

PN 系列 Series

特点 Features

- 耐高纹波,尺寸可调, 85°C 2000小时, 可用于大功率电源、UPS不间断电源、变频器等电路中。
High ripple current, Size may be selected, Load life of 2000 hours at 85°C,
Used large power source, Uninterruptible power supplies, Frequency converter circuit .etc.
- RoHS指令已对应完毕。Adapted to the RoHS directive



主要技术性能 Specifications

项目 Items	特性 Performance Characteristics					
使用温度范围 Operating Temperature Range	-40~+85℃			-25~+85℃		
额定电压范围 Rated Voltage Range	10~100 V			160~500 V		
标称电容量允许偏差 Nominal Capacitance Tolerance	±20% (120Hz, +20℃)					
漏电流 Leakage Current	I ≤0.01CV(μA)或5mA 5分钟 取较小值 (at 20℃, after 5 minutes, Whichever is smaller)					
损耗角正切值(tgδ) Dissipation Factor (+20℃, 120Hz)	小于图表中规定的数值 Less than the value specified in the standard products tables					
温度特性 Temperature Characteristics (Impedance ratio at 120Hz)	Rated Voltage (V)	10~50	63~100	160~250	350~450	500
	Z-25℃/Z+20℃	4	3	5	8	9
	Z-40℃/Z+20℃	12	10			
高温贮存 Shelf Life	+85℃, 1000小时贮存后, 加额定工作电压处理30分钟, 恢复16小时后: After storage for 1000 hours at +85℃, UR to be applied for 30 minutes and then resumed for 16 hours 电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value 漏电流 Leakage current : ≤初始规定值 ≤Initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2times of the initial specified value					

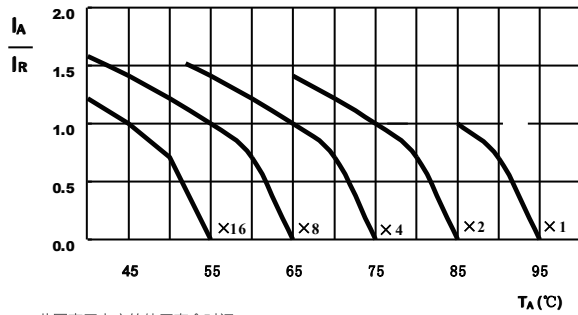
	使用寿命 (Useful Life)		负载寿命 (Load Life)	耐久性测试 (Endurance Test)
寿命时间(Lifetime)	4000h	> 65000h	2000h	2000h
漏电流(Leakage Current)	≤初始规定值 Not more than specified value		≤初始规定值 Not more than specified value	≤初始规定值 Not more than specified value
电容量变化率(Capacitance Change)	±30%初始测量值内 Within ±30% initial value		±20%初始测量值内 Within ±20% initial value	±10%初始测量值内 Within ±10% initial value
损耗角正切值(Dissipation Factor)	≤3倍初始规定值 Not more than 300% of specified value		≤2倍初始规定值 Not more than 200% of specified value	≤1.3倍初始规定值 Not more than 130% of specified value
应用条件(Condition) 应用电压(Applied Voltage) 应用电流(Applied Current) 应用温度(Applied Temperature) 失效率(Outlier Percetage)	U _R I _R 85°C ≤1%	U _R 1.2×I _R 40°C ≤1%	U _R I _R 85°C 0%	U _R I _R =0 85°C IEC60384

纹波电流的相关参数 Multiplier for Ripple Current

频率系数 Frequency Coefficient

Frequency (Hz)	50	100 (120)	300	1k	3k	10K	≥20K
Rated Voltage (V)							
10~50	0.95	1.00	1.04	1.10	1.12	1.15	1.15
63~100	0.95	1.00	1.06	1.16	1.22	1.30	1.36
160~500	0.80	1.00	1.10	1.25	1.35	1.50	1.55

寿命时间图 Life Time Graph



此图表示电容的使用寿命时间
The graphs shows a typical trend of the standard capacitor useful life.

尺寸 Dimensions

U _R (SV)	Capacitance	Dissipation Factor	Max ESR 20°C , 120Hz	Typ ESR 20°C , 120Hz	Ripple Current 85°C, 120Hz	SIZE D×L
(V)	(µF)	-	(mΩ)	(mΩ)	(Arms)	(mm)
10 (13)	33000	0.80	34.7	20.5	4.3	35×50
	39000	0.80	29.4	17.6	4.7	35×50
	47000	0.80	24.4	14.6	5.2	35×65
	56000	0.80	20.5	12.5	6.1	35×80
	68000	0.80	16.9	10.1	6.7	35×80
	82000	0.80	14.0	9.0	7.7	35×100
	100000	0.80	11.5	7.5	8.8	35×100
	120000	0.80	9.6	7.1	10.0	35×120
	150000	1.00	9.6	6.5	10.8	35×120
	180000	1.00	8.0	6.0	12.0	51×95
	220000	1.50	9.8	5.0	11.2	51×120
	270000	1.50	8.0	4.4	12.8	51×120
	330000	1.50	6.5	3.8	15.3	63.5×95
	390000	1.50	5.5	3.4	17.3	63.5×115
	470000	2.00	6.1	2.9	18.7	63.5×130
	560000	2.00	5.1	2.7	19.0	76×115
16 (20)	680000	2.00	4.2	2.5	21.7	76×130
	820000	2.00	3.5	2.4	24.7	76×155
	22000	0.60	39.1	22.0	4.1	35×50
	27000	0.60	31.8	19.1	4.5	35×50
	33000	0.60	26.1	15.7	5.0	35×50
	39000	0.60	22.0	13.1	5.9	35×65
	47000	0.60	18.3	11.0	6.4	35×80
	56000	0.60	15.4	9.5	7.3	35×80
	68000	0.60	12.6	7.9	8.4	35×100
	82000	0.80	14.0	6.8	8.3	35×100
	100000	0.80	11.5	5.8	9.5	35×120
	120000	0.80	9.6	5.1	10.9	35×120
	150000	1.00	9.6	4.4	11.3	51×95
	180000	1.00	8.0	4.0	12.8	51×115
	220000	1.00	6.5	3.4	15.3	51×130
	270000	1.00	5.3	3.0	16.6	63.5×95
25 (32)	330000	1.50	6.5	2.8	17.8	63.5×115
	390000	1.50	5.5	2.6	18.3	63.5×130
	470000	1.50	4.6	2.4	21.3	76×120
	560000	1.50	3.8	2.2	23.6	76×130
	680000	1.50	3.2	2.0	27.6	76×155
	820000	2.00	3.5	1.9	27.1	89×155
	15000	0.50	47.8	22.0	3.7	35×50
	18000	0.50	39.8	18.0	4.1	35×50
	22000	0.50	32.6	15.8	4.5	35×50
	27000	0.50	26.5	12.8	5.0	35×65
	33000	0.50	21.7	11.0	5.9	35×80
	39000	0.50	18.4	9.4	6.7	35×80
	47000	0.50	15.2	7.8	7.7	35×100
	56000	0.60	15.4	6.8	7.9	35×100
	68000	0.60	12.6	5.8	9.1	35×120
	82000	0.60	10.5	5.1	10.4	35×120
35 (44)	100000	0.80	11.5	4.4	10.3	51×95
	120000	0.8	9.6	4.0	11.7	51×115
	150000	0.8	7.6	3.4	14.1	51×130
	5600	0.3	76.7	46.0	3.0	35×50
	6800	0.3	63.2	38.0	3.3	35×50
	8200	0.3	52.4	31.4	3.6	35×50
	10000	0.3	43.0	25.8	4.0	35×65
	12000	0.3	35.8	21.5	4.7	35×80
	15000	0.3	28.6	15.0	5.5	35×80
	18000	0.3	23.9	12.0	6.2	35×100
	22000	0.4	26.1	10.8	6.3	35×120
	27000	0.4	27.5	11.2	6.2	51×70
	33000	0.4	21.2	9.5	7.1	35×120
	39000	0.5	18.4	8.2	8.1	51×95
	47000	0.5	15.2	7.6	9.3	51×115
	56000	0.5	12.8	6.4	10.5	63.5×95
50 (63)	68000	0.5	10.5	5.3	12.0	63.5×95
	82000	0.5	8.7	4.2	13.7	63.5×115
	93000	0.5	8.5	4.1	14.2	63.5×130
	100000	0.6	8.6	3.9	14.7	76×115
	120000	0.6	7.2	3.3	16.7	76×115
	150000	0.6	5.7	3.0	19.3	76×130
	180000	0.6	4.8	2.5	21.9	76×155
	220000	0.6	3.9	2.0	21.4	89×130
	270000	0.6	3.2	1.8	24.6	89×155

