

REDUCED SIZE, EXTENDED RANGE
LOW PROFILE, RADIAL LEAD, POLARIZED

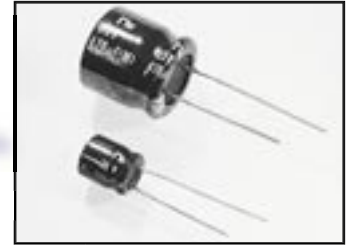
FEATURES

- LOW PROFILE APPLICATIONS
- HIGH STABILITY AND PERFORMANCE

**RoHS
Compliant**

includes all homogeneous materials

*See Part Number System for Details



CHARACTERISTICS

Rated Voltage Range	6.3 ~ 50 VDC						
Capacitance Range	220 ~ 10,000 μ F						
Operating Temperature Range	-40 ~ +85°C						
Capacitance Tolerance	$\pm 20\%$						
Max. Leakage Current @ (20°C)	After 1 min.	0.03CV or 4 μ A, whichever if greater					
	After 2 min.	0.01CV or 3 μ A, whichever if greater					
Max. Tan δ @ 120Hz/20°C	W.V. (Vdc)	6.3	10	16	25	35	50
	S.V. (Vdc)	8	13	20	32	44	63
	C $\leq$ 1,000 μ F	0.28	0.24	0.20	0.16	0.14	0.12
	C = 2,200 μ F	-	-	0.22	0.18	0.16	0.14
	C = 3,300 μ F	0.32	0.28	-	0.20	-	-
	C = 4,700 μ F	0.34	-	0.26	-	-	-
	C = 6,800 μ F	0.36	0.32	-	-	-	-
Low Temperature Stability Impedance Ratio @ 120Hz	Z-25°C/Z+20°C	5	4	3	2	2	2
	Z-40°C/Z+20°C	12	10	8	5	4	3
Load Life Test at Rated W.V. 85°C 2,000 Hours	Capacitance Change	Within $\pm 25\%$ of initial measured value					
	Tan δ	Less than 200% of specified maximum value					
	Leakage Current	Less than specified maximum value					

PERMISSIBLE RIPPLE CURRENT (mA rms AT 120Hz AND 85°C)

Cap (μ F)	Working Voltage (Vdc)					
	6.3	10	16	25	35	50
220	-	-	-	-	300	-
330	-	-	-	350	-	-
470	-	-	400	-	-	700
1000	500	-	-	-	1000	1000
2200	-	-	1100	1250	1500	1600
3300	1200	1250	-	1700	-	-
4700	1400	-	1700	-	-	-
6800	-	1850	-	-	-	-
10,000	2000	-	-	-	-	-

MAXIMUM ESR (Ω) AT 120Hz 120Hz/20°C

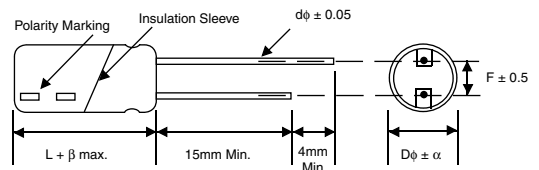
Cap (μ F)	Working Voltage (Vdc)					
	6.3	10	16	25	35	50
220	-	-	-	-	1.06	-
330	-	-	-	0.80	-	-
470	-	-	0.70	-	-	0.42
1000	0.46	-	-	-	0.23	0.20
2200	-	-	0.17	0.13	0.12	0.11
3300	0.16	0.14	-	0.10	-	-
4700	0.12	-	0.09	-	-	-
6800	-	0.08	-	-	-	-
10,000	0.06	-	-	-	-	-

STANDARD PRODUCT AND CASE SIZE TABLE D ϕ x L (mm)

Cap (μ F)	Code	Working Voltage (Vdc)					
		6.3	10	16	25	35	50
220	221	-	-	-	-	10 x 9	-
330	331	-	-	-	10 x 9	-	-
470	471	-	-	10 x 9	-	-	16 x 16
1000	102	10 x 9	-	-	-	16 x 16	16 x 21
2200	222	-	-	16 x 16	16 x 16	18 x 21	18 x 25
3300	332	16 x 16	16 x 16	-	18 x 21	-	-
4700	472	16 x 16	-	18 x 21	-	-	-
6800	682	-	18 x 21	-	-	-	-
10,000	103	18 x 21	-	-	-	-	-

LEAD SPACING AND DIAMETER (mm)

Case Dia. (D ϕ)	5	6.3	8	10	12.5	16	18
Leads Dia. (d ϕ)	0.5	0.5	0.6	0.6	0.6	0.8	0.8
Lead Spacing (F)	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Dim. α	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Dim. β	1.5	1.5	1.5	1.5	1.5	2.0	2.0



PART NUMBER SYSTEM

NRELS 102 M 35V 16X16 F

- Series
- Capacitance Code: First 2 characters significant, third character is multiplier
- Tolerance Code (M=20%)
- Working Voltage (Vdc)
- Case Size (D ϕ x L)
- RoHS Compliant

PRECAUTIONS

Please review the notes on correct use, safety and precautions found on pages T10 & T11 of NIC's Electrolytic Capacitor catalog.
Also found at www.niccomp.com/precautions
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: tpmg@niccomp.com

