

# KN series

- ◆ Load life 2000 Hrs at 105°C
- ◆ RoHS Compliant

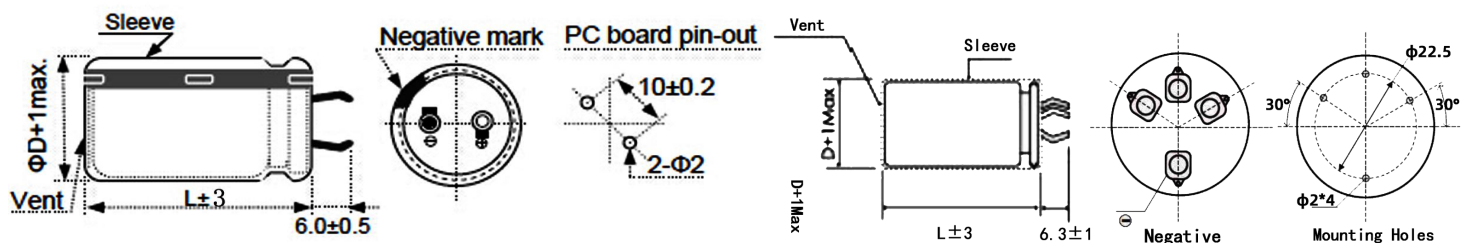


## Specifications 規格表

Ltem 項目	Performance Characteristics 特性參數	
Operating Temperature Range 工作溫度範圍	-40 to +105°C	-25 to +105°C
Rated Voltage Range 額定電壓範圍	16 to 100 VDC	160 to 500 VDC
Capacitance Range 容量範圍	68 to 56000 $\mu$ F	
Capacitance Tolerance 靜電容量偏差	$\pm 20\%$ (120Hz, +20°C)	
Leakage Current 漏電流	After 5 minutes at 20° C application of rated voltage, leakage current is not more than 0.01CV or 1.5mA, whichever is smaller C: Nominal Capacitance( $\mu$ F) V: Rated Voltage(V)	
Dissipation Factor 損耗角正切值 $\tan \delta$ (%)	rated voltage (V)	16 25 35 50 63 100 160-400 450-500
	$\tan \delta$ (Max)	50 40 40 30 20 20 15 20
Low Temperature Characteristics 低溫特性	impedance ratio max 電容器最大阻抗比值	
	rated voltage (V)	16 25 35 50 63 100 160-400 450-500
	Z(-25°C)/Z(+20°C)	4 4 4 4 4 4 4 8
Z(-40°C)/Z(+20°C)	15 15 15 15 15 15 - -	
Load Life 使用壽命	105°C施加額定工作電壓2000小時，經恢復後，產品性能應滿足以下要求 The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied for 2000H at 105°C	
	Capacitance change	$\cong \pm 20\%$ of the initial value
	D. F. ( $\tan \delta$ )	$\cong 200\%$ of the specified value
	Leakage current	$\cong$ The specified value
Shelf Life 存儲特性	105°C放置1000小時，經恢復後20°C后，產品性能應滿足以下要求 The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hours at 105°C without voltage applied.	
	Capacitance change	$\cong \pm 20\%$ of the initial value
	D. F. ( $\tan \delta$ )	$\cong 150\%$ of the specified value
	Leakage current	$\cong$ The specified value

## Diagram of Dimensions 外形尺寸圖 (mm)

### ● Standard Terminal Type : S ( $\Phi 22 \sim \Phi 35$ )



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## Frequency Coefficient

Frequency Voltage (v)	50/60 Hz	120 Hz	300 Hz	1K Hz	10K Hz	$\geq 50K$ Hz
$\leq 100V$	0.95	1.00	1.07	1.13	1.19	1.20
160-250V	0.87	1.00	1.17	1.32	1.45	1.50
$\geq 350$	0.80	1.00	1.16	1.30	1.41	1.43

## Standard Ratings

Rated Voltage V	Rated Capacity $\mu F$	Size $\phi D \times L$ mm	Rated ripple current A	Rated Voltage V	Rated Capacity $\mu F$	Size $\phi D \times L$ mm	Rated ripple current A
16V	3300	22*26	1.17	25V	3300	22*26	1.48
	4700	22*26	1.53			25*26	1.48
		25*26	1.55		4700	22*26	1.88
	6800	22*31	2.02			25*26	1.90
		25*26	2.02		6800	22*31	2.60
		30*26	2.02			25*26	2.60
	8200	22*31	2.20			8200	30*26
	10000	22*31	2.79		22*36		3.14
		25*26	2.79		25*31		3.14
		30*26	2.81		30*26	3.14	
	12000	22*36	3.06		10000	22*41	3.50
		30*26	3.06			25*36	3.50
		15000	22*41			3.24	30*31
	25*36		3.24		35*27	3.50	
	30*26		3.24		12000	22*46	4.02
	35*32	3.24	25*41			4.02	
	18000	22*51	3.54			30*31	4.02
		25*46	3.51		35*27	4.02	
		30*36	3.51		15000	25*46	4.58
	35*32	3.54	30*36			4.58	
22000	25*51	4.25	35*32	4.58			
	30*36	4.08	18000	25*51	4.82		
	35*32	4.08		30*41	4.82		
27000	25*51	4.30		35*32	4.79		
	30*41	4.30	22000	30*46	5.12		
33000	35*32	4.30		35*37	5.12		
	39000	30*46	4.83	27000	35*42	5.30	
47000		35*37	4.83	33000	35*52	6.09	
	56000	30*51	5.78	39000	35*52	6.20	
35*42		5.78	47000	35*52	6.30		
35*45	6.32						
35*47	6.48						