尺寸 Dimensions

U _R (SV)	Capac - itance	Dissipation Factor	Max ESR 20°C , 120Hz	Typ ESR 20°C , 120Hz	Ripple Current 85°C, 120Hz	SIZE D×L
(V)	(μF)	-	(mΩ)	(mΩ)	(Arms)	(mm)
63 (79)	3900	0.25	91.8	47.2	2.7	35×50
	4700	0.25	76.2	39.0	3.0	35×50
	5600	0.25	64.0	38.4	3.3	35×50
	6800	0.25	52.7	31.6	3.6	35×65
	8200	0.25	43.7	26.2	4.3	35×80
	10000	0.25	35.8	23.3	4.9	35×80
	12000	0.25	29.9	18.0	5.6	35×100
	15000	0.3	28.6	16.0	5.9	35×100
	18000	0.3	23.9	14.6	6.7	35×120
	22000	0.3	19.5	13.0	7.8	35×120
	22000	0.3	21.4	14.1	7.2	51×80
	27000	0.4	21.2	12.4	7.4	51×95
	33000	0.4	17.4	7.9	8.4	51×95
	39000	0.4	14.7	7.4	9.5	51×115
	47000	0.4	12.2	6.2	11.3	51×130
	56000	0.4	10.2	5.5	12.8	63.5×115
	59000	0.4	9.8	5.2	13.5	63.5×130
	68000	0.5	10.5	5.3	12.7	63.5×120
	82000	0.5	8.7	4.4	14.5	63.5×130
	93000	0.5	8.4	4.3	14.8	63.5×130
	100000	0.5	7.2	3.6	16.7	76×115
	120000	0.5	6.0	3.0	18.9	76×130
	150000	0.5	4.8	2.4	22.4	76×150
	150000	0.5	4.8	2.4	22.4	76×155
	180000	0.6	4.8	2.4	22.4	89×130
	220000	0.6	3.9	2.0	26.2	89×155
80 (100)	3300	0.25	109	54.0	2.5	35×50
	3900	0.25	91.8	46.0	2.8	35×50
	4700	0.25	76.2	38.1	3.0	35×65
	5600	0.25	64.0	32.0	3.6	35×80
	6800	0.25	52.7	26.4	3.9	35×80
	8200	0.25	43.7	22.1	4.5	35×80
	10000	0.25	42.5	21.5	4.8	35×70
	10000	0.25	35.8	17.1	5.2	35×100
	12000	0.25	29.9	15.0	5.9	35×100
	15000	0.25	23.9	12.0	6.8	35×120
	18000	0.25	19.9	10.4	7.8	35×120
	22000	0.30	19.5	9.8	8.0	51×95
	27000	0.30	15.9	8.0	9.2	51×95
	33000	0.30	13.0	6.5	10.5	51×115
	39000	0.30	11.0	6.0	12.0	51×130
	47000	0.30	9.2	4.9	13.6	63.5×115
	47000	0.30	9.2	4.9	13.6	64×115
	56000	0.40	10.2	4.3	13.4	63.5×130
	68000	0.40	8.4	4.0	15.4	76×115
	82000	0.40	7.0	3.5	17.5	76×130
100 (125)	100000	0.40	5.7	2.8	20.5	76×155
	120000	0.40	4.8	2.4	22.4	89×130
	1800	0.25	199	48.2	1.9	35×50
	2200	0.25	163	44.0	2.1	35×50
	2700	0.25	133	38.5	2.3	35×50

U _R (SV)	Capac - itance	Dissipation Factor	Max ESR 20°C , 120Hz	Typ ESR 20°C , 120Hz	Ripple Current 85°C, 120Hz	SIZE D×L
(V)	(μF)	-	(mΩ)	(mΩ)	(Arms)	(mm)
100 (125)	3300	0.25	109	34.6	2.6	35×65
	3900	0.25	91.8	28.4	3.0	35×80
	4700	0.25	76.2	26.3	3.5	35×80
	5600	0.25	64.0	23.0	3.9	35×100
	6800	0.25	52.7	21.8	4.5	35×100
	8200	0.25	43.7	20.0	5.1	35×120
	8200	0.25	46.4	22	5.0	50×80
	10000	0.25	35.8	18.7	5.9	35×120
	10000	0.25	44.5	20	5.2	50×80
	12000	0.25	29.9	16.0	6.4	51×75
	15000	0.25	23.9	11.5	7.0	51×95
	15000	0.25	22.4	11.2	7.5	51×110
	18000	0.25	19.9	9.8	8.3	51×115
	22000	0.25	16.5	7.8	10.1	51×120
	22000	0.25	16.3	7.9	10.0	51×130
	22000	0.25	16.2	7.8	10.0	63.5×115
	27000	0.25	13.3	6.8	11.5	63.5×115
	33000	0.25	10.9	5.5	11.9	63.5×130
	39000	0.25	9.2	4.9	13.4	76×115
	47000	0.35	10.7	5.5	14.2	76×130
	56000	0.35	9.0	4.0	16.0	76×155
	56000	0.35	9.0	4.0	16.0	89×130
	68000	0.35	7.4	3.4	18.8	89×130
	82000	0.35	6.1	3.0	20.5	89×155
	100000	0.35	5.0	2.5	24.0	89×170
160 (200)	3300	0.25	109	30.7	5.2	35×120
	3900	0.25	91.8	26.2	5.3	51×75
	4700	0.25	76.2	20.8	5.9	51×75
	5600	0.25	64.0	18.8	7.0	51×95
	6800	0.25	52.7	16.2	7.8	51×95
	8200	0.25	43.7	13.5	9.1	51×115
	10000	0.25	35.8	12.9	10.4	63.5×95
	12000	0.25	29.9	10.2	11.3	63.5×95
	15000	0.25	23.9	9.0	14.3	63.5×130
	18000	0.25	19.9	7.5	15.6	63.5×130
	22000	0.25	16.3	6.4	18.3	76×130
	27000	0.25	13.3	5.2	20.2	76×130
	33000	0.25	10.9	3.6	23.8	89×130
	39000	0.25	9.2	2.6	27.9	89×155
	2200	0.25	163	38.5	3.9	35×100
	2700	0.25	133	26.4	4.7	35×120
200 (250)	3300	0.25	109	23.5	4.9	51×75
	3900	0.25	91.8	21.4	5.3	51×75
	4700	0.25	76.2	19.5	6.4	51×95
	5600	0.25	64.0	17.5	7.6	51×115
	6800	0.25	52.7	13.7	8.8	51×130
	8200	0.25	43.7	11.3	9.4	63.5×95
	10000	0.25	35.8	9.4	10.4	63.5×95
	12000	0.25	29.9	8.6	12.4	76×95
	15000	0.25	23.9	7.3	14.4	76×95
	18000	0.25	19.9	5.9	16.5	76×130
	22000	0.25	16.3	4.1	19.6	76×155

