



Non-Polar Electrolytic Capacitors

NPRL Series

FEATURES

- Non-polarized, suitable for use in circuits whose polarity is sometimes reversed or unknown
- The leakage current and dissipation factor have been improved
- Close tolerance
- Excellent frequency characteristics in the audio range
- Satisfies characteristic W of JIS-C-5141 standard
- RoHS Compliant



RoHS Compliant

CHARACTERISTICS

Item	Characteristics								
Operating Temperature Range	-40°C ~ +85°C								
Capacitance Tolerance	±10% at +20°C, 120Hz								
Leakage Current	I = 0.03CWV or 4μA whichever is greater after 2 minutes of applied rated DC working voltage at 20°C Where: C = rated capacitance in μF; WV = rated DC working voltage								
Dissipation Factor (Tan δ, at +20°C 120Hz)	Working voltage (WV)	6.3	10	16	25	35	50	63	
	Tan δ	0.25	0.22	0.18	0.16	0.14	0.12	0.10	
	For capacitors whose capacitance exceeds 1,000μF, the specification of tan δ is increased by 0.02 for every addition of 1,000μF.								
Surge Voltage	Working voltage (WV)	6.3	10	16	25	35	50	63	
	Surge voltage (SV)	8	13	20	32	44	63	79	
Low Temperature Characteristics	Working voltage (WV)	6.3	10	16	25	35	50	63	
	Impedance	Z-25°C/Z+20°C	4	3	3	2	2	2	2
	ratio	Z-40°C/Z+20°C	8	6	6	4	4	3	3
Life Test	When returned to +20°C after 1,000 hours application of working voltage with the polarity inverted every 250 hours at +85°C, the capacitor will meet the following limits: Capacitance change is ≤±20% of initial value; tan δ is < 200% of initial specified value; leakage current is ≤ initial specified value								
Shelf Test	When returned to +20°C after 1,000 hours +85°C with no voltage applied, the capacitor will meet the following limits: Capacitance change is ≤±20% of initial value; tan δ is < 200% of initial specified value; leakage current is ≤ initial specified value								

PART NUMBERING SYSTEM

1 4 0 - N P R L

Prefix

Series

5 0 V

Voltage
Actual Value

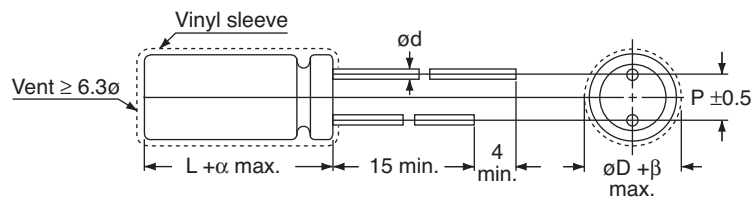
2 2 0 - R C

Capacitance (μF)
Actual Value

Suffix
RoHS Compliant

Specifications are subject to change without notice. No liability or warranty implied by this information. Environmental compliance based on producer documentation.

DIMENSIONS AND PERMISSIBLE RIPPLE CURRENT



Lead Spacing and Diameter (mm)

ϕD	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ϕd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
β	0.5	0.5	0.5	0.5	0.5	0.5	0.5
α	1.0				1.5		

Tape and box is standard 5.0mm lead space

Value (μF)	Working Voltage (WV); Dimensions: $\phi D \times L$ (mm); Ripple Current: mA/RMS @ 120Hz, 85°C															
	6.3		10		16		25		35		50		63		100	
	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA
0.1											5 x 11	4	5 x 11	5	5 x 11	5
0.22											5 x 11	7	5 x 11	8	5 x 11	8
0.33											5 x 11	8	5 x 11	10	5 x 11	10
0.47											5 x 11	10	5 x 11	12	5 x 11	12
1											5 x 11	15	5 x 11	18	6.3 x 11	23
2.2											5 x 11	23	5 x 11	25	6.3 x 11	26
3.3											5 x 11	28	5 x 11	31	6.3 x 11	32
4.7											5 x 11	33	6.3 x 11	37	8 x 11.5	44
10					5 x 11	40	5 x 11	42	6.3 x 11	46	8 x 11.5	55	8 x 11.5	61	8 x 11.5	66
15											8 x 15	71				
22	5 x 11	50	5 x 11	56	5 x 11	59	6.3 x 11	63	8 x 11.5	76	8 x 11.5	82	10 x 12.5	108	10 x 16	118
33	5 x 11	62	5 x 11	69	6.3 x 11	73	6.3 x 11	78	8 x 11.5	94	8 x 11.5	104	10 x 16	137	10 x 20	152
47	5 x 11	74	6.3 x 11	83	6.3 x 11	88	8 x 11.5	105	8 x 11.5	115	10 x 16	150	10 x 20	172	13 x 20	193
100	6.3 x 11	108	8 x 11.5	137	8 x 11.5	149	10 x 12.5	182	10 x 16	202	10 x 20	229	13 x 20	267	16 x 25	315
220	8 x 11.5	181	10 x 12.5	242	10 x 16	265	10 x 16	294	13 x 20	335	13 x 25	378	16 x 25	443	16 x 35.5	498
330	8 x 11.5	236	10 x 16	308	10 x 20	340	13 x 20	384	13 X 25	429	16 x 25	496	16 x 31.5	653		
470	10 x 16	329	10 x 20	385	13 x 20	432	13 x 25	479	16 x 25	548	16 x 31.5	614	18 x 40	787		
1000	10 x 20	502	13 x 20	598	13 x 25	659	16 x 31.5	775	16 x 35.5	852	18 x 40	1048				
2200	13 x 25	829	16 x 25	992	16 x 35.5	1114	18 x 40	1347								

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