

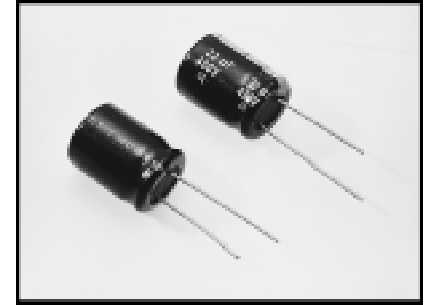
NRE-HW SERIES HIGH VOLTAGE, RADIAL LEADS, POLARIZED, EXTENDED TEMPERATURE

FEATURES

- HIGH VOLTAGE (UP THROUGH 450VDC)
- NEW REDUCED SIZES
- +105°C EXTENDED OPERATING TEMPERATURE

CHARACTERISTICS

Rated Voltage Range	160 ~ 450VDC						
Capacitance Range	0.47 ~ 330μF						
Operating Temperature Range	-40°~+105°C: (160~400V) or -25°~+105°C: (450V)						
Capacitance Tolerance	±20% (M)						
Max. Leakage Current @ (20°C)	CV ≤ 1000μF 0.03CV +15μA, CV > 1000μF 0.02CV +25μA (after 2 minutes)						
Max. Tan δ @ 120Hz/20°C	W.V. (Vdc)	160	200	250	350	400	450
	Tan δ	0.20	0.20	0.20	0.25	0.25	0.25
Low Temperature Stability Impedance Ratio @ 120Hz	Z-25°C/Z+20°C	3	3	3	4	6	6
	Z-40°C/Z+20°C	6	6	6	8	10	-
Load Life Test at Rated W.V. +105°C 2,000 Hours: 10Ø &up +105°C 1,000 Hours: 8 Ø	Capacitance Change	Within +25% of initial measured value					
	Tan δ	Less than 200% of specified maximum value					
	Leakage Current	Less than specified maximum value					
Shelf Life Test +85°C 1,000 Hrs. With No Load	Shall Meet Same Requirements as in Load Life Test						



MAXIMUM PERMISSIBLE RIPPLE CURRENT (mA rms) AT 105°C AND

Cap (μF)	Working Voltage (Vdc)					
	160	200	250	350	400	450
0.47	7	8	8	10	10	
1.0	15	16	18	20	20	18
2.2	22	24	25	28	28	28
3.3	28	32	34	36	36	36
4.7	39	40	41	47	47	47
10	63	64	66	70	70	70
22	107	112	119	123	126	125
33	137	147	154	158	161	154
47	172	175	182	182	189	172
68	217	228	235	242	249	
100	287	301	302			
150	385	403	412			
220	522	532				
331	560					

STANDARD PRODUCTS AND CASE SIZE D φ x L (mm)

Cap (μF)	Code	Working Voltage (Vdc)					
		160	200	250	350	400	450
0.47	R47	5 x 11	5 x 11	5 x 11	6.3 x 11	6.3 x 11	
1.0	1R0	5 x 11	5 x 11	5 x 11	6.3 x 11	8 x 11.5	8 x 12.5
2.2	2R2	6.3 x 11	6.3 x 11	6.3 x 11	8 x 11.5	8 x 11.5	10 x 16
3.3	3R3	6.3 x 11	6.3 x 11	8 x 11.5	8 x 12.5	10 x 12.5	10 x 20
4.7	4R7	6.3 x 11	8 x 11.5	8 x 11.5	10 x 12.5	10 x 16	12.5 x 20
10	100	8 x 11.5	8 x 12.5	10 x 12.5	10 x 20	10 x 20	12.5 x 25
22	220	10 x 12.5	10 x 16	10 x 20	12.5 x 25	12.5 x 25	16 x 25
33	330	10 x 20	10 x 20	12.5 x 20	16 x 25	16 x 25	16 x 31
47	470	12.5 x 20	12.5 x 20	12.5 x 25	16 x 31	16 x 31	18 x 36
68	680	12.5 x 20	12.5 x 25	16 x 25	16 x 36	18 x 36	18 x 41
100	101	12.5 x 25	16 x 25	16 x 36	18 x 41		
150	151	16 x 31	16 x 36	18 x 36			
220	221	16 x 36	18 x 36				
330	331	18 x 41					

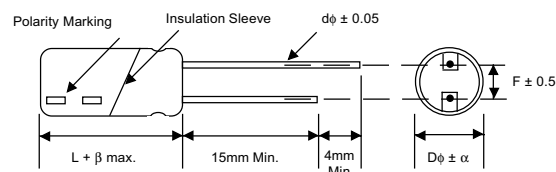
MAXIMUM E.S.R. (Ω) AT 20°C AND 120Hz

Cap (μF)	W.V. (Vdc)	
	160-250	350-450
0.47	706	882
1.0	332	415
2.2	151	188
3.3	101	126
4.7	70.6	86.2
10	33.2	41.5
22	15.1	18.8
33	10.1	12.6
47	7.06	8.82
68	4.88	6.10
100	3.32	4.15
150	2.21	
220	1.51	
331	1.01	

LEAD SPACING AND DIAMETER (mm)

Case Dia. (Dφ)	5	6.3	8	10	12.5	16	18
Leads Dia. (dφ)	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

$$\beta = L < 20\text{mm} = 1.5\text{mm}, L > 20\text{mm} = 2.0\text{mm}$$



SLEEVE COLOR: DARK BROWN