig 25. After test - Regent A



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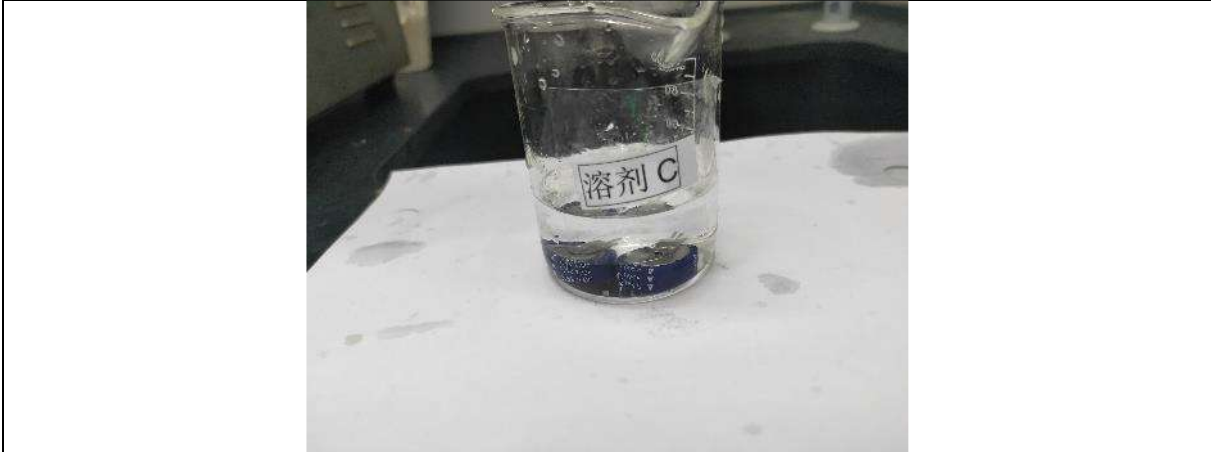


Fig 26. During Test - Regent C

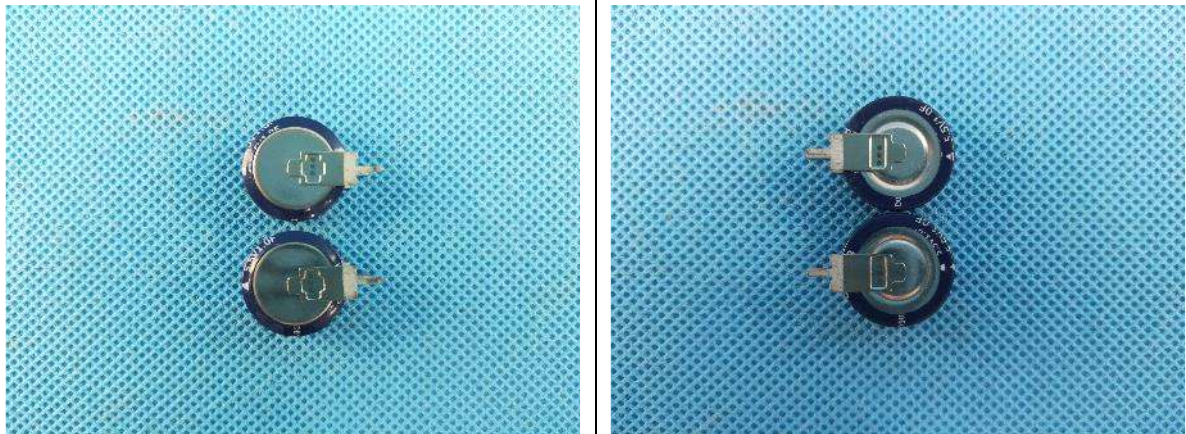


Fig 27. After test - Regent C



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Fig 28. During Test - Regent D

