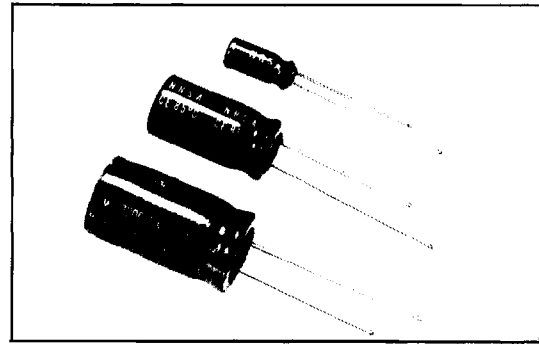


**RADIAL LEADS, POLARIZED, REDUCED CASE SIZING, ANTI-SOLVENT END SEAL (5 minutes)**

**NRE → NRSA → NRSS**

**CHARACTERISTICS:**

Rated Voltage Range		6.3 ~ 100 VDC
Capacitance Range		0.47 ~ 10,000 $\mu$ F
Operating Temperature Range		-40 ~ +85 $^{\circ}$ C
Capacitance Tolerance		$\pm$ 20% (M)
Leakage Current (20 $^{\circ}$ C)	After 1 min.	0.03CV or 4 $\mu$ A, whichever is greater
	After 2 min.	0.01CV or 3 $\mu$ A, whichever is greater



Tan $\delta$ 120Hz 20 $^{\circ}$ C	W.V. (Vdc)	6.3	10	16	25	35	50	63	100
	S.V. (Vdc)	8	13	20	32	44	63	79	125
	C $\leq$ 1,000 $\mu$ F	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08
	C - 2,200 $\mu$ F	0.24	0.21	0.18	0.16	0.14	0.12	0.11	
	C - 3,300 $\mu$ F	0.26	0.23	0.20	0.18	0.16	0.14	0.13	
	C - 4,700 $\mu$ F	0.28	0.25	0.22	0.20	0.18	0.20		
	C - 6,800 $\mu$ F	0.32	0.29	0.26	0.24				
C - 10,000 $\mu$ F	0.40	0.37	0.34	0.32					

Impedance Ratio	W.V. (Vdc)	6.3	10	16	25	35 ~ 100
	Z-25 $^{\circ}$ C/Z+20 $^{\circ}$ C *1	4	3	2	2	2
	Z-40 $^{\circ}$ C/Z+20 $^{\circ}$ C *2	10	8	6	4	3

Load Life Test 85 $^{\circ}$ C, 2,000 hrs. 5-8 $\phi$ 4,000 hrs 10 $\phi$ ~	Capacitance Change	Within $\pm$ 20% of initial value
	Dissipation Factor	Less than 200% of initial specified value
	Leakage Current	Less than initial specified value

Shelf Life Test 85 $^{\circ}$ C, 1,000 hrs. No Load	Capacitance Change	Within $\pm$ 20%
	Dissipation Factor	Less than 200% of initial specified value
	Leakage Current	Less than initial specified value (with pre-conditioning)

Note: Capacitors shall conform to JIS-C-5141, unless otherwise specified here.

\*1. Add 0.5 every 1000 $\mu$ F for more than 1000 $\mu$ F

\*2. Add 1.0 every 1000 $\mu$ F for more than 1000 $\mu$ F

**Permissible Ripple Current at 85 $^{\circ}$ C and 120Hz (mArms)**

W.V. (Vdc) Cap ( $\mu$ F)	6.3	10	16	25	35	50	63	100
0.47								11
1.0								15
2.2								25
3.3								35
4.7						33	35	45
10					50	55	60	70
22				70	75	85	100	120
33			80	85	95	110	140	170
47			95	100	120	140	190	230
100		130	160	170	210	230	300	370
220		210	260	270	370	420	490	600
330	240	290	330	400	470	580	680	700
470	330	350	440	510	600	730	880	930
1,000	570	660	760	900	980	1100	1300	
2,200	940	1000	1200	1300	1400	1700	2200	
3,300	1100	1200	1400	1600	1700	2200	2300	
4,700	1300	1500	1700	1900	2400	2500		
6,800	1600	1700	2000	2550				
10,000	1800	1900	2650	2750				

