



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 ratio	Z-25°C/Z+20°C	4	3	3	2	2	2	2	
		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

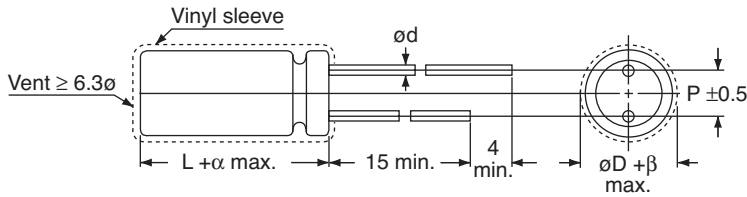
2 2 0 - **R C**

Capacitance (μF)
Actual Value

Suffix
RoHS Compliant



■ 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 12	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									