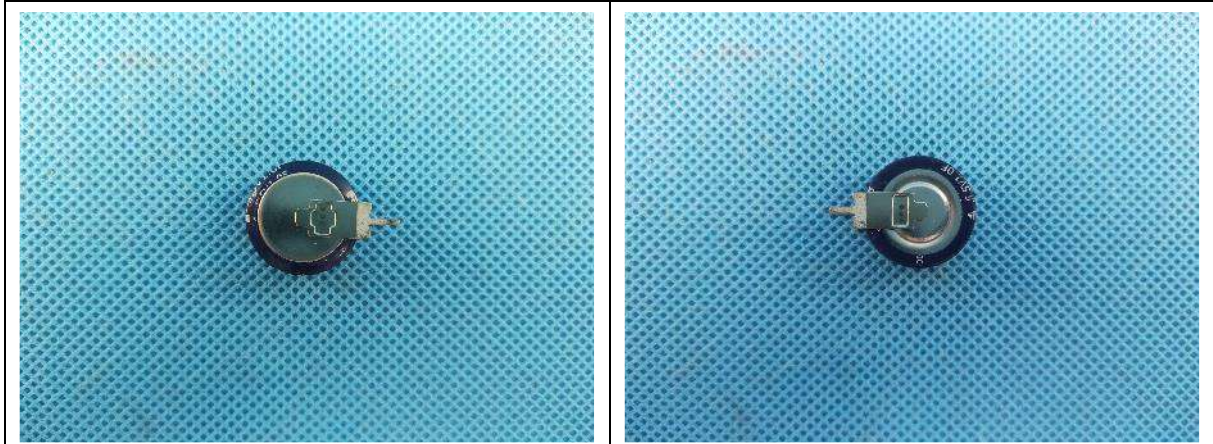


Fig 29. After test - Regent D



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8. Test Item: Vibration

Sample Description: Capacitance

Quantities of Specimens: 30 PCS

Test Standards: MIL-STD-202 Method 204 and client's requirement

Laboratory Environmental Conditions: 25±10°C,50±25%RH

Test condition:

Sample Status: Unpackaged, Non-operation

Frequency Range: (10~55) Hz Sweep

Acceleration: 30 m/s² (10 Hz~55 Hz)

Orientation: Z axis

Sweep Cycles: 10 cycles

Duration Time: 3 hours/axis, total 3 hours

Evaluation Method:

Visual inspection: no damage

Electrical: Absolute value of $\Delta C/C \leq 10\%$

ESR $\leq 2^*$ initial ESR@25°C

Test Result(s):

Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
314	normal	0.996	0.994	-0.20%	7.5	7.7	1.03	Pass
315	normal	0.990	0.987	-0.30%	7.3	7.5	1.03	Pass
316	normal	0.997	0.996	-0.10%	8.2	8.4	1.02	Pass
317	normal	0.989	0.986	-0.30%	8.3	8.5	1.02	Pass
318	normal	0.993	0.991	-0.20%	8.7	8.8	1.01	Pass
319	normal	0.984	0.982	-0.20%	8.6	8.9	1.03	Pass
320	normal	0.992	0.988	-0.40%	8.3	8.5	1.02	Pass
321	normal	0.990	0.988	-0.20%	7.6	7.9	1.04	Pass
322	normal	0.994	0.993	-0.10%	7.6	7.7	1.01	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	ΔC/C	ESR (mΩ) (initial)	ESR (mΩ) (after)	ESR (after)/ESR (initial)	Conclusion
323	normal	0.974	0.971	-0.31%	8.8	9.0	1.02	Pass
324	normal	0.985	0.982	-0.30%	7.9	8.1	1.03	Pass
325	normal	0.999	0.996	-0.30%	9.5	9.8	1.03	Pass
326	normal	0.995	0.994	-0.10%	8.6	8.8	1.02	Pass
327	normal	0.988	0.986	-0.20%	7.9	8.1	1.03	Pass
328	normal	0.991	0.989	-0.20%	8.1	8.3	1.02	Pass
329	normal	0.977	0.974	-0.31%	8.4	8.5	1.01	Pass
330	normal	0.992	0.991	-0.10%	8.7	8.9	1.02	Pass
331	normal	0.987	0.985	-0.20%	7.7	8.0	1.04	Pass
332	normal	0.995	0.991	-0.40%	7.5	7.7	1.03	Pass
333	normal	0.990	0.988	-0.20%	8.1	8.4	1.04	Pass
334	normal	0.995	0.992	-0.30%	8.5	8.6	1.01	Pass
335	normal	0.984	0.982	-0.20%	8.5	8.8	1.04	Pass
336	normal	0.995	0.992	-0.30%	9.2	9.4	1.02	Pass
337	normal	0.987	0.983	-0.41%	7.9	8.1	1.03	Pass
338	normal	1.003	1.001	-0.20%	8.6	8.7	1.01	Pass
339	normal	0.999	0.996	-0.30%	8.5	8.8	1.04	Pass
340	normal	0.984	0.982	-0.20%	8.4	8.6	1.02	Pass
341	normal	0.991	0.989	-0.20%	7.8	7.9	1.01	Pass
342	normal	1.001	0.998	-0.30%	9.5	9.8	1.03	Pass
343	normal	0.993	0.991	-0.20%	8.5	8.7	1.02	Pass

