

X2 Capacitors

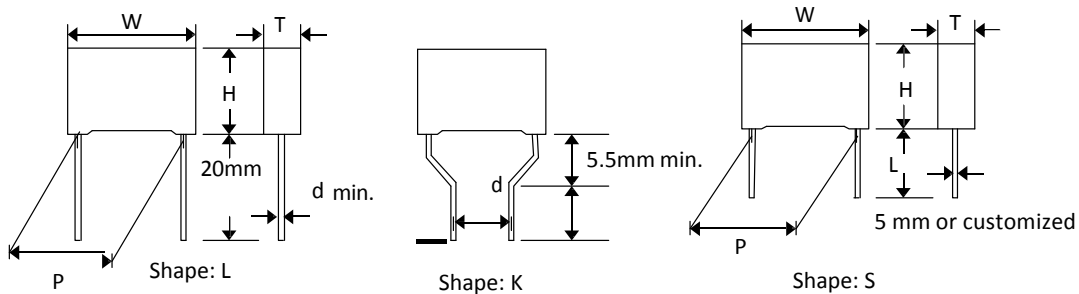
Metallized Polypropylene Film (X2) AC Capacitors
(Interference Suppressors Class-X2)



SPECIFICATION:

Rated Voltage	300 or 330 VAC
Capacitance tolerance	±10%
Temperature range	-40...+110 °C
Dielectric	Metallized polypropylene film
IEC-climate category	40/110/56/B

PRODUCT DIMENSIONS:



1. STANDART ATMOSPHERIC CONDITIONS:

Ambient Temperature	15 °C to 35 °C (If there is any doubt on the results, the measurements shall be made at +20 ± 5 °C)
Relative Humidity (R.H)	45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%)
Air Pressure	86 kpa to 106 kpa
Operating Temperature range	-40 °C to +110 °C for which the capacitor can be operated continuously at rated voltage

2. CONSTRUCTION

Dielectric	Metallized Polypropylene Film
Metal Spray	Special Solder
Lead Wire	Copper-clad Steel Wire
Epoxy Resin	UL 94V-0
Plastic Case	UL 94V-0

3. ELECTRICAL CHARACTERISTICS

3.1	U	0	
	U	0	
3.2 Dissipation Factor		$\leq 0.001(0.1\%)$ at 1 KHz	Measuring Frequency: $\pm 2\%$ Measuring Voltage: ≤ 1 Vrms
3.3 Capacitance		Within the tolerance specified (at $+20 \pm 5$ °C).	Measuring Frequency: $\pm 2\%$ Measuring Voltage: ≤ 1 Vrms
3.4 Insulation Resistance		$\geq 15,000$ Mohm ($C \leq 0.33\mu\text{f}$) $\geq 5,000$ Mohm* $\mu\text{F}/C$ ($C > 0.33\mu\text{f}$)	Vt=100 VDC Charge Time : 60 ± 5 sec.
3.5 Soldering Property		More than 90% of circumferential surface of lead wire shall be covered with new solder	Soldering temperature: $+235 \pm 5$ °C Immersion duration: 2 ± 0.5 sec.