尺寸 Dimensions

U _R (SV)	Capac - itance	Dissipation Factor	Max ESR 20°C , 120Hz	Typ ESR 20°C , 120Hz	Ripple Current 85°C, 120Hz	SIZE D×L
(V)	(μF)	-	(mΩ)	(mΩ)	(Arms)	(mm)
200 (250)	27000	0.25	13.3	3.2	21.5	89×130
	33000	0.25	10.9	2.5	25.3	89×155
250 (300)	1500	0.25	239	49.1	3.2	35×100
	1800	0.25	199	41.1	3.5	35×100
	2200	0.25	163	32.5	4.0	51×75
	2700	0.25	133	27.7	4.4	51×75
	3300	0.25	109	23.1	5.4	51×95
	3900	0.25	91.8	20.0	6.3	51×115
	4700	0.25	76.2	16.5	7.1	63.5×95
	5600	0.25	64.0	14.2	7.8	63.5×95
	6800	0.25	52.7	11.8	9.1	63.5×115
	8200	0.25	43.7	11.1	10.0	63.5×115
	10000	0.25	35.8	10.7	11.7	63.5×130
	12000	0.25	29.9	9.2	12.9	76×115
	15000	0.25	23.9	7.3	15.1	76×130
	18000	0.25	19.9	5.8	17.7	76×155
	22000	0.25	16.3	3.2	20.9	89×155
350 (400)	390	0.20	735	268	1.7	35×50
	470	0.20	610	228	2.2	35×80
	560	0.20	512	190	2.4	35×80
	680	0.20	421	152	2.6	35×80
	820	0.20	349	126	3.1	35×100
	1000	0.20	287	104	3.4	35×100
	1200	0.20	239	85.8	3.8	51×75
	1500	0.20	191	72.2	4.3	51×75
	1800	0.20	159	58.2	5.1	51×95
	2200	0.20	130	47.9	5.7	51×95
	2700	0.20	107	39.0	7.1	51×130
	3300	0.20	86.8	32.1	7.9	51×130
	3900	0.20	73.5	27.8	9.0	63.5×115
	4700	0.20	61.0	25.0	10.3	63.5×130
	5600	0.20	51.2	22.5	11.4	76×115
	6800	0.20	42.1	17.1	13.1	76×130
400 (450)	8200	0.20	34.9	14.4	15.4	76×155
	10000	0.20	28.6	11.5	18.1	89×155
	12000	0.20	23.9	9.8	20.0	89×155
	15000	0.20	19.1	7.9	24.5	89×195
	18000	0.20	15.9	6.5	28.8	89×235
	330	0.20	868	280	1.5	35×50
	390	0.20	735	236	2.0	35×80
	470	0.20	610	189	2.2	35×80
	560	0.20	512	163	2.4	35×80
	680	0.20	421	132	2.8	35×100
	820	0.20	349	107	3.1	35×100
	1000	0.20	287	85	3.5	51×75

U _r (SV)	Capac - itance	Dissipation Factor	Max ESR 20°C , 120Hz	Typ ESR 20°C , 120Hz	Ripple Current 85°C, 120Hz	SIZE D×L
(V)	(μF)	-	(mΩ)	(mΩ)	(Arms)	(mm)
400 (450)	1200	0.20	239	72	3.8	51×75
	1500	0.20	191	58.0	4.7	51×95
	1800	0.20	159	47.2	5.5	51×95
	2200	0.20	130	38.1	6.4	51×120
	2700	0.20	107	33.2	7.0	63.5×95
	3300	0.20	86.8	31.2	8.2	63.5×115
	3900	0.20	73.5	25.1	9.4	63.5×130
	4700	0.20	61.0	23.7	10.4	76×115
	5600	0.20	51.2	19.0	11.9	76×130
	6800	0.20	42.1	15.5	14.1	76×155
	8200	0.20	34.9	13.5	16.4	89×155
	10000	0.20	28.6	11.1	18.3	89×155
	12000	0.20	23.9	9.8	21.8	89×195
	15000	0.20	19.1	8.0	26.3	89×235
450 (500)	270	0.20	1061	421	1.4	35×50
	330	0.20	868	280	1.8	35×80
	390	0.20	735	243	2.0	35×80
	470	0.20	610	200	2.2	35×80
	560	0.20	512	173	2.6	35×100
	680	0.20	421	140	2.8	35×100
	820	0.20	349	112	3.2	51×75
	1000	0.20	287	89	3.5	51×75
	1200	0.20	239	72.0	4.2	51×95
	1500	0.20	191	58.5	5.1	51×115
	1800	0.20	159	49	5.9	51×130
	2200	0.20	130	39.5	6.3	63.5×95
	2700	0.20	106	31.6	7.5	63.5×115
	3300	0.20	86.8	30.0	8.7	63.5×130
	3900	0.20	73.5	26.5	9.5	76×115
	4700	0.20	61.0	21.5	10.9	76×130
	5600	0.20	51.2	16.5	12.8	76×155
	6800	0.20	42.1	14.4	15.0	89×155
500 (550)	8200	0.20	34.9	12.1	16.5	89×155
	10000	0.20	28.6	10.0	20.0	89×195
	12000	0.20	23.9	8.0	23.6	89×235
	1000	0.25	331	106	3.5	51×100
	1500	0.25	221	70.7	4.5	51×115
	2200	0.25	150	48.2	6.4	63.5×120
	2700	0.25	122	39.2	7.6	76×120
	3300	0.25	100	32.1	8.5	76×130
	3900	0.25	85	27.2	9.8	76×150
	4700	0.25	70.5	22.5	10.5	89×130
5600	0.25	59.2	18.9	11.8	89×150	
6800	0.25	48.7	15.5	13.6	89×170	

MN 系列 Series

特点 Features

- 耐高纹波,尺寸可调, 105°C 2000小时, 可用于大功率电源、UPS不间断电源、变频器等电路中。
High ripple current, Size may be selected, Load life of 2000 hours at 105°C.
- Used large power source, Uninterruptible power supplies, Frequency converter circuit .etc.
- RoHS指令已对应完毕。Adapted to the RoHS directive.



主要技术性能 Specifications

项目 Items	特性 Performance Characteristics				
使用温度范围 Operating Temperature Range	-40~+105℃			-25~+105℃	
额定电压范围 Rated Voltage Range	25~100 V			160~450 V	
标称容量允许偏差 Nominal Capacitance Tolerance	±20% (120Hz, +20℃)				
漏电流 Leakage Current	I ≤0.01CV(μA)或5mA 5分钟 取较小值 (at 20℃, after 5 minutes, Whichever is smaller)				
损耗角正切值(tgδ) Dissipation Factor (+20℃, 120Hz)	小于图表中规定的数值 Less than the value specified in the standard products tables				
温度特性 Temperature Characteristics (Impedance ratio at 120Hz)	Rated Voltage (V)	25~50	63~100	160~250	350~450
	Z-25℃/Z+20℃	4	3	5	8
	Z-40℃/Z+20℃	12	10		
高温贮存 Shelf Life	+105℃, 1000小时贮存后, 加额定工作电压处理30分钟, 恢复16小时后: After storage for 1000 hours at +105℃, UR to be applied for 30 minutes and then resumed for 16 hours: 电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value 漏电流 Leakage current : ≤初始规定值 ≤Initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2times of the initial specified value				

