

NP Series

- General , Non-Polar ,85°C
85°C,一般無極性產品
- Suit for use in circuits whose polarity is reversed or unknown
適用於極性轉換的電子整機

NR Series

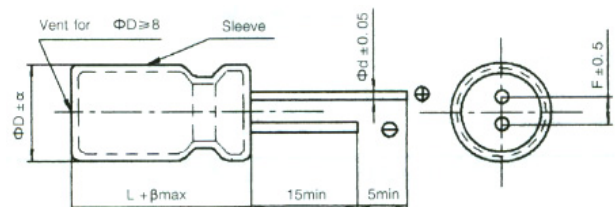
- General , Non-Polar ,105°C
105°C,一般無極性產品

Specifications

Item 項目	Characteristics 特性																			
	NP	NR																		
Operating Temperature Range 使用溫度範圍	-40°C to +85°C	-40°C to +105°C																		
Rated Voltage Range 額定電壓範圍	6.3 to +100 VDC																			
Capacitance Tolerance 靜電容量容許差	±20%(M)																			
Leakage Current 漏電流	I=0.06CV or 10 μA , whichever is greater(after 1 minute) (at 25°C) I=0.03CV or 3 μA , whichever is greater(after 3 minute) where, I: Leakage current(μA) , C: Nominal capacitance (μF), V: rated Voltage(V)																			
Dissipation Factor (tan δ) 損失角正切(tan δ)	<table border="1"> <tr> <td>Rated voltage (V)</td> <td>6.3~10</td> <td>16~25</td> <td>35</td> <td>50</td> <td>63~80</td> <td>100</td> </tr> <tr> <td>DF(tan δ)</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </table> <p>Above tan δ specifications shall be 0.02 added every 1000 μF for capacitance exceeding 1000 μF.</p>		Rated voltage (V)	6.3~10	16~25	35	50	63~80	100	DF(tan δ)	0.24	0.20	0.16	0.14	0.12	0.10				
Rated voltage (V)	6.3~10	16~25	35	50	63~80	100														
DF(tan δ)	0.24	0.20	0.16	0.14	0.12	0.10														
Low Temperature Characteristics 低溫特性	Impedance Ratio: (at 120Hz) <table border="1"> <tr> <td>Rated voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35~100</td> </tr> <tr> <td>Z(-25°C)/(25°C)</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-25°C)/(40°C)</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> </tr> </table>		Rated voltage (V)	6.3	10	16	25	35~100	Z(-25°C)/(25°C)	4	3	2	2	2	Z(-25°C)/(40°C)	10	8	6	4	3
Rated voltage (V)	6.3	10	16	25	35~100															
Z(-25°C)/(25°C)	4	3	2	2	2															
Z(-25°C)/(40°C)	10	8	6	4	3															
Load Life 高溫負荷特性	The following specifications shall be satisfied when the capacitors are restored to 25°C after the rated voltage is applied for 2000 hours at 85°C, or 1000 hours at 105°C Polarization shall be reversed every 250 hours. Capacitance change ≤±25% of the initial value (16V~) ≤±20% of the initial value (25V~) DF(tan δ) ≤150% of the initial specified value Leakage current ≤The initial specified value																			
Shelf Life 高溫貯存特性	The following specifications shall be satisfied when the capacitors are restored to 25°C after exposing them at maximum operating temperature for 1000 hours without voltage applied .the Rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not less than 48 hours before the measurements. Capacitance change ≤±25% of the initial value (16V~) ≤±20% of the initial value (25V~) DF(tan δ) ≤150% of the initial specified value Leakage current ≤The initial specified value																			

Pitch Dimension (mm)

DΦ	5	6.3	8	10	12	13	16	18
F	2	2.5	3.5	5	5	5	7.5	7.5 10
d	0.5	0.5	0.5	0.6	0.6	0.6	0.8	
α	0.5							
β	+1.5-0.5							



