

1. SCOPE

THIS SPECIFICATION ESTABLISHES THE REQUIREMENTS FOR HIGH VOLTGE FEED THROUGH CERAMIC CAPACITOR (TYPE : HFC-2Y-B)

2. SPECIFICATION

2.1 INITIAL PERFORMANCE

I T E M	I N I T I A L R A T I N G
1) RATED VOLTAGE (WV)	DC 15 kV
2) CAPACITANCE AND TOLERANCE	500 pF $\begin{matrix} +100 \\ -0 \end{matrix} \% \times 2$
3) TEMPERATURE CHARACTERISTIC OF CAPACITANCE	Y5U (EIA STANDARD RS-198-C)
4) DISSIPATION FACTOR	2.5 % MAX.
5) INSULATION RESISTANCE	10,000 M Ω MIN.
6) OPERATING TEMPERATURE RANGE	-30 °C TO +120°C

2.2 FINAL PRODUCTION TEST

I T E M	S P E C I F I C A T I O N
1) TEST VOLTAGE	AC 12 kV (r.m.s.) AT 50 Hz 1 min.
2) CAPACITANCE AND TOLERANCE	500 pF $\begin{matrix} +100 \\ -0 \end{matrix} \% \times 2$
3) DISSIPATION FACTOR	2.5 % MAX.
4) INSULATION RESISTANCE	10,000 M Ω MIN.

2.3 SPECIAL TEST

I T E M	S P E C I F I C A T I O N
1) LIFE TEST	AFTER LIFE TEST CAPACITANCE CHANGE : $\pm 30 \%$ DISSIPATION FACTOR : 3 % MAX. INSULATION RESISTANCE : 10,000 M Ω MIN.
2) CHARGE AND DISCHARGE TEST	AFTER CHARGE AND DISCHARGE TEST CAPACITANCE CHANGE : $\pm 20 \%$ DISSIPATION FACTOR : 5 % MAX. INSULATION RESISTANCE : 10,000 M Ω MIN.

I T E M	S P E C I F I C A T I O N
3) HUMIDITY TEST	AFTER HUMIDITY TEST CAPACITANCE CHANGE : $\pm 20 \%$ DISSIPATION FACTOR : 5% MAX. INSULATION RESISTANCE : $10,000 \text{ M}\Omega$ MIN. WITHSTANDING VOLTAGE : MUST BEAR AC 12 kV (r. m. s.) FOR 5 s. (AT 50Hz)
4) HEAT SHOCK TEST	AFTER HEAT SHOCK TEST MUST BEAR AC 12 kV (r. m. s.) FOR 5 s. (AT 50Hz) WITH NO EVIDENCE OF CRACKS AND CHIPS.