4. MECHANICAL CHARACTERISTICS

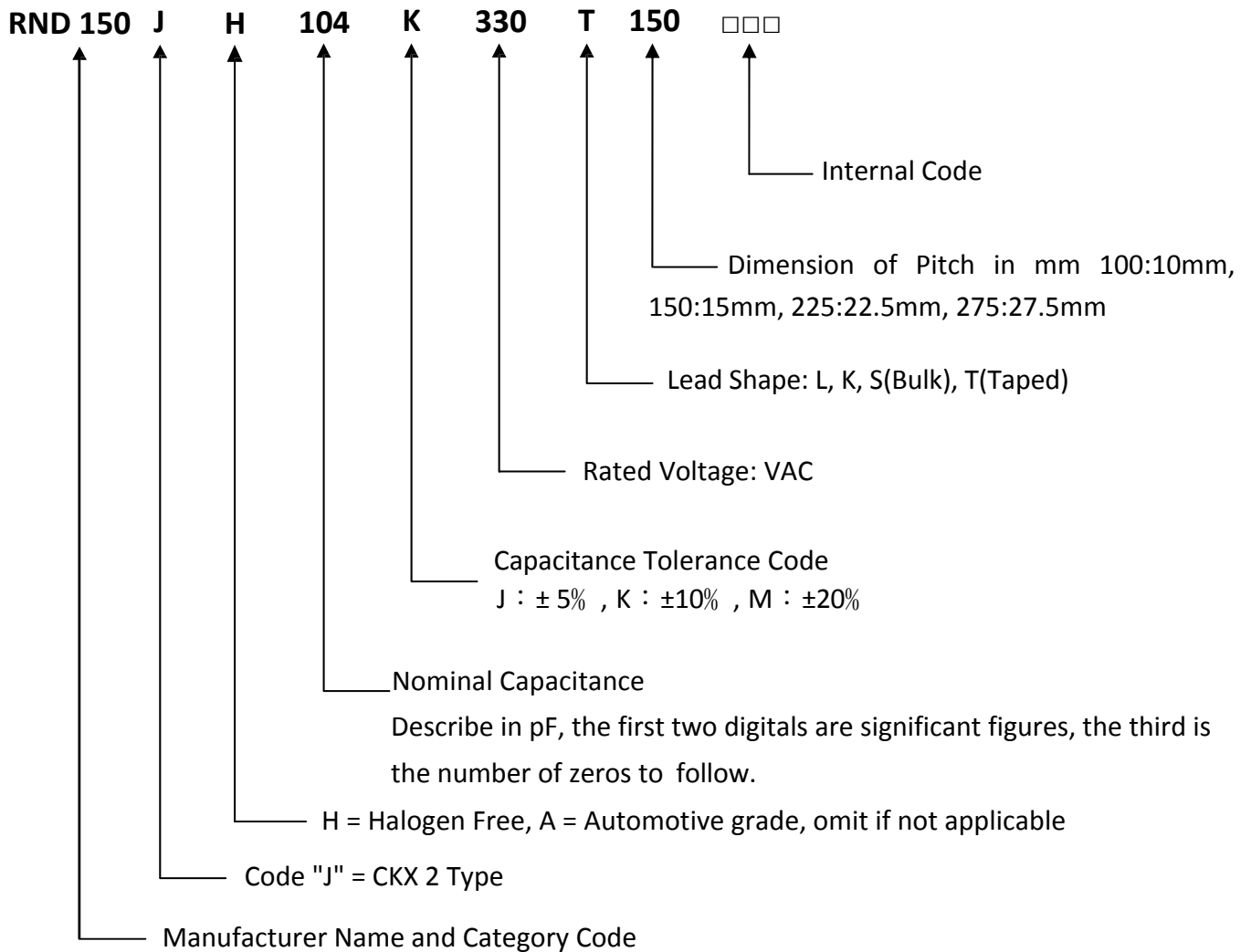
4.1 Terminal Strength	Tensile Strength	Shall be no abnormality	Apply 1.0 kg for 10 ± 1 sec. to the terminal in the axial direction and acting in a direction away from the body.
-----------------------	------------------	-------------------------	---