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Test Photo(s):



Fig 30. Test setup (Z axis)

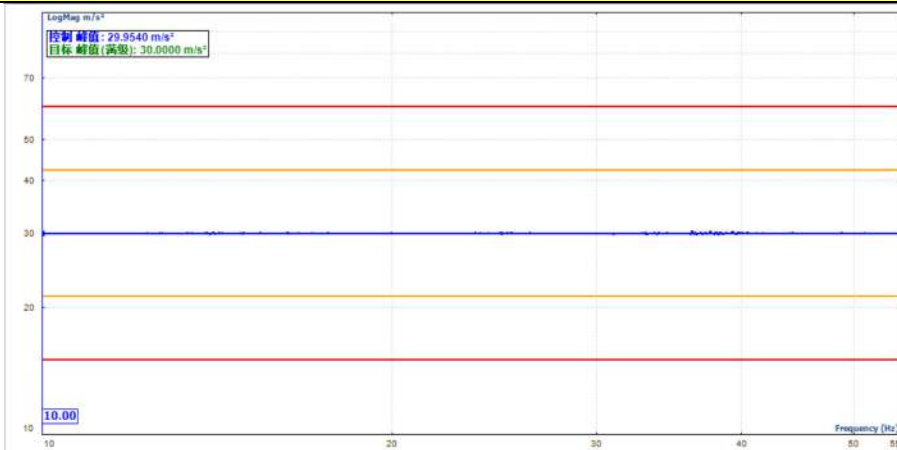


Fig 31. Test spectrum



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9. Test Item: Resistance to Soldering Heat

Sample Description: Capacitance

Quantities of Specimens: 30 PCS

Test Standards: MIL-STD-202 Method 210 and client's requirement

Laboratory Environmental Conditions: 25±10°C,50±25%RH

Test condition:

Solder temperature: 260°C

Test time: 10 s

Solder type: SAC305

Evaluation Method:

Visual inspection: no damage

Electrical: Absolute value of $\Delta C/C \leq 10\%$

ESR $\leq 2^*$ initial ESR@25°C

Test Result(s):

Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ ESR (initial)	Conclusion
389	normal	0.988	0.982	-0.61%	8.0	8.3	1.04	Pass
390	normal	0.992	0.985	-0.71%	9.2	9.5	1.03	Pass
401	normal	0.988	0.982	-0.61%	9.3	9.5	1.02	Pass
402	normal	0.989	0.982	-0.71%	8.5	8.6	1.01	Pass
403	normal	0.986	0.98	-0.61%	7.9	8.2	1.04	Pass
404	normal	0.993	0.987	-0.60%	8.5	8.7	1.02	Pass
405	normal	0.992	0.984	-0.81%	8.0	8.1	1.01	Pass
406	normal	0.992	0.985	-0.71%	8.4	8.5	1.01	Pass
407	normal	0.990	0.985	-0.51%	8.7	9.0	1.03	Pass
408	normal	0.989	0.981	-0.81%	9.2	9.4	1.02	Pass
409	normal	0.999	0.991	-0.80%	8.3	8.6	1.04	Pass
410	normal	0.994	0.986	-0.80%	7.4	7.5	1.01	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	ΔC/C	ESR (mΩ) (initial)	ESR (mΩ) (after)	ESR (after)/ESR (initial)	Conclusion
411	normal	0.988	0.982	-0.61%	8.3	8.6	1.04	Pass
412	normal	0.999	0.994	-0.50%	7.6	7.8	1.03	Pass
413	normal	0.987	0.982	-0.51%	8.8	8.9	1.01	Pass
414	normal	1.007	1.001	-0.60%	7.6	7.8	1.03	Pass
415	normal	0.993	0.988	-0.50%	8.0	8.3	1.04	Pass
416	normal	0.994	0.986	-0.80%	7.8	8.1	1.04	Pass
417	normal	0.991	0.984	-0.71%	8.0	8.2	1.03	Pass
418	normal	0.991	0.983	-0.81%	8.1	8.3	1.02	Pass
419	normal	0.997	0.991	-0.60%	7.9	8.2	1.04	Pass
420	normal	0.985	0.978	-0.71%	8.6	8.7	1.01	Pass
421	normal	0.996	0.990	-0.60%	8.4	8.6	1.02	Pass
422	normal	0.998	0.992	-0.60%	8.2	8.5	1.04	Pass
423	normal	0.997	0.991	-0.60%	9.1	9.3	1.02	Pass
424	normal	0.987	0.982	-0.51%	8.6	8.8	1.02	Pass
425	normal	0.987	0.981	-0.61%	8.4	8.7	1.04	Pass
426	normal	0.989	0.981	-0.81%	7.8	8.0	1.03	Pass
427	normal	0.995	0.988	-0.70%	8.5	8.6	1.01	Pass
428	normal	0.983	0.978	-0.51%	8.3	8.5	1.02	Pass