2.4 CONSTRUCTION AND DIMENSION

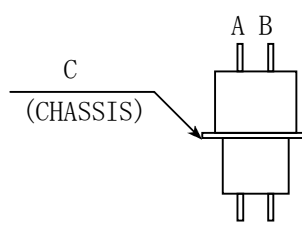
SEE FIGURE-1, PAGE 7

2.5 MARKING

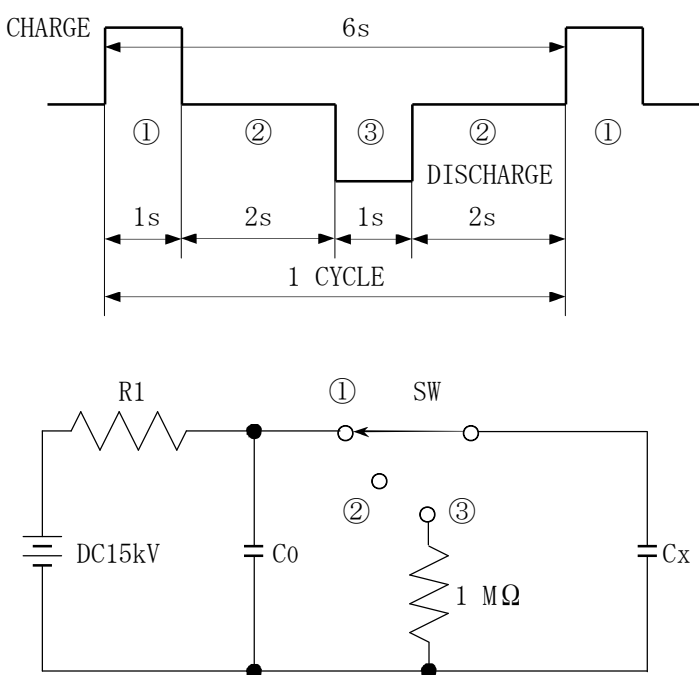
CAPACITOR SHALL BE MARKED. MARKING POSITIONS ARE SHOWN IN FIGURE-1, PAGE 7

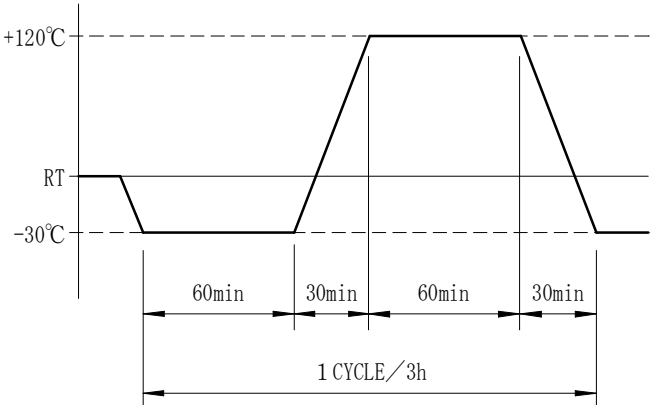
3. TEST METHOD

3.1 ELECTRICAL PERFORMANCE (FINAL PRODUCTION TEST)

T E S T I T E M	T E S T M E T H O D A N D T E S T C O N D I T I O N
1) CAPACITANCE	CAPACITANCE SHALL BE MEASURED AT $1 \pm 0.1 \text{ kHz}$ WITH 1V (r. m. s)
2) DISSIPATION FACTOR	DISSIPATION FACTOR SHALL BE MEASURED AT THE SAME CONDITION AS 3.1, 1)
3) INSULATION RESISTANCE	INSULATION RESISTNCE SHALL BE MEASURED AT DC $1,000\text{V}$. THE ELECTRIFICATION TIME SHALL BE 1 min.
4) TEST VOLTAGE	CAPACITOR SHALL BE APPLIED WITH A TEST VOLTAGE OF AC 12 kV (r. m. s.) FOR 1 min. (AT 50Hz) BETWEEN A, B (A AND B ARE CONNECTED) AND C. 

3.2 ELECTRICAL PERFORMANCE (SPECIAL TEST)

TEST ITEM	TEST METHOD AND TEST CONDITION
1) LIFE TEST	CAPACITOR SHALL BE APPLIED WITH DC 15 kV FOR 1000 h AT $100 \pm 3 \text{ }^\circ\text{C}$
2) CHARGE AND DISCHARGE TEST	<p>CAPACITOR SHALL BE SUBJECTED 5,000 CYCLES OF CHARGE AND DISCHARGE WITH DC 15 kV.</p>  <p> C_x : CAPACITOR UNDER TEST C_0 : CAPACITOR FOR CHARGE $C_0 = C_x \times 2$ R_1 : RESISTOR TO CHARGE C_0 WITHIN 4 s </p>
3) HUMIDITY TEST	CAPACITOR SHALL BE EXPOSED AT $40 \pm 2 \text{ }^\circ\text{C}$, 90 TO 95% RH. FOR 500 h, THEN REMOVED AND WIPED SLIGHTLY, THEN MEASURED AT ROOM CONDITION 30 min. AFTER REMOVAL.

TEST ITEM	TEST METHOD AND TEST CONDITION
4) HEAT CYCLE TEST	<p>CAPACITOR SHALL BE SUBJECTED 10 CYCLES OF COOL AND HEAT.</p>  <p>The diagram illustrates a heat cycle test waveform. The vertical axis represents temperature, with marked levels at +120°C, RT (Room Temperature), and -30°C. The horizontal axis represents time. The cycle consists of the following segments: a 60-minute dwell at RT, a 30-minute ramp down to -30°C, a 60-minute dwell at -30°C, a 30-minute ramp up to +120°C, a 60-minute dwell at +120°C, and a 30-minute ramp down to RT. A bracket below the entire cycle indicates a duration of 1 CYCLE/3h.</p>