5. ENDURANCE CHARACTERISTICS

5.1 Temperature Cycle	Appearance	Shall be no remarkable change	Test Temperature Cycle: Total 5 cycles. Each cycle includes 1. 20 ± 2 °C for 3 min. 2. -40 ± 3 °C for 30 min. 3. $+20 \pm 2$ °C for 3 min. 4. $+110 \pm 2$ °C for 30min. 5. $+20 \pm 2$ °C for 3 min.
	Withstand Voltage	Shall satisfy NO.3.1	
	Capacitance Change Rate	Within $\pm 5\%$ of the value before test	
	Dissipation Factor	@ 1KHz: 0.002 (0.2%) max.	
	Insulation Resistance	$\geq 50\%$ of the limit value of NO.3.4	
5.2 Dry Heat Resistance	Appearance	Shall be no remarkable change	Test Temperature: $+110 \pm 2$ °C Test Duration: $16 + 1/-0$ hrs.
	Withstand Voltage	Shall satisfy NO.3.1	
	Capacitance Change Rate	Within $\pm 5\%$ of the value before test	
	Dissipation Factor	@ 1KHz: 0.002 (0.2%) max.	
	Insulation Resistance	$\geq 50\%$ of the limit value of NO.3.4	
5.3 Cold Resistance	Appearance	Shall be no remarkable change	Test Temperature: -40 ± 3 °C Test Duration: 2 ± 1 hrs.
	Withstand Voltage	Shall satisfy NO.3.1	
	Capacitance Change Rate	Within $\pm 5\%$ of the value before test	
	Dissipation Factor	@ 1KHz: 0.002 (0.2%) max.	
	Insulation Resistance	$\geq 50\%$ of the limit value of NO.3.4	
5.4 Damp Heat	Appearance	Shall be no remarkable change	Test Temperature: $+40 \pm 2$ °C. Test Humidity: 90% to 95% R.H. Test Duration: 56 days. After test, allow it stay alone for 1.5 ± 0.5 hrs. at ordinary condition before making measurements.
	Withstand Voltage	Shall satisfy NO.3.1	
	Capacitance Change Rate	Within $\pm 5\%$ of the value before test	
	Dissipation Factor	@ 1KHz: 0.002 (0.2%) max.	
	Insulation Resistance	$\geq 50\%$ of the limit value of NO.3.4	

5.5 Vibration Resistance	Appearance	Shall be no mechanical damage	Frequency Change: 10-55-10 Hz Vibration Distance: 1.5 mm Test Direction XYZ Test Duration 2+1/-0 hrs each direction
	Connection strength	Shall be no short-circuiting or open. The connection shall be stable.	
5.6 Soldering Heat Resistance	Appearance	Shall be no remarkable change. The marking shall be legible.	Preheat Temp. : 100~120 °C Preheat Duration : 60 sec. max. Temperature Increase by 3 °C/sec. max. Soldering Temperature : +260 ± 5 °C Immersion Duration : 5 ± 1sec. Immersion Depth : 4 ± 0.8mm from roots. After test, allow it stay alone for 1.5 ± 0.5 hrs. at ordinary condition before making measurements.
	Withstand Voltage Between Terminals	Shall satisfy NO.3.1	
	Capacitance Change Rate	Within ±3% of the value before test	
	Dissipation Factor	@ 1KHz: 0.002 (0.2%) max.	
	Insulation Resistance	≥50% of the limit value of NO.3.4	
	Connection of Element	Shall be stable	
5.7 Endurance	Appearance	Shall be no remarkable change	Test Voltage: 125% * rated voltage. Test Duration: 1,000 Hrs. Once every hour the voltage is increased to 1000 V rms. For 0.1 sec. The test voltage is applied to each capacitor individually through a resistor of 47Ω±5 %.
	Withstand Voltage	Shall satisfy NO.3.1	
	Capacitance Change Rate	Within±10% of the value before test	
	Dissipation Factor	1KHz Cr ≤1uF : 0.008 (0.8%) max. Cr >1uF : 0.005 (0.5%)	
	Insulation Resistance	≥50% of the limit value of NO.3.4	
6.7 Moisture Resistant Loading	Appearance	Shall be no remarkable change	Test Temperature: +40 ± 2 °C. Test Humidity: 87% to 93% R.H. Test Voltage: rated voltage. Test Duration: 500 Hrs. After test, allow it stay alone for 1.5 ± 0.5 hrs. at ordinary condition before making measurements.
	Withstand Voltage	Shall satisfy NO.3.1	
	Capacitance Change Rate	Within ±5% of the value before test	
	Dissipation Factor	@ 1KHz: 0.002 (0.2%) max.	
	Insulation Resistance	≥50% of the limit value of NO.3.4	