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Test Photo(s):



Fig 32. After test

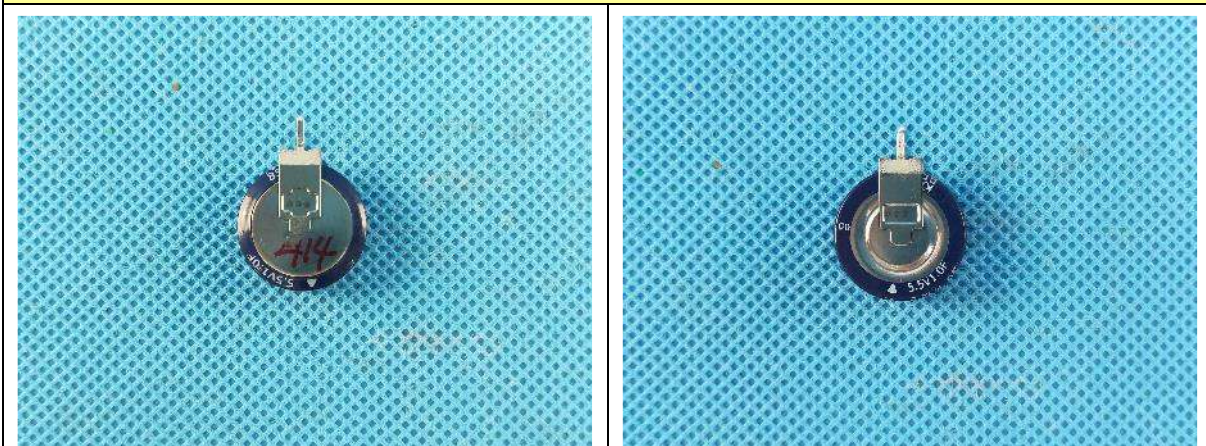


Fig 33. After test



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10. Test Item: ESD

Sample Description: Capacitance

Quantities of Specimens: 15 PCS

Test Standards: AEC-Q200-002 or ISO/DIS 10605 and client's requirement

Laboratory Environmental Conditions: 25±10°C,50±25%RH

Test condition:

Direct Contact Discharge: ±4 kV, 3 times

Air Discharge: ±8 kV, 3 times

Evaluation Method:

Visual inspection: no damage

Electrical: Absolute value of $\Delta C/C \leq 10\%$

ESR $\leq 2^*$ initial ESR@25°C

Test Result(s):

Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
344	normal	0.996	0.995	-0.10%	8.6	8.7	1.01	Pass
345	normal	0.991	0.991	0.00%	8.6	8.6	1.00	Pass
346	normal	1.003	1.003	0.00%	7.2	7.2	1.00	Pass
347	normal	0.989	0.988	-0.10%	9.0	9.1	1.01	Pass
348	normal	0.992	0.991	-0.10%	8.0	8.1	1.01	Pass
349	normal	0.991	0.990	-0.10%	8.6	8.8	1.02	Pass
350	normal	0.992	0.990	-0.20%	7.9	7.9	1.00	Pass
351	normal	0.998	0.997	-0.10%	8.5	8.6	1.01	Pass
352	normal	0.995	0.994	-0.10%	8.5	8.6	1.01	Pass
353	normal	1.001	1.001	0.00%	7.5	7.5	1.00	Pass
354	normal	0.995	0.994	-0.10%	8.3	8.4	1.01	Pass
355	normal	0.994	0.993	-0.10%	8.2	8.2	1.00	Pass
356	normal	0.990	0.989	-0.10%	7.9	7.9	1.00	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ESR (initial)	Conclusion
357	normal	0.996	0.995	-0.10%	7.8	7.9	1.01	Pass
358	normal	0.989	0.987	-0.20%	7.1	7.2	1.01	Pass