NP Series

Standard Ratings

85°C

V _{DC}	6.3		10		16		25		35		50		63		80		100	
Item μF	D*L (mm)	mAms/ (85°C) 120Hz	D*L (mm)	mAms/ (85°C) 120Hz	D*L (mm)	mAms/ (85°C) 120Hz	D*L (mm)	mAms/ (85°C) 120Hz	D*L (mm)	mAms/ (85°C) 120Hz	D*L (mm)	mAms/ (85°C) 120Hz	D*L (mm)	mAms/ (85°C) 120Hz	D*L (mm)	mAms/ (85°C) 120Hz	D*L (mm)	mAms/ (85°C) 120Hz
0.47											5*11	11	5*11	12	5*11	13	5*11	14
1											5*11	17	5*11	18	5*11	20	5*11	21
2.2											5*11	25	5*11	27	5*11	29	6.3*11	34
3.3											5*11	27	6.3*11	28	6.3*11	39	8*12	39
4.7									5*11	34	5*11	34	6.3*11	34	8*12	47	8*12	47
10					6.3*11	42	5*11	42	6.3*11	43	8*12	52	8*12	57	10*13	65	10*12	71
22			5*11	57	6.3*11	57	8*12	65	8*12	73	10*12	89	10*17	95	10*20	125	13*20	135
33	5*11	64	6.3*11	64	8*12	70	8*12	80	10*12	100	10*16	105	10*20	135	13*21	150	13*21	220
47	6.3*11	76	6.3*11	76	8*12	95	10*13	95	10*17	120	10*20	150	13*21	180	13*21	195	13*26	240
100	8*12	125	8*12	125	10*16	160	10*20	160	13*21	230	13*21	265	16*26	320	16*26	350	16*32	425
220	10*12	215	10*17	215	10*20	275	13*21	305	16*26	410	16*26	480	16*32	575				
330	10*17	265	10*20	345	13*21	375	16*26	450	16*26	505	16*36	650						
470	10*20	370	13*21	410	13*26	485	16*26	540	16*32	655								
1000	13*25	650	16*25	720	16*32	855												
2200	16*31	1160	16*35	1280														

NR Series

Standard Ratings

105°C

V _{DC}	6.3		10		16		25		35		50		63		80		100	
Item μF	D*L (mm)	mAms/ (105°C) 120Hz	D*L (mm)	mAms/ (105°C) 120Hz	D*L (mm)	mAms/ (105°C) 120Hz	D*L (mm)	mAms/ (105°C) 120Hz	D*L (mm)	mAms/ (105°C) 120Hz	D*L (mm)	mAms/ (105°C) 120Hz	D*L (mm)	mAms/ (105°C) 120Hz	D*L (mm)	mAms/ (105°C) 120Hz	D*L (mm)	mAms/ (105°C) 120Hz
0.47											5*11	7	5*11	9	5*11	10	5*11	12
1											5*11	10	5*11	12	5*11	14	5*11	16
2.2											5*11	15	5*11	17	5*11	18	6.3*11	20
3.3											6.3*11	18	6.3*11	20	6.3*11	23	8*12	25
4.7									5*11	21	6.3*11	22	6.3*11	24	8*12	27	8*12	30
10					6.3*11	27	6.3*11	27	6.3*11	30	8*12	37	8*12	40	10*13	46	10*13	50
22			5*11	37	6.3*11	40	8*12	46	8*12	51	10*12	63	10*17	68	10*20	89	13*20	97
33	5*11	45	6.3*11	45	8*12	19	8*12	56	10*12	72	10*16	77	10*20	98	13*21	105	13*21	140
47	6.3*11	54	6.3*11	54	8*12	67	10*12	67	10*17	86	10*20	105	13*21	130	13*21	140	13*26	170
100	8*12	90	8*12	90	10*16	110	10*20	110	13*21	160	13*21	190	16*26	225	16*26	245	16*32	300
220	10*13	150	10*17	150	10*20	195	13*21	215	16*26	290	16*25	340	16*32	405				
330	10*17	185	10*20	240	13*21	265	16*26	320	16*26	350	16*35	460						
470	10*20	260	13*21	290	13*25	345	16*26	380	16*32	465								
1000	13*26	460	16*26	510	16*31	605												
2200	16*32	820	16*35	940														

Ripple Current Multipliers

Temperature Multipliers

Series	Ambient temp		
	70°C	85°C	105°C
NP	1.3	1	-
NR	2.09	1.75	1

Frequency Multipliers

Cap.(μF)	Freq(Hz)					
	50	120	300	1K	10K	100K
~3.3	0.65	1	1.35	1.75	2.30	2.50
4.7~33	0.75	1	1.25	1.50	1.75	1.80
47~1000	0.80	1	1.15	1.30	1.40	1.50
2200~	0.85	1	1.03	1.05	1.08	1.08