5. PRODUCT CODING



PRODUCT RANGE:

Art. Nr.	Capacitance	Rated voltage	Pitch	Width	Height	ø d
RND 150J102K330L075B3LT	0.001 µF	330 VAC	7.5 mm	10.5 mm	9 mm	0.6 mm
RND 150J222K330L075B3LT	0.0022 µF	330 VAC	7.5 mm	10.5 mm	9 mm	0.6 mm
RND 150J222K330L100C2-3	0.0022 µF	330 VAC	10 mm	13 mm	11 mm	0.6 mm
RND 150J222K330L150D1	0.0022 µF	330 VAC	15 mm	18 mm	11 mm	0.6 mm
RND 150J332K330L075B3LT	0.0033 µF	330 VAC	7.5 mm	10.5 mm	9 mm	0.6 mm
RND 150J472K330L075B3LT	0.0047 µF	330 VAC	7.5 mm	10.5 mm	9 mm	0.6 mm
RND 150J472K330L100C2-3	0.0047 µF	330 VAC	10 mm	13 mm	11 mm	0.6 mm
RND 150J472K330L150D1	0.0047 µF	330 VAC	15 mm	18 mm	11 mm	0.6 mm
RND 150J562K330L100C2-3	0.0056 µF	330 VAC	10 mm	13 mm	11 mm	0.6 mm
RND 150J682K330L100C2-3	0.0068 µF	330 VAC	10 mm	13 mm	11 mm	0.6 mm
RND 150J822K330L100C2-3	0.0082 µF	330 VAC	10 mm	13 mm	11 mm	0.6 mm
RND 150J103K330L075B3LT	0.01 µF	330 VAC	7.5 mm	10.5 mm	9 mm	0.6 mm
RND 150J103K330L100C2-3	0.01 µF	330 VAC	10 mm	13 mm	11 mm	0.6 mm
RND 150J103K330L150D1	0.01 µF	330 VAC	15 mm	18 mm	11 mm	0.6 mm
RND 150J103K300L075B3LT	0.01 µF	300 VAC	7.5 mm	10.5 mm	9 mm	0.6 mm
RND 150J123K330L075B3LT	0.012 µF	330 VAC	7.5 mm	10.5 mm	9 mm	0.6 mm
RND 150J123K330L100C2-3	0.012 µF	330 VAC	10 mm	13 mm	11 mm	0.6 mm

PRODUCT RANGE:

Art. Nr.	Capacitance	Rated voltage	Pitch	Width	Height	ø d
RND 150J123K330L150D1	0.012 µF	330 VAC	15 mm	18 mm	11 mm	0.6 mm
RND 150J153K330L075B3LT	0.015 µF	330 VAC	7.5 mm	10.5 mm	9 mm	0.6 mm
RND 150J153K330L100C2-3	0.015 µF	330 VAC	10 mm	13 mm	11 mm	0.6 mm
RND 150J153K330L150D1	0.015 µF	330 VAC	15 mm	18 mm	11 mm	0.6 mm
RND 150J183K330L075B3LT	0.018 µF	330 VAC	7.5 mm	10.5 mm	9 mm	0.6 mm
RND 150J183K330L100C2-3	0.018 µF	330 VAC	10 mm	13 mm	11 mm	0.6 mm
RND 150J183K330L150D1	0.018 µF	330 VAC	15 mm	18 mm	11 mm	0.6 mm
RND 150J223K330L075B3LT	0.022 µF	330 VAC	7.5 mm	10.5 mm	9 mm	0.6 mm
RND 150J223K330L100C2-3	0.022 µF	330 VAC	10 mm	13 mm	11 mm	0.8 mm
RND 150J223K330L150D1	0.022 µF	330 VAC	15 mm	18 mm	11 mm	0.8 mm
RND 150J273K330L075B3LT	0.027 µF	330 VAC	7.5 mm	10.5 mm	9 mm	0.6 mm
RND 150J273K330L100C2-3	0.027 µF	330 VAC	10 mm	13 mm	11 mm	0.6 mm
RND 150J273K330L150D1	0.027 µF	330 VAC	15 mm	18 mm	11 mm	0.6 mm
RND 150J333K330L075B3LT	0.033 µF	330 VAC	7.5 mm	10.5 mm	9 mm	0.6 mm
RND 150J333K330L100C2-3	0.033 µF	330 VAC	10 mm	13 mm	11 mm	0.8 mm
RND 150J333K330L150D1	0.033 µF	330 VAC	15 mm	18 mm	11 mm	0.6 mm
RND 150J473K330L100C2-3	0.047 µF	330 VAC	10 mm	13 mm	11 mm	0.6 mm
RND 150J473K330L150D1	0.047 µF	330 VAC	15 mm	18 mm	11 mm	0.8 mm
RND 150J563K330L150D1	0.056 µF	330 VAC	15 mm	18 mm	11 mm	0.8 mm
RND 150J683K330L100C3	0.068 µF	330 VAC	10 mm	13 mm	12 mm	0.6 mm
RND 150J683K330L150D1	0.068 µF	330 VAC	15 mm	18 mm	11 mm	0.8 mm
RND 150J823K330L150C6	0.082 µF	330 VAC	15 mm	17 mm	11 mm	0.8 mm
RND 150J104K330L100C3	0.1 µF	330 VAC	10 mm	13 mm	12 mm	0.6 mm
RND 150J104K330L150C6	0.1 µF	330 VAC	15 mm	17 mm	11 mm	0.8 mm
RND 150J124K330L150D2	0.12 µF	330 VAC	15 mm	18 mm	12 mm	0.8 mm
RND 150J154K330L100C3	0.15 µF	330 VAC	10 mm	13 mm	12 mm	0.6 mm
RND 150J154K330L150D2-1	0.15 µF	330 VAC	15 mm	18 mm	13.5 mm	0.8 mm
RND 150J224K330L100C5-LT	0.22 µF	330 VAC	10 mm	13 mm	14 mm	0.6 mm
RND 150J224K330L150C6-1	0.22 µF	330 VAC	15 mm	17 mm	15.5 mm	0.8 mm
RND 150J224K330L225E1-2	0.22 µF	330 VAC	22.5 mm	25 mm	14.5 mm	0.8 mm
RND 150J274K330L150D8-1	0.27 µF	330 VAC	15 mm	17 mm	16.5 mm	0.8 mm
RND 150J274K330L225E2	0.27 µF	330 VAC	22.5 mm	26.5 mm	16.5 mm	0.8 mm
RND 150J334K330L150D8-1	0.33 µF	330 VAC	15 mm	17 mm	16.5 mm	0.8 mm
RND 150J334K330L225E2	0.33 µF	330 VAC	22.5 mm	26.5 mm	16.5 mm	0.8 mm
RND 150J394K330L225E3	0.39 µF	330 VAC	22.5 mm	26.5 mm	17 mm	0.8 mm
RND 150J474K330L225E3	0.47 µF	330 VAC	22.5 mm	26.5 mm	17 mm	0.8 mm
RND 150J684K330L225E4	0.68 µF	330 VAC	22.5 mm	26.5 mm	19 mm	0.8 mm
RND 150J105K330L225E4	1 µF	330 VAC	22.5 mm	26.5 mm	19 mm	0.8 mm
RND 150J105K330L275F1-1	1 µF	330 VAC	27.5 mm	30 mm	21 mm	0.8 mm