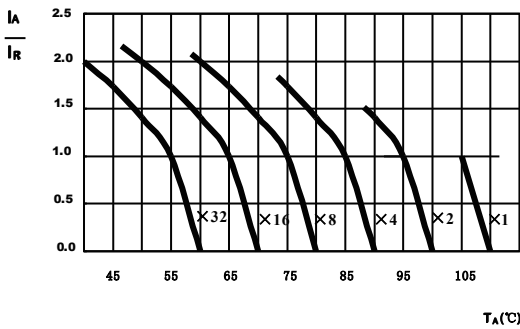
	使用寿命 (Useful Life)		负载寿命 (Load Life)	耐久性测试 (Endurance Test)
寿命时间(Lifetime)	4000h	> 200000h	2000h	2000h
漏电流(Leakage Current)	≤初始规定值 Not more than specified value		≤初始规定值 Not more than specified value	≤初始规定值 Not more than specified value
电容量变化率(Capacitance Change)	±30%初始测量值内 Within ±30% initial value		±20%初始测量值内 Within ±20% initial value	±10%初始测量值内 Within ±10% initial value
损耗角正切值(Dissipation Factor)	≤3倍初始规定值 Not more than 300% of specified value		≤2倍初始规定值 Not more than 200% of specified value	≤1.3倍初始规定值 Not more than 130% of specified value
应用条件(Condition) 应用电压(Applied Voltage) 应用电流(Applied Current) 应用温度(Applied Temperature) 失效率(Outlier Percetage)	U _R I _a 105°C ≤1%	U _R 1.2×I _R 40°C ≤1%	U _R I _a 105°C 0%	U _R IR=0 105°C IEC60384

纹波电流的相关参数 Multiplier for Ripple Current

频率系数 Frequency Coefficient

Frequency (Hz)	50	100 (120)	300	1k	3k	10K	≥20K
Rated Voltage (V)							
25~50	0.95	1.00	1.04	1.10	1.12	1.15	1.15
63~100	0.95	1.00	1.06	1.16	1.22	1.30	1.36
160~450	0.80	1.00	1.10	1.25	1.35	1.50	1.55

寿命时间图 Life Time Graph



此图表示电容的使用寿命时间
The graphs shows a typical trend of the standard capacitor useful life.

尺寸 Dimensions

U _R (SV)	Capacitance (μF)	Dissipation Factor	Max ESR 20°C , 120Hz (mΩ)	Typ ESR 20°C , 120Hz (mΩ)	Ripple Current 105°C, 120Hz (Arms)	SIZE D×L (mm)
(V)	(μF)	-	(mΩ)	(mΩ)	(Arms)	(mm)
25 (32)	10000	0.35	50	25	2.9	35×50
	15000	0.35	33	20	4.2	35×80
	22000	0.35	23	13	5.1	35×80
	33000	0.40	17	10	6.3	35×100
	47000	0.40	12	7	8.0	51×75
	68000	0.50	11	6	10.0	51×115
	100000	0.60	9	5	11.3	63.5×95
	150000	0.80	6	4	12.9	63.5×115
	220000	1.00	5	3	14.8	76×115
	330000	1.00	4	2	19.9	89×130
35 (44)	6800	0.30	63	32	2.6	35×50
	10000	0.30	43	25	3.7	35×80
	15000	0.30	29	17	4.5	35×80
	22000	0.35	23	12	5.5	35×100
	33000	0.40	17	8	6.7	51×75
	47000	0.45	14	6	8.1	51×95
	68000	0.50	11	5	10.0	51×115
	100000	0.60	9	4	12.1	63.5×115
	150000	0.70	7	4	13.8	76×115
	220000	0.70	5	3	17.6	89×130
50 (63)	3300	0.20	87	50	2.2	35×50
	4700	0.25	76	36	3.3	35×50
	6800	0.25	53	32	3.4	35×80
	10000	0.25	36	22	4.1	35×80
	15000	0.30	29	14	4.9	35×100
	22000	0.35	24	11	5.6	51×70
	22000	0.35	23	10	5.9	51×75
	33000	0.40	17	7	7.8	51×115
	47000	0.40	12	6	9.5	63.5×95
	68000	0.45	9	5	11.6	63.5×115
63 (79)	100000	0.50	7	4	14.1	76×115
	150000	0.50	5	3	18.9	89×130
	2200	0.15	98	70	2.1	35×50
	3300	0.20	87	50	2.2	35×50
	4700	0.20	61	36	3.1	35×80
	6800	0.20	42	25	3.7	35×80
	10000	0.25	36	20	4.4	35×100
	15000	0.25	24	14	5.7	51×75
	22000	0.30	20	10	6.8	51×95
	33000	0.30	13	7	9.2	63.5×95
80 (100)	47000	0.35	11	6	10.9	63.5×115
	59000	0.40	10	6	12	63.5×130
	68000	0.40	8	5	13.0	76×115
100 (125)	1000	0.15	215	70	1.4	35×50
	1500	0.15	143	55	1.7	35×50
	2200	0.15	100	40	2.2	35×60
	2200	0.15	98	38	2.5	35×80
	3300	0.15	65	25	3.0	35×80
	4700	0.15	46	21	3.9	35×100
	6800	0.15	32	19	5.0	51×75
	10000	0.15	24	14	6.0	51×80
	10000	0.15	22	13	6.5	51×95
	15000	0.35	24	15	6.0	51×80
160 (200)	15000	0.20	19	9	7.6	63.5×95
	22000	0.20	24	13	7.2	50×120
	22000	0.20	20	12	7.6	63.5×105
	22000	0.20	18	10	8.2	63.5×115
	22000	0.20	16	9	8.5	63.5×120
	22000	0.20	13	7	9.7	76×95
	33000	0.25	11	6	11.8	76×130
	47000	0.25	8	5	15.0	89×130
	470	0.15	457	265	1.4	35×50
	680	0.15	316	186	1.7	35×50
200 (250)	1000	0.15	215	125	2.2	35×80
	1500	0.15	143	85	2.8	35×80
	2200	0.15	98	55	3.6	35×100
	3300	0.15	65	38	4.8	51×80
	4700	0.15	46	35	6.3	51×95
	6800	0.15	32	25	8.1	63.5×95
	10000	0.15	22	15	10.5	76×95
	15000	0.15	14	11	14.1	76×130
	22000	0.15	10	6	17.2	89×130
	22000	0.15	10	6	17.2	89×130

尺寸 Dimensions

U _R (SV)	Capac- itance	Dissipation Factor	Max ESR 20°C , 120Hz	Typ ESR 20°C , 120Hz	Ripple Current 105°C, 120Hz	SIZE D×L
(V)	(μF)	-	(mΩ)	(mΩ)	(Arms)	(mm)
200 (250)	330	0.15	651	375	1.0	35×50
	470	0.15	457	262	1.3	35×50
	680	0.15	316	180	1.4	35×50
	1000	0.15	215	125	2.2	35×80
	1500	0.15	143	75	2.9	35×100
	2200	0.15	98	50	3.6	51×75
	3300	0.15	65	36	4.8	51×95
	4700	0.15	46	24	6.4	63.5×95
	6800	0.15	32	16	8.2	63.5×115
	10000	0.15	22	12	10.5	76×115
250 (300)	330	0.15	651	241	1.1	35×50
	470	0.15	457	169	1.3	35×50
	680	0.15	316	117	1.8	35×80
	1000	0.15	215	79	2.4	35×100
	1500	0.15	143	53	2.9	51×75
	2200	0.15	98	36	4.0	51×95
	3300	0.15	65	24	5.4	63.5×95
	4700	0.15	46	17	7.0	63.5×115
	6800	0.15	32	11	8.9	76×115
	10000	0.15	22	8	12.0	76×155
400 (450)	15000	0.15	14	6	14.1	89×130
	1000	0.15	215	92	3.3	51×75
	1200	0.15	179	77	4.0	51×95
	1500	0.15	143	62	4.8	51×115
400 (450)	1800	0.15	119	51	5.6	51×130