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Test Photo(s):



Fig 34. Direct Contact Discharge



Fig 35. Air Discharge



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11. Test Item: Solderability

Sample Description: Capacitance

Quantities of Specimens: 15 PCS

Test Standards: J-STD-002 and client's requirement

Laboratory Environmental Conditions: 25±10°C,50±25%RH

Test condition:

Solder temperature: 245°C
Test time: 5s
Flux type: flux 2#
Solder type: SAC305

Evaluation Method:

A minimum of 95% of each of the surfaces being tested shall be exhibit good wetting.

Electrical: Absolute value of $\Delta C/C \leq 10\%$

ESR $\leq 2^*$ initial ESR@25°C



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Test Result(s):

Sample No.	Result	Conclusion
429	Wetting area \geq 95%	Pass
430	Wetting area \geq 95%	Pass
431	Wetting area \geq 95%	Pass
432	Wetting area \geq 95%	Pass
433	Wetting area \geq 95%	Pass
434	Wetting area \geq 95%	Pass
435	Wetting area \geq 95%	Pass
436	Wetting area \geq 95%	Pass
437	Wetting area \geq 95%	Pass
438	Wetting area \geq 95%	Pass
439	Wetting area \geq 95%	Pass
440	Wetting area \geq 95%	Pass
441	Wetting area \geq 95%	Pass
442	Wetting area \geq 95%	Pass
443	Wetting area \geq 95%	Pass



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Sample No.	Visual Inspection	C (F) (initial)	C (F) (after)	$\Delta C/C$	ESR (m Ω) (initial)	ESR (m Ω) (after)	ESR (after)/ ESR (initial)	Conclusion
429	normal	0.982	0.975	-0.71%	7.6	7.8	1.03	Pass
430	normal	0.997	0.990	-0.70%	7.9	8.2	1.04	Pass
431	normal	1.011	1.005	-0.59%	8.2	8.3	1.01	Pass
432	normal	0.988	0.983	-0.51%	7.7	7.9	1.03	Pass
433	normal	0.991	0.984	-0.71%	8.2	8.3	1.01	Pass
434	normal	0.992	0.986	-0.60%	7.5	7.8	1.04	Pass
435	normal	0.990	0.985	-0.51%	8.2	8.4	1.02	Pass
436	normal	0.991	0.987	-0.40%	7.9	8.2	1.04	Pass
437	normal	0.991	0.986	-0.50%	8.8	9.0	1.02	Pass
438	normal	0.991	0.984	-0.71%	7.9	8.0	1.01	Pass
439	normal	0.990	0.985	-0.51%	8.0	8.2	1.03	Pass
440	normal	0.990	0.984	-0.61%	8.2	8.4	1.02	Pass
441	normal	0.998	0.991	-0.70%	8.6	8.8	1.02	Pass
442	normal	0.990	0.984	-0.61%	9.4	9.5	1.01	Pass
443	normal	0.996	0.991	-0.50%	8.3	8.5	1.02	Pass

Since the above data and / or information is provided by the applicant, the relevant results or conclusions of this report are only made for these data and / or information, SGS is not responsible for the authenticity, integrity and results of the data and information



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Test Photo(s):

