

HIGH CV, RADIAL LEADS, POLARIZED

FEATURES

- EXTENDED VALUE AND HIGH VOLTAGE
- NEW REDUCED SIZES

**RoHS
Compliant**

includes all homogeneous materials

*See Part Number System for Details



CHARACTERISTICS

Rated Voltage Range		6.3 ~ 250Vdc						350 ~ 450Vdc					
Capacitance Range		4.7 ~ 10,000μF						1.5 ~ 68μF					
Operating Temperature Range		-40 ~ +85°C						-25 ~ +85°C					
Capacitance Tolerance		±20%(M)											
Max. Leakage Current @ 20°C		6.3 ~ 50Vdc				CV≤1,000μF				CV>1,000μF			
		0.01CV or 3μA whichever is greater after 2 minutes				0.1CV + 40μA (1 min.)				0.04CV + 100μA (1 min.)			
						.03CV + 15μA (5 min.)				0.02CV + 25μA (5 min.)			
Max. Tan δ @ 120Hz/20°C	W.V. (Vdc)	6.3	10	16	25	35	50	160	200	250	350	400	450
	S.V. (Vdc)	8.0	13	20	32	44	63	200	250	300	400	450	500
	C≤1,000μF	0.26	0.22	0.18	0.16	0.14	0.12	0.20	0.20	0.20	0.20	0.20	0.20
	C=2,000μF	0.28	0.24	0.20	0.18	0.16	0.14	-	-	-	-	-	-
	C=3,300μF	0.30	0.26	0.22	0.20	0.18	-	-	-	-	-	-	-
	C=4,700μF	0.32	0.28	0.24	0.22	-	-	-	-	-	-	-	-
	C=6,800μF	0.36	0.32	0.28	-	-	-	-	-	-	-	-	-
Low Temperature Stability Impedance Ratio @ 120Hz	C=10,000μF	0.44	0.40	-	-	-	-	-	-	-	-	-	-
	W.V. (Vdc)	6.3	10	16	25	35	50	160	200	250	350	400	450
	Z-25°C/Z+20°C	6	4	4	3	2	2	3	3	3	5	5	7
	Z-40°C/Z+20°C	12	10	8	6	4	3	-	-	-	-	-	-
Load Life Test at Rated W.V. +85°C 2,000 Hours		Capacitance Change				Within ±25% of initial measured value							
		Tan δ				Less than 200% of specified maximum value							
		Leakage Current				Less than specified maximum value							

PERMISSIBLE RIPPLE CURRENT

STANDARD PRODUCT AND CASE SIZE TABLE D φ x L (mm) (mA rms AT 120Hz AND 85°C)

Cap. (μF)	Code	Working Voltage (Vdc)					
		6.3	10	16	25	35	50
100	101	-	-	-	-	-	8x9
150	151	-	-	-	-	8x9	10x9
220	221	-	-	-	8x9	10x9	-
330	331	-	-	8x9	10x9	10x9	-
470	471	8x9	8x9	8x9	10x9	-	12.5x16
680	681	8x9	10x9	10x9	12.5x16	12.5x16	16x16
1,000	102	10x9	10x9	-	12.5x16	16x16	16x20
2,200	222	12.5x16	12.5x16	16x16	16x20	18x20	18x25
3,300	332	12.5x16	16x16	16x20	18x20	18x25	-
4,700	472	18x16	16x20	18x20	18x25	-	-
6,800	682	16x20	18x20	18x25	-	-	-
10,000	103	18x20	18x25	-	-	-	-

Cap. (μF)	Working Voltage (Vdc)					
	6.3	10	16	25	35	50
100	-	-	-	-	-	240
150	-	-	-	-	260	320
220	-	-	-	320	360	-
330	-	-	350	410	420	-
470	380	380	380	460	-	700
680	420	510	510	760	760	810
1,000	550	550	-	940	950	1050
2,200	1080	1080	1100	1400	1500	1650
3,300	1100	1120	1500	1550	1850	-
4,700	1200	1550	1600	2000	-	-
6,800	1550	1650	2050	-	-	-
10,000	1700	2150	-	-	-	-

PART NUMBER SYSTEM

NRELX 102 M 35V 16X16 E

Series Capacitance Code: First 2 characters significant, third character is multiplier Tolerance Code (M=20%) Working Voltage (Vdc) Case Size (Dφ 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

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

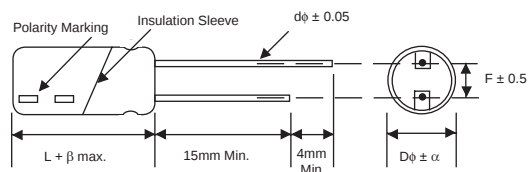
Cap. (μ F)	Code	Working Voltage (Vdc)					
		160	200	250	350	400	450
1.5	1R5	-	-	-	-	-	8x9
2.2	2R2	-	-	-	-	8x9	10x9
3.3	3R3	-	-	-	8x9	10x9	10x9
4.7	4R7	8x9	8x9	8x9	10x9	10x9	-
6.8	6R8	8x9	8x9	10x9	12.5x16	12.5x16	12.5x16
10	100	10x9	10x9	10x9	12.5x16	12.5x16	16x16
22	220	-	-	12.5x16	16x16	18x16	16x20
33	330	12.5x16	12.5x16	16x16	18x16	16x20	18x20
47	470	12.5x16	16x16	18x16	16x20	18x20	18x25
68	680	16x16	18x16	16x20	18x25	18x25	-
100	101	16x20	16x20	18x20	-	-	-
150	151	18x20	18x25	18x25	-	-	-
220	221	18x25	-	-	-	-	-

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

Cap. (μ F)	Working Voltage (Vdc)					
	160	200	250	350	400	450
1.5	-	-	-	-	-	19
2.2	-	-	-	-	35	29
3.3	-	-	-	37	40	35
4.7	54	54	54	49	49	-
6.8	60	60	69	94	94	77
10	85	85	85	100	100	131
22	-	-	156	220	226	208
33	175	175	270	270	282	259
47	220	313	330	330	350	333
68	353	380	414	455	455	-
100	478	478	507	-	-	-
150	595	671	671	-	-	-
220	771	-	-	-	-	-

LEAD SPACING AND DIAMETER (mm)

Case Dia. (D ϕ)	8	10	12.5	16	18
Lead Dia. (d ϕ)	0.6	0.6	0.6	0.8	0.8
Lead Spacing (F)	3.5	5.0	5.0	7.5	7.5
Dim. α	0.5	0.5	0.5	0.5	0.5



β max. $L \leq 16\text{mm} = 1.5\text{mm}$, $L \geq 20\text{mm} = 2.0\text{mm}$

**RIPPLE CURRENT FREQUENCY
CORRECTION FACTORS**

Frequency (Hz)	60	120	500	1K	10K $\geq$
1.5 ~ 6.8 μ F	0.65	1.00	1.20	1.30	1.50
10 ~ 68 μ F	0.80	1.00	1.20	1.30	1.50
100 ~ 1,000 μ F	0.80	1.00	1.10	1.15	1.20
2,200 ~ 10,000 μ F	0.80	1.00	1.05	1.10	1.15