U _R (SV)	Capac- itance	Dissipation Factor	Max ESR 20°C , 120Hz	Typ ESR 20°C , 120Hz	Ripple Current 105°C, 120Hz	SIZE D×L
(V)	(μF)	-	(mΩ)	(mΩ)	(Arms)	(mm)
400 (450)	2200	0.15	98	42	5.9	63.5×95
	2700	0.15	80	34	7.2	63.5×115
	3300	0.15	65	28	8.0	63.5×130
	3900	0.15	55	23	9.3	63.5×155
	4700	0.15	46	19	11.3	63.5×170
	4700	0.15	46	19	10.0	76×130
	5600	0.15	38	16	12.5	63.5×195
	5600	0.15	38	16	12.0	76×155
	6800	0.15	32	13	14.0	89×150
	8200	0.15	26	11	15.3	89×155
450 (500)	10000	0.15	22	9	18.3	89×170
	470	0.15	457	195	2.2	51×80
	680	0.15	316	135	2.8	51×95
	1000	0.15	215	90	3.5	51×100
	1500	0.15	143	61	4.9	51×130
	2200	0.15	98	42	6.6	63.5×115
	3300	0.15	65	28	8.3	76×130
	4700	0.15	46	19	10.7	76×155
	5600	0.15	38	16	12.7	89×155
	6800	0.15	32	13	14.5	89×170
450 (500)	8200	0.15	26	11	17.0	89×190
	10000	0.15	22	10	19.8	89×220

FN 系列 Series

特点 Features

- 耐高纹波,长寿命, 85°C 5000小时, 可用于大功率电源、UPS不间断电源、变频器等电路中。
High ripple curren, Long life, Load life of 5000 hours at 85°C,
Used large power source, Uninterruptible power supplies,
Frequency converter circuit .etc.
- RoHS指令已对应完毕。Adapted to the RoHS directive.



主要技术性能 Specifications

项目 Items	特性 Performance Characteristics		
使用温度范围 Operating Temperature Range	-25~+85℃		
额定电压范围 Rated Voltage Range	350~450 V		
标称电容量允许偏差 Nominal Capacitance Tolerance	±20% (120Hz, +20℃)		
漏电流 Leakage Current	I ≤ 0.01CV(μA)或5mA 5分钟 取较小值 (at 20℃, after 5 minutes, Whichever is smaller)		
损耗角正切值(tgδ) Dissipation Factor (+20℃, 120Hz)	≤0.15		
温度特性 Temperature Characteristics (Impedance ratio at 120Hz)	Rated Voltage (V)	350 ~ 450	
	Z-25℃/Z+20℃	8	
高温贮存 Shelf Life	+85℃, 1000小时贮存后, 加额定工作电压处理30分钟, 恢复16小时后: After storage for 1000 hours at +85℃, U _R to be applied for 30 minutes and then resumed for 16 hours 电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value 漏电流 Leakage current : ≤初始规定值≤ Initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2times of the initial specified value		

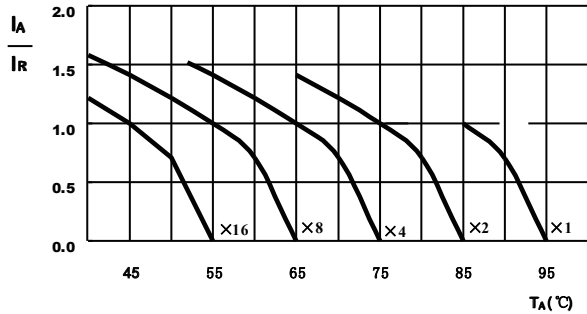
	使用寿命 (Useful Life)		负载寿命 (Load Life)	耐久性测试 (Endurance Test)
寿命时间(Lifetime)	10000h	> 75000h	5000h	5000h
漏电流(Leakage Current)	≤初始规定值 Not more than specified value		≤初始规定值 Not more than specified value	≤初始规定值 Not more than specified value
容量变化率(Capacitance Change)	±30%初始测量值内 Within ±30% initial value		±20%初始测量值内 Within ±20% initial value	±10%初始测量值内 Within ±10% initial value
损耗角正切值(Dissipation Factor)	≤3倍初始规定值 Not more than 300% of specified value		≤2倍初始规定值 Not more than 200% of specified value	≤1.3倍初始规定值 Not more than 130% of specified value
应用条件(Condition) 应用电压(Applied Voltage) 应用电流(Applied Current) 应用温度(Applied Temperature) 失效率(Outlier Percetage)	U _R I _R 85°C ≤1%	U _R 1.4×I _R 40°C ≤1%	U _R I _R 85°C 0%	U _R I _R =0 85°C IEC60384

纹波电流的相关参数 Multiplier for Ripple Current

频率系数 Frequency Coefficient

Frequency (Hz) Rated Voltage (V)	50	100 (120)	300	1k	≥10K
350~450	0.70	1.00	1.10	1.30	1.40

寿命时间图 Life Time Graph



此图表示电容的使用寿命时间
The graphs shows a typical trend of the standard capacitor useful life.

尺寸 Dimensions

Rated Voltage	Surge Voltage	Rated Capacitance	Dissipation Factor MAX	Max ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Max Ripple Current 85°C,120Hz	SIZE
(V.D.C)	(V.D.C)	(μF)	-	(mΩ)	(mΩ)	(Arms)	ΦD×L(mm)
350	400	1500	0.15	132	70.8	5.4	51×80
		2200	0.15	90.5	48.3	7.5	51×105
		2200	0.15	90.5	48.3	7.8	63.5×80
		2700	0.15	73.7	39.3	9.2	63.5×80
		3300	0.15	60.3	32.2	10.6	63.5×105
		3900	0.15	51.0	27.2	11.7	63.5×105
		4700	0.15	42.3	22.6	12.5	63.5×135
		4700	0.15	42.3	22.6	13	76×105
		5600	0.15	35.5	19.0	14.5	63.5×145
		6800	0.15	29.3	15.6	17.8	76×135
		8200	0.15	24.3	12.9	20.8	76×170
		10000	0.15	19.9	10.6	24.6	76×190
400	450	12000	0.15	16.6	8.8	27.8	76×220
		1000	0.15	212	112	4.9	51×80
		1500	0.15	141	75.2	6.8	51×105
		2200	0.15	96.5	51.3	8.1	63.5×80
		2700	0.15	78.6	41.8	9.2	63.5×105
		3300	0.15	64.3	34.2	10.6	63.5×115
		3900	0.15	54.4	28.9	12.3	76×110
		4700	0.15	45.2	24.0	14.4	76×130
		5600	0.15	37.9	20.1	16.5	76×145
		6800	0.15	31.2	16.6	18.1	76×170
		8200	0.15	25.9	13.8	20.8	76×190
		10000	0.15	21.2	11.3	23.2	76×220
450	500	1000	0.15	238	119	5.2	51×105
		1500	0.15	159	79.6	6.7	63.5×80
		2200	0.15	108	54.3	9.1	63.5×105
		2700	0.15	88.5	44.2	10.5	76×105
		3300	0.15	72.4	36.2	11.8	63.5×145
		3900	0.15	61.2	30.6	13.2	76×130
		4700	0.15	50.8	25.4	14.8	76×155
		5600	0.15	42.7	21.3	16.9	76×170
		6800	0.15	35.1	17.6	19.3	76×190
		8200	0.15	29.1	14.6	21.3	76×220
		10000	0.15	23.5	11.8	23.5	89×200

HN 系列 Series

特点 Features

- 耐高纹波，长寿命，105℃ 5000小时，可用于大功率电源、UPS不间断电源、变频器等电路中。
High ripple current, Long life, Load life of 5000 hours at 105°C.
Used large power source, Uninterruptible power supplies, Frequency converter circuit .etc.
- RoHS指令已对应完毕。Adapted to the RoHS directive



主要技术性能 Specifications

项目 Items	特性 Performance Characteristics	
使用温度范围 Operating Temperature Range	-25~+105℃	
额定电压范围 Rated Voltage Range	350~450V	
标称容量允许偏差 Nominal Capacitance Tolerance	±20% (+20℃, 120Hz)	
漏电流 Leakage Current	I < 0.01CV(μA)或5mA 5分钟 取较小值 (at 20℃, after 5 minutes, Whichever is smaller)	
损耗角正切值(tgδ) Dissipation Factor(+20℃, 120Hz)	≤0.15	
温度特性 Temperature Characteristics (Impedance ratio at 120Hz)	Rated Voltage (V)	350 ~ 450
	Z-25℃/Z+20℃	8
高温贮存 Shelf Life	+105℃，1000小时贮存后，加额定工作电压处理30分钟，恢复16小时后： after storage for 1000 hours at +105℃, UR to be applied for 30 minutes and then resumed for 16 hours: 电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value 漏电流 Leakage current : ≤初始规定值 ≤Initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2times of the initial specified value	