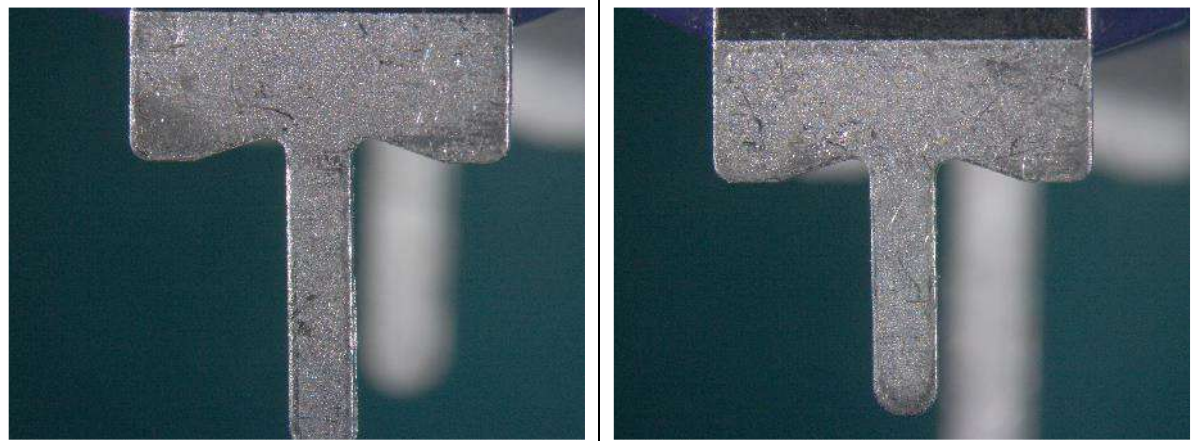


Fig 36. Before test - Typical picture

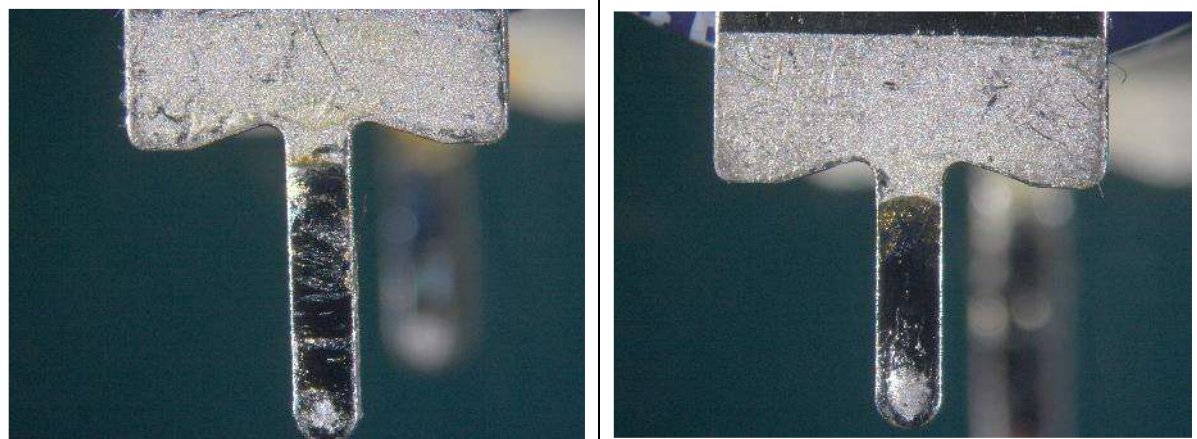


Fig 37. After test - Typical picture



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Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Stereo Microscope	Stemi 2000-C	SUZRL-F004	2021-06-16	2022-06-15
Thermal Shock Chamber	KTCE-216TBS	SUZRL-F017	2021-03-11	2022-03-10
Temperature and humidity chamber	KTHA-010TBS	SUZRL-F009	2021-03-11	2022-03-10
H3TRB	BTR-E671	SUZRL-F050	2021-06-16	2022-06-15
Digital Caliper	111-011	SUZRL-P007	2021-03-17	2022-03-16
Vibration Test System	SZREL-119	DC-2200-26	2020-11-26	2021-11-25
Charge Accelerometer	SZREL-149C	4371 V	2021-01-12	2022-01-11
DC Power Supply	PS 8160-04 DT	SUZRL-E006	2021-03-11	2022-03-10
DC Power Supply	PS 2084-05B	SUZRL-E003	2021-03-11	2022-03-10
High precision battery performance testing system	CT-1008-5V6A-S1-F	T1801-149345	2020-12-04	2021-12-04
AC Resistance meter	AT526	526001503070	2020-12-09	2021-12-08
Lead-free solder pot	/	SUZRL-P009	/	/
Pulling Force Tester	1220SA/SAR/S D	SHAEL-019	2021-05-06	2022-05-05

*****End of Report*****



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