4. MECHANICAL PERFORMANCE

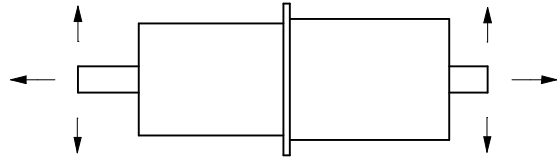
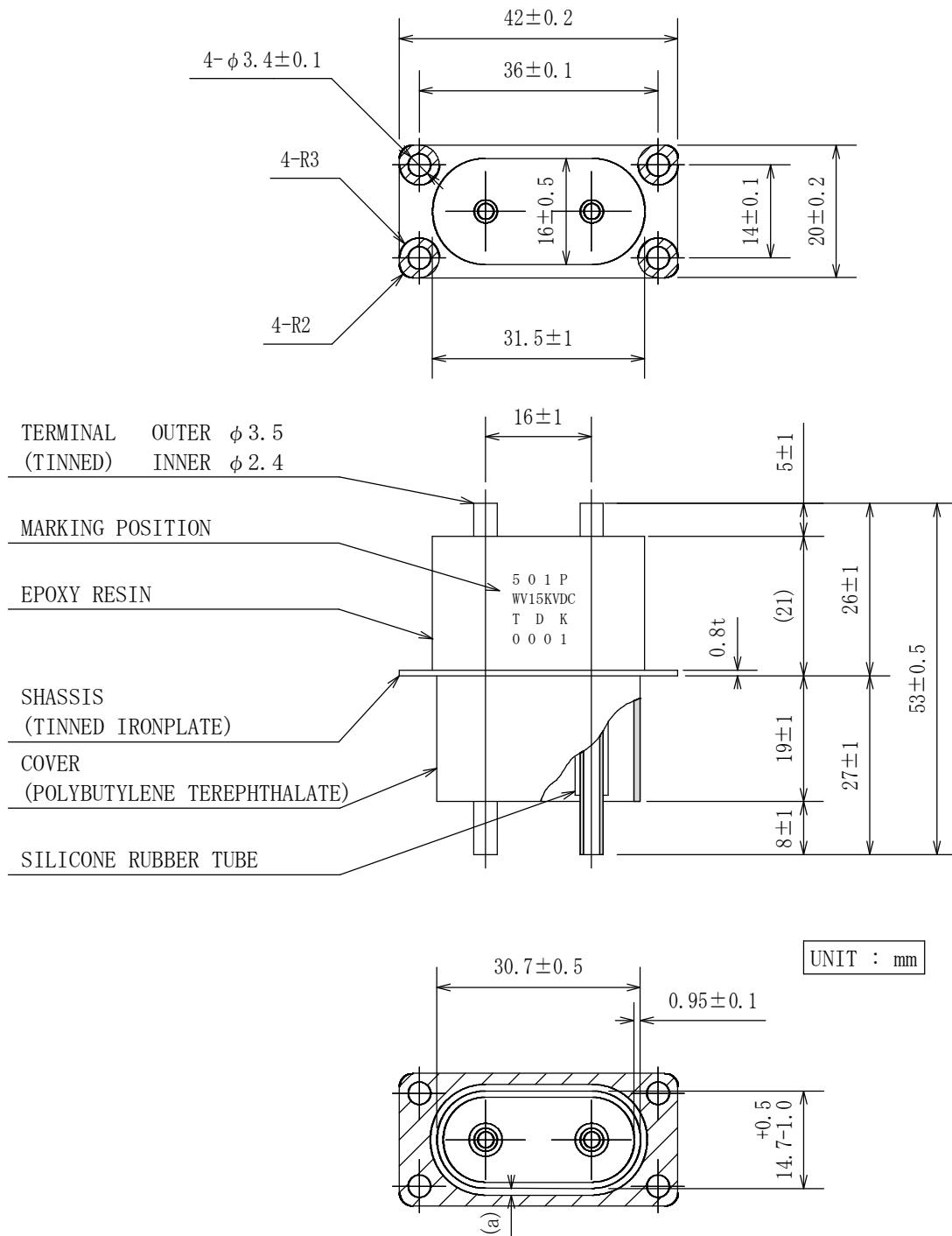
TEST ITEM	TEST METHOD
TERMINAL STRENGTH	<p>CAPACITOR SHALL BE NO EVIDENCE DAMAGE, WHEN THE CHASSIS IS FIXED ON THE STABLE POSITION, AND A LOAD OF 39.2N(4kgf) PARALLEL TO TERMINAL AXIS IS APPLIED FOR 5 s. ON THE TERMINAL.</p>  <p>The diagram shows a side view of a capacitor with a central vertical line representing the internal structure. Two terminals are shown on the left and right sides. Arrows indicate the direction of force applied to the terminals: horizontal arrows pointing outwards from the terminals, and vertical arrows pointing up and down from the top and bottom of the terminal blocks, respectively.</p>

FIGURE-1



* THE SHADED AREA TO BE FREE FROM RESIN. DIN, (a) 1mm MAX.