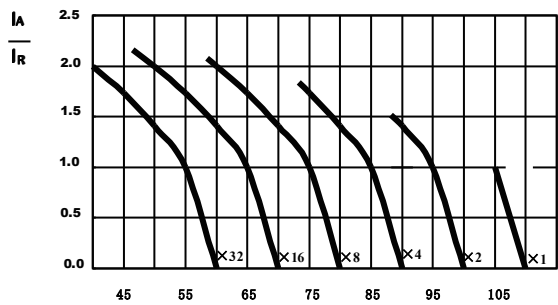
	使用寿命(Useful Life)		负载寿命(Load Life)	耐久性测试(Endurance Test)
寿命时间(Lifetime)	9000h	> 200000h	5000h	5000h
漏电流(Leakage Current)	≤初始规定值 Not more than specified value		≤初始规定值 Not more than specified value	≤初始规定值 Not more than specified value
电容量变化率(Capacitance Change)	±30%初始测量值内 Within ±30% initial value		±20%初始测量值内 Within ±20% initial value	±10%初始测量值内 Within ±10% initial value
损耗角正切值(Dissipation Factor)	≤3倍初始规定值 Not more than 300% of specified value		≤2倍初始规定值 Not more than 200% of specified value	≤1.3倍初始规定值 Not more than 130% of specified value
应用条件(Condition) 应用电压(Applied Voltage) 应用电流(Applied Current) 应用温度(Applied Temperature) 失效率(Outlier Percetage)	U _R I _R 105℃ ≤1%	U _R 1.4×I _R 50℃ ≤1%	U _R I _R =0 105℃ 0%	U _R I _R =0 105℃ IEC60384

纹波电流的相关参数 Multiplier for Ripple Current

频率系数 Frequency Coefficient

Frequency (Hz)	50	100 (120)	300	1k	≥10K
Rated Voltage (V)					
350~450	0.80	1.00	1.10	1.25	1.50

寿命时间图 Life Time Graph



此图表示电容的使用寿命时间
The graphs shows a typical trend of the standard capacitor useful life.

尺寸 Dimensions

Rated Voltage	Surge Voltage	Rated Capacitance	Dissipation Factor MAX	Max ESR 20°C , 120Hz	Typ ESR 20°C , 120Hz	Max Ripple Current 105°C,120Hz	SIZE
(V.D.C)	(V.D.C)	(μF)	-	(mΩ)	(mΩ)	(Arms)	D×L(mm)
350	400	1000	0.15	150	100	4.2	51×80
		1500	0.15	105	70	5.2	51×80
		2200	0.15	71	47	7.0	51×105
		2700	0.15	59	39	7.2	63.5×90
		3300	0.15	50	33	8.5	63.5×110
		3900	0.15	44	29	9.6	63.5×120
		4700	0.15	38	25	11.5	63.5×145
		4700	0.15	38	25	11.5	76×115
		5600	0.15	30	20	13.4	76×130
		6800	0.15	26	17	15.2	76×150
		8200	0.15	20	13	18.4	76×170
		8200	0.15	18	12	18.4	89×145
400	450	10000	0.15	17	11	21.2	76×200
		10000	0.15	17	11	21.0	89×155
		1000	0.15	150	100	4.3	51×80
		1500	0.15	98	65	5.8	51×105
		2200	0.15	59	39	7.6	51×130
		2200	0.15	68	45	7.6	63.5×105
		2700	0.15	53	35	7.9	63.5×115
		3300	0.15	44	29	9.2	63.5×130
		3300	0.15	44	29	9.4	76×105
		3900	0.15	36	24	10.8	76×120
		4700	0.15	30	20	12.6	76×145
		5600	0.15	26	17	14.5	76×155
450	500	6800	0.15	23	15	17.3	76×190
		6800	0.15	21	14	17.8	89×155
		8200	0.15	20	13	20.0	76×220
		8200	0.15	18	12	20.2	89×170
		10000	0.15	15	10	23.2	89×190
		1000	0.15	143	95	4.7	51×105
		1500	0.15	95	63	6.2	51×120
		2200	0.15	65	43	7.3	63.5×120
		2700	0.15	50	33	8.2	63.5×130
		3300	0.15	41	27	10.3	76×130
		3900	0.15	35	23	11.6	76×150
		4700	0.15	30	20	13.6	76×170
450	500	5600	0.15	26	17	15.5	76×190
		5600	0.15	24	16	15.5	89×150
		6800	0.15	21	14	18.3	76×220
		6800	0.15	20	13	18.3	89×175
		8200	0.15	15	10	22.5	89×220
		10000	0.15	12	8	25.2	89×235

GN 系列 Series

特点 Features

- 耐高纹波，更长寿命，85°C 10000小时，可用于大功率电源、UPS不间断电源、变频器等电路中。
High ripple current, Super long life, Load life of 10000 hours at 85°C,
Used large power source, Uninterruptible power supplies,
Frequency converter circuit .etc.
- RoHS指令已对应完毕。Adapted to the RoHS directive.



主要技术性能 Specifications

项目 Items	特性 Performance Characteristics	
使用温度范围 Operating Temperature Range	-25~+85°C	
额定电压范围 Rated Voltage Range	400~450V	
标称容量允许偏差 Nominal Capacitance Tolerance	±20% (+20°C , 120Hz)	
漏电流 Leakage Current	I ≤ 0.01CV(μA)或5mA 5分钟 取较小值 (at 20°C, after 5 minutes, Whichever is smaller)	
损耗角正切值(tgδ) Dissipation Factor(+20°C, 120Hz)	≤0.15	
温度特性 Temperature Characteristics (Impedance ratio at 120Hz)	Rated Voltage (V)	400~450
	Z-25°C/Z+20°C	8
高温贮存 Shelf Life	+85°C, 1000小时贮存后，加额定工作电压处理30分钟，恢复16小时后： after storage for 1000 hours at +85°C, U _R to be applied for 30 minutes and then resumed for 16 hours: 电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value 漏电流 Leakage current : ≤初始规定值 ≤Initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2times of the initial specified value	

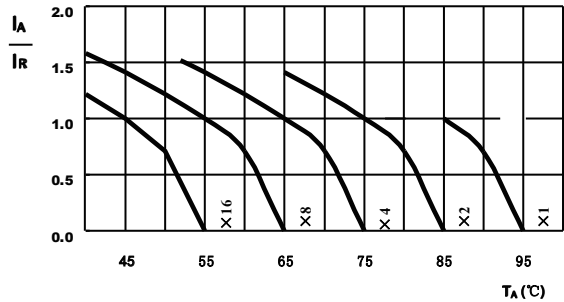
	使用寿命(Useful Life)		负载寿命(Load Life)	耐久性测试(Endurance Test)
寿命时间(Lifetime)	15000h	> 150000h	10000h	10000h
漏电流(Leakage Current)	≤初始规定值 Not more than specified value		≤初始规定值 Not more than specified value	≤初始规定值 Not more than specified value
电容量变化率(Caacitance Change)	±30%初始测量值内 Within ±30% initial value		±25%初始测量值内 Within ±25% initial value	±10%初始测量值内 Within ±10% initial value
损耗角正切值(Dissipation Factor)	≤3倍初始规定值 Not more than 300% of specified value		≤2.5倍初始规定值 Not more than 250% of specified value	≤1.3倍初始规定值 Not more than 130% of specified value
应用条件(Condition) 应用电压(Applied Voltage) 应用电流(Applied Current) 应用温度(Applied Temperature) 失效率(Outlier Percetage)	U _R 85°C ≤1%	U _R 1.4×I _R 40°C ≤1%	U _R I _R =0 85°C 0%	U _R I _R =0 85°C IEC60384

纹波电流的相关参数 Multiplier for Ripple Current

频率系数 Frequency Coefficient

Frequency (Hz)	50	100 (120)	300	1k	≥10K
Rated Voltage (V)					
400~450	0.70	1.00	1.10	1.30	1.40

寿命时间图 Life Time Graph



此图表示电容的使用寿命时间
The graphs shows a typical trend of the standard capacitor useful life.