**Maximum E.S.R. at 20 $^{\circ}$ C and 120Hz ( $\Omega$ )**

W.V. (Vdc) Cap ( $\mu$ F)	6.3	10	16	25	35	50	63	100
0.47								283
1.0								133
2.2								60.4
3.3								40.3
4.7							35.3	28.3
10							19.9	16.6
22						10.6	9.05	7.54
33						8.05	7.04	6.04
47						5.65	4.94	4.24
100						2.66	2.33	1.99
220						1.44	1.21	1.06
330	1.11	0.956	0.805	0.704	0.604	0.503	0.453	0.403
470	0.777	0.671	0.565	0.494	0.424	0.353	0.318	0.283
1,000	0.385	0.316	0.266	0.233	0.199	0.166	0.150	
2,200	0.181	0.159	0.136	0.121	0.106	0.0905	0.083	
3,300	0.131	0.116	0.101	0.0905	0.0805	0.0829	0.065	
4,700	0.0988	0.0883	0.0777	0.0706	0.0635	0.07		
6,800	0.0781	0.0708	0.0653	0.059				
10,000	0.0663	0.0614	0.0564	0.0531				

**Ripple Current Correction Factor**

**1. Temperature Factor**

Ambient Temperature ( $^{\circ}$ C)	60	70	85
Correction Rate	1.50	1.30	1.00

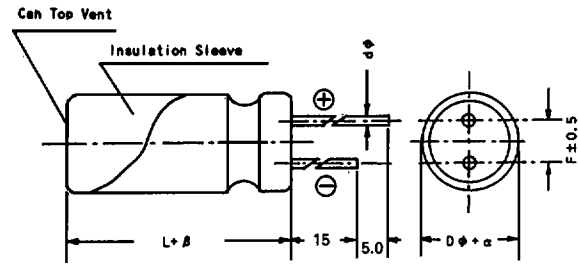
**2. Frequency Factor**

Frequency (Hz)	50	120	300	1K	10K	100K
0.47 ~ 3.3 $\mu$ F	0.65	1.00	1.35	1.75	2.30	2.50
4.7 ~ 33 $\mu$ F	0.75	1.00	1.25	1.50	1.75	1.80
47 ~ 1000 $\mu$ F	0.80	1.00	1.15	1.30	1.40	1.50
2200 ~ 10000 $\mu$ F	0.85	1.00	1.03	1.05	1.08	1.08



### LEAD SPACING AND DIAMETER mm

Case Dia. (D $\phi$ )	5	6.3	8	10	12.5	16	18	22
Leads Dia. (d $\phi$ )	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
Lead Spacing (F) (NOMINAL)	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Dim. $\alpha$	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0
Dim. $\beta$	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0



SLEEVE COLOR: DARK BLUE

### STANDARD PRODUCTS AND CASE SIZE TABLE mm D $\phi$ $\times$ L

CAP $\mu$ F \backslash WV	6.3	10	16	25	35	50	63	100
0.47								5x11
1.0						5x11	5x11	5x11
2.2						5x11	5x11	5x11
3.3						5x11	5x11	5x11
4.7						5x11	5x11	5x11
10					5x11	5x11	5x11	6.3x11
22			5x11	5x11	5x11	5x11	6.3x11	8x11.5
33			5x11	5x11	5x11	6.3x11	6.3x11	10x12.5
47			5x11	5x11	6.3x11	6.3x11	8x11.5	10x16
100		5x11	6.3x11	6.3x11	8x11.5	8x11.5	10x12.5	12.5x20
220		6.3x11	8x11.5	8x11.5	10x12.5	10x16	10x20	16x25
330	6.3x11	8x11.5	8x11.5	10x12.5	10x16	10x20	12.5x20	16x25
470	8x11.5	8x11.5	10x12.5	10x16	10x20	12.5x20	12.5x25	16x31
1000	10x12.5	10x16	10x20	12.5x20	12.5x25	16x25	16x31	
1500	10x20	12.5x20	12.5x25	12.5x25	16x25	16x31	18x36	
2200	12.5x20	12.5x20	12.5x25	16x25	16x31	18x36	18x36	
3300	12.5x20	12.5x25	16x25	16x31	18x36	22x36	22x41	
4700	16x25	16x25	16x31	18x36	22x36	22x42		
6800	16x25	16x31	18x36	22x36				
10,000	16x31	18x36	22x36	22x41				