尺寸 Dimensions

Rated Voltage	Surge Voltage	Rated Capacitance	Dissipation Factor MAX	Max ESR 20°C , 120Hz	Typ ESR 20°C , 120Hz	Max Ripple Current 85°C,120Hz	SIZE
(V.D.C)	(V.D.C)	(μF)	-	(mΩ)	(mΩ)	(Arms)	D×L(mm)
400	450	1500	0.15	141	75.2	6.8	51×115
		2200	0.15	96.5	51.3	8.3	51×115
		3300	0.15	64.3	34.2	11.0	63.5×115
		3900	0.15	54.4	28.9	12.4	63.5×130
		4700	0.15	45.2	24.0	14.4	76×115
		5600	0.15	37.9	20.1	16.3	76×130
		6800	0.15	31.2	16.6	18.9	76×155
		8200	0.15	25.9	13.8	21.5	76×170
		10000	0.15	21.2	11.3	25.2	89×155
		12000	0.15	16.5	9.5	29.1	89×195
450	500	1500	0.15	159	79.6	6.5	51×115
		2200	0.15	108	54.3	8.8	63.5×95
		3300	0.15	72.4	36.2	11.5	63.5×130
		3900	0.15	61.2	30.6	13.1	76×115
		4700	0.15	50.8	25.4	14.8	76×130
		5600	0.15	42.7	21.3	16.8	76×155
		6800	0.15	35.1	17.6	20.1	76×170
		8200	0.15	29.1	14.6	23.1	89×155
		10000	0.15	23.5	11.8	26.8	89×195
		12000	0.15	16.5	9.4	31.5	89×235

EN 系列 Series

特点 Features

- 耐高纹波，超长寿命，85°C 20000小时，可用于大功率电源、UPS不间断电源、变频器等电路中。
High ripple current, Ultra long life, Load life of 20000 hours at 85°C,
Used large power source, Uninterruptible power supplies,
Frequency converter circuit .etc.
- RoHS指令已对应完毕。Adapted to the RoHS directive.



主要技术性能 Specifications

项目 Items	特性 Performance Characteristics					
使用温度范围 Operating Temperature Range	-25~+85℃					
额定电压范围 Rated Voltage Range	350~450V					
标称电容量允许偏差 Nominal Capacitance Tolerance	±20% (+20℃ , 120Hz)					
漏电流 Leakage Current	I ≤0.01CV(μA)或5mA 5分钟 取较小值 (at 20℃, after 5 minutes, Whichever is smaller)					
损耗角正切值(tgδ) Dissipation Factor(+20℃, 120Hz)	≤0.15					
温度特性 Temperature Characteristics (Impedance ratio at 120Hz)	<table><tr><td>Rated Voltage (V)</td><td>350 ~ 450</td></tr><tr><td>Z-25℃/Z+20℃</td><td>8</td></tr></table>		Rated Voltage (V)	350 ~ 450	Z-25℃/Z+20℃	8
Rated Voltage (V)	350 ~ 450					
Z-25℃/Z+20℃	8					
高温贮存 Shelf Life	+85℃ , 1000小时贮存后，加额定工作电压处理30分钟，恢复16小时后： after storage for 1000 hours at +85℃ , U _R to be applied for 30 minutes and then resumed for 16 hours: 电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value 漏电流 Leakage current : ≤初始规定值 ≤Initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2times of the initial specified value					

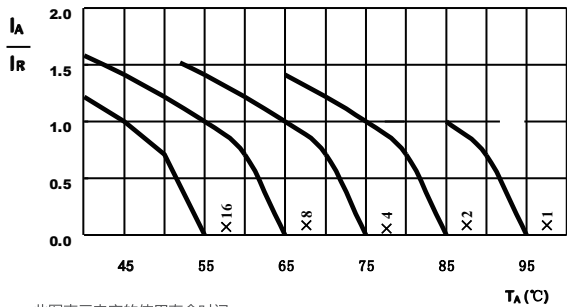
	使用寿命(Useful Life)		负载寿命(Load Life)	耐久性测试(Endurance Test)
寿命时间(Lifetime)	25000h	> 250000h	20000h	20000h
漏电流(Leakage Current)	≤初始规定值 Not more than specified value		≤初始规定值 Not more than specified value	≤初始规定值 Not more than specified value
电容量变化率(Caacitance Change)	±30%初始测量值内 Within ±30% initial value		±25%初始测量值内 Within ±25% initial value	±10%初始测量值内 Within ±10% initial value
损耗角正切值(Dissipation Factor)	≤3倍初始规定值 Not more than 300% of specified value		≤2.5倍初始规定值 Not more than 250% of specified value	≤1.3倍初始规定值 Not more than 130% of specified value
应用条件(Condition) 应用电压(Applied Voltage) 应用电流(Applied Current) 应用温度(Applied Temperature) 失效率(Outlier Percetage)	$\frac{U_R}{I_R}$ 85°C ≤1%	$\frac{U_R}{1.2 \times I_R}$ 40°C ≤1%	$\frac{U_R}{I_R}$ 85°C 0%	$\frac{U_R}{I_R=0}$ 85°C IEC60384

纹波电流的相关参数 Multiplier for Ripple Current

频率系数 Frequency Coefficient

Frequency (Hz)	50/60	120	300	1k	≥10K
Rated Voltage (V)					
350~450	0.70	1.00	1.10	1.30	1.40

寿命时间图 Life Time Graph



此图表示电容的使用寿命时间
The graphs shows a typical trend of the standard capacitor useful life.

尺寸 Dimensions

Rated Voltage	Surge Voltage	Rated Capacitance	Dissipation Factor MAX	Max ESR 20℃ , 120Hz	Typ ESR 20℃ , 120Hz	Max Ripple Current 105℃,120Hz	SIZE
(V.D.C)	(V.D.C)	(μF)	-	(mΩ)	(mΩ)	(Arms)	D×L(mm)
350	400	1000	0.15	199	106	4.0	51×75
		1200	0.15	166	88	4.3	51×75
		1500	0.15	133	71	5.3	51×95
		1800	0.15	111	59	5.8	51×95
		2200	0.15	90	48	7.2	51×130
		2700	0.15	74	39	7.8	63.5×95
		3300	0.15	60	32	9.2	63.5×115
		3900	0.15	51	27	10.5	63.5×130
		4700	0.15	42	23	11.7	76×115
		5600	0.15	36	19	13.3	76×130
		6800	0.15	29	16	15.6	76×155
		8200	0.15	24	13	18.2	89×155
400	450	10000	0.15	20	11	20.1	89×155
		12000	0.15	17	9	23.9	89×195
		1000	0.15	199	106	4.1	51×75
		1200	0.15	166	88	4.8	51×95
		1500	0.15	133	71	5.7	51×115
		1800	0.15	111	59	6.5	51×130
		2200	0.15	90	48	7.1	63.5×95
		2700	0.15	74	39	8.3	63.5×115
		3300	0.15	60	32	9.6	63.5×130
		3900	0.15	51	27	11.2	76×115
		4700	0.15	42	23	12.2	76×130
		5600	0.15	36	19	14.2	76×155
450	500	6800	0.15	29	16	16.6	89×155
		8200	0.15	24	13	18.3	89×155
		10000	0.15	20	11	21.9	89×195
		1000	0.15	199	113	4.3	51×95
		1200	0.15	166	94	5.1	51×115
		1500	0.15	133	75	6.1	51×130
		1800	0.15	111	63	6.5	63.5×95
		2200	0.15	90	51	7.5	63.5×115
		2700	0.15	74	42	8.8	63.5×130
		3300	0.15	60	34	10.3	76×130
		3900	0.15	51	29	12.4	76×150
		4700	0.15	42	24	13.1	76×155
		5600	0.15	36	20	15.1	89×155
		6800	0.15	29	17	18.2	89×195
		8200	0.15	24	14	20.1	89×195

UN 系列 Series

特点 Features

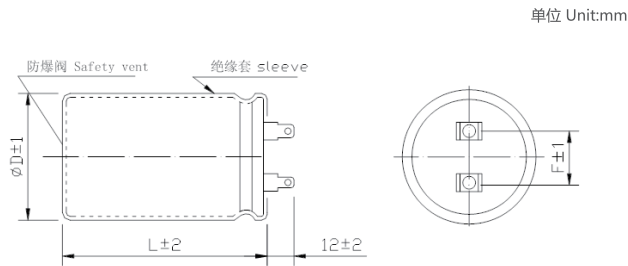
- 高纹波，85℃ 2000小时，可用于变频空调、变极器。
High ripple current, Load life of 2000 hours at 85℃,
Used for air conditioner, general-purpose inverter.
- RoHS指令已对应完毕。
Adapted to the RoHS directive.



主要技术性能 Specifications

项目 Items	特性 Performance Characteristics
使用温度范围 Operating Temperature Range	-25~+85℃
额定电压范围 Rated Voltage Range	400 ~450V
标称容量允许偏差 Nominal Capacitance Tolerance	±20% (120Hz, +20℃)
漏电流 Leakage Current	I ≤0.01CV(μA)或5mA 5分钟 取较小值 (at 20℃, after 5 minutes, Whichever is smaller)
损耗角正切值(tgδ) Dissipation Factor(+20℃, 120Hz)	小于图表中规定的数值 Less than the value specified in the standard products tables
耐久性 Load Life	+85℃施加额定电压2000小时，恢复16小时后： After applying rated voltage for 2000 hours at +85℃ and then resumed for 16 hours: 电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value 漏 电 流 Leakage current : ≤初始规定值 ≤Initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2 times of the initial specified value
高温贮存 Shelf Life	+85℃，1000小时贮存后，加额定工作电压处理30分钟，恢复16小时后： after storage for 1000 hours at +85℃, UR to be applied for 30 minutes and then resumed for 16 hours: 电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value 漏电流 Leakage current : ≤初始规定值 ≤Initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2 times of the initial specified value

外形图 Case Table



ΦD	50	63.5
F	20	25

允许纹波电流的修正系数 Frequency Coefficient

Frequency(Hz)	50 , 60	120	300	1k	10K
Factor	0.70	1.00	1.10	1.30	1.40

环境温度的修正系数 Temperature coefficient

Temperature(℃)	+40	+60	+70	+85
Factor	2.70	2.02	1.67	1.00

尺寸 Dimensions

Rated Voltage	Surge Voltage	Rated Capacitance	Leakage Current MAX(mA)	Dissipation Factor MAX	Ripple Current 85°C 120Hz(Arms)	Size
						ΦD×L(mm)
400	450	680	2.72	0.20	2.7	50×65
		820	3.28	0.20	3.0	50×65
		1000	4.00	0.20	3.5	50×75
		1200	4.80	0.20	3.8	50×75
		1500	5.00	0.20	4.7	50×95
		1800	5.00	0.20	5.1	50×95
		2200	5.00	0.20	6.2	50×120
		2500	5.00	0.20	7.0	63.5×100
		2700	5.00	0.20	7.3	63.5×95
		3300	5.00	0.20	7.9	63.5×105
420	470	3900	5.00	0.20	9.0	63.5×120
		680	2.86	0.20	2.8	50×65
		820	3.44	0.20	3.2	50×65
		1000	4.20	0.20	3.5	50×75
		1200	5.00	0.20	4.2	50×75
		1500	5.00	0.20	4.8	50×95
		1800	5.00	0.20	5.3	50×95
450	500	2200	5.00	0.20	6.3	50×120
		680	3.06	0.20	2.6	50×65
		820	3.69	0.20	3.1	50×75
		1000	4.50	0.20	3.5	50×75
		1200	5.00	0.20	4.3	50×95
		1500	5.00	0.20	4.8	50×110
		1800	5.00	0.20	5.5	50×120
		2200	5.00	0.20	6.3	63.5×95
		2700	5.00	0.20	7.1	63.5×105
		3300	5.00	0.20	8.3	63.5×120
		3900	5.00	0.20	9.8	63.5×145

LN 系列 Series

特点 Features

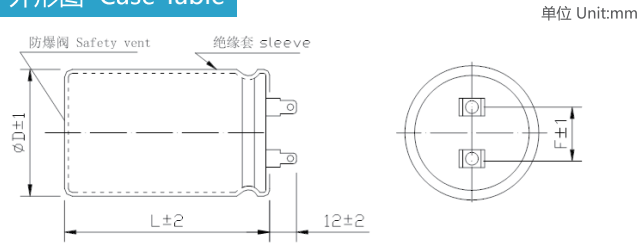
- 低损耗、高稳定、耐高频纹波电流。Low dissipation factor,high stability, high ripple current.
- 用于变频空调提高功率因素。Use for air-conditioner, improving power factor improving.
- RoHS指令已对应完毕。
Adapted to the RoHS directive.



主要技术性能 Specifications

项目 Items	特性 Performance Characteristics
使用温度范围 Operating Temperature Range	-25~+85°C
额定电压范围 Rated Voltage Range	250V, 400V
标称容量允许偏差 Nominal Capacitance Tolerance	±10% (120Hz, +20°C)
漏电流 Leakage Current	$I < 3\sqrt{CV}$ (μA)或5mA 5分钟 取较小值 (at 20°C, after 5 minutes, whichever is smaller)
损耗角正切值(tgδ) Dissipation Factor(+20°C, 120Hz)	0.05 (+20°C, 120Hz)
耐久性 Load Life	+85°C施加额定电压5000小时, 恢复16小时后: After applying rated voltage for 5000 hours at +85°C and then resumed for 16 hours: 电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value 漏 电 流 Leakage current : ≤初始规定值 ≤Initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2 times of the initial specified value
高温贮存 Shelf Life	+85°C, 1000小时贮存后, 加额定工作电压处理30分钟, 恢复16小时后: after storage for 1000 hours at +85°C, U_n to be applied for 30 minutes and then resumed for 16 hours: 电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value 漏电流 Leakage current : ≤初始规定值 ≤Initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2 times of the initial specified value

外形图 Case Table



D±1	35	40
F±1	14	14
L±2	80, 90, 100	100

允许纹波电流的修正系数 Frequency Coefficient

Frequency(Hz)	50,60	120	300	1K	≥10K
Factor	0.70	1.00	1.32	1.46	1.61

环境温度的修正系数 Temperature coefficient

Temperature(°C)	+45	+60	+70	+85
Factor	1.73	1.50	1.30	1.00

尺寸 Dimensions

Rated Voltage (V.D.C)	Surge Voltage (V.D.C)	Rated capacitance (μF)	Size	Ripple Current
250	300	200	35×80	3.78
		220	35×80	3.96
		330	35×80	4.83
		390	35×100	5.26
		470	35×100	5.58
400	450	70	35×80	2.65
		90	35×80	2.98
		100	40×100	3.15
		110	40×100	3.30
		150	40×100	3.85
		220	40×100	4.65

Size $\phi D \times L$ (mm)
Maximum Allowable Ripple Current (A rms) at 85°C 120Hz

Memo