Rated ripple current (A,rms) at 105°C, 120Hz

## KN series

## Standard Ratings

Rated Voltage	Rated Capacity	Size ΦD*L	Rated ripple current
V	μF	mm	A
35V	1500	22*26	1.26
	2200	22*26	1.35
		25*26	1.45
	2700	22*26	1.55
		25*26	1.65
	3300	22*26	1.80
		25*26	1.90
	4700	22*36	2.42
		25*26	2.30
		30*26	2.54
	6800	22*41	3.24
		25*36	3.24
		30*26	3.21
		35*27	3.24
	10000	25*46	3.96
		30*36	3.96
		35*27	3.75
	12000	25*51	4.21
		30*41	4.21
		35*32	4.21
15000	30*46	4.69	
	35*37	4.69	
22000	35*52	5.50	
27000	35*52	5.80	
	35*45	5.60	
33000	35*52	5.90	

Rated Voltage	Rated Capacity	Size ΦD*L	Rated ripple current
V	μF	mm	A
50V	1500	22*26	1.10
		25*26	1.02
	2200	22*31	1.65
		25*26	1.65
	2700	22*31	1.85
		25*26	1.85
		30*26	1.95
	3300	22*36	2.24
		25*31	2.24
		30*26	2.24
	4700	22*46	2.95
		25*36	2.80
		30*31	2.95
		35*27	2.95
	6800	25*46	3.23
		30*41	3.20
		35*32	3.26
	8200	30*46	3.58
		35*37	3.58
	10000	30*51	4.11
30*45		4.01	
35*42		4.11	
30*40		4.00	
25*50		3.90	
35*30		3.86	
15000	35*52	5.05	
18000	35*52	5.30	
22000	35*60	5.50	

Rated ripple current (A,rms) at 105°C, 120Hz

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## Standard Ratings

Rated Voltage	Rated Capacity	Size ΦD*L	Rated ripple current
V	μF	mm	A
63V	820	22*26	0.75
	1000	22*26	0.85
		25*26	0.85
	1500	22*26	1.10
		25*26	1.12
		30*26	1.14
	1800	22*31	1.40
		25*26	1.40
	2200	22*36	1.65
		25*31	1.65
		30*26	1.65
	2700	22*41	2.07
		25*36	2.07
		30*26	2.07
	3300	22*46	2.46
		25*36	2.40
		30*31	2.48
		35*27	2.48
	3900	25*41	2.92
		30*36	3.05
		35*27	3.05
	4700	25*51	3.43
		30*41	3.43
		35*32	3.43
	5600	30*46	3.86
		35*37	3.86
	6800	30*51	4.64
		35*42	4.64
	8200	35*47	5.05
	10000	35*52	5.75
30*60		5.65	
30*50		5.35	
15000	35*52	5.40	
	35*60	5.56	

Rated Voltage	Rated Capacity	Size ΦD*L	Rated ripple current
V	μF	mm	A
100V	330	22*26	0.54
	470	22*26	0.79
		25*26	0.81
	560	22*26	0.90
		25*26	0.95
	680	22*31	1.02
		25*26	1.02
		30*26	1.14
	820	22*31	1.26
		25*26	1.26
		30*26	1.32
	1000	22*36	1.38
		25*31	1.38
		30*26	1.38
	1200	22*41	1.65
		25*36	1.65
		30*31	1.65
	1500	22*46	1.83
		25*41	1.83
		30*31	1.83
		35*27	1.83
	1800	25*41	2.52
		30*36	2.52
		35*32	2.52
	2200	25*51	3.03
		30*41	3.03
		35*32	3.03
	2700	30*46	4.10
		35*37	4.10
	3300	30*56	4.59
35*47		4.59	
3900	35*47	4.98	
4700	35*52	5.03	
	35*40	4.80	
	30*50	4.65	
5600	35*60	5.10	
5600	35*52	5.09	
6800	35*60	5.20	

Rated ripple current (A,rms) at 105°C, 120Hz

## KN series

## Standard Ratings

Rated Voltage	Rated Capacity	Size $\phi$ D*L	Rated ripple current
V	$\mu$ F	mm	A
160V	220	22*26	0.42
	330	22*31	0.98
		25*26	0.98
		30*26	1.00
	470	22*36	1.21
		25*31	1.21
		30*26	1.21
		22*31	1.15
	560	22*41	1.40
		25*36	1.40
		30*31	1.40
		35*27	1.40
	680	22*46	1.64
		25*36	1.58
		30*31	1.65
		35*27	1.71
		22*36	1.49
	820	25*41	1.76
		30*36	1.85
		35*32	1.85
	1000	25*51	2.15
		30*41	2.15
		35*32	2.15
	1200	25*56	2.46
		30*46	2.46
		35*37	2.46
	1500	30*51	2.80
		35*42	2.80
1800	30*51	3.13	
	35*42	3.13	
2200	35*52	3.26	
	35*42	3.18	
3300	35*52	3.50	
	35*45	3.35	
200V	150	22*26	0.54
		25*26	0.54
	220	22*31	0.92
		25*26	0.92
		30*26	0.92
	270	22*31	1.03
		25*26	1.03
		30*26	1.05

Rated Voltage	Rated Capacity	Size $\phi$ D*L	Rated ripple current
V	$\mu$ F	mm	A
200V	330	22*36	1.21
		25*31	1.21
		30*26	1.21
	390	22*36	1.33
		25*31	1.34
		30*31	1.45
	470	22*41	1.57
		25*36	1.59
		30*31	1.65
		35*27	1.65
	560	22*30	1.55
		22*46	1.81
		25*41	1.85
		30*31	1.85
	680	35*27	1.85
		22*51	2.04
		25*46	2.07
		30*31	2.04
	820	35*32	2.17
		25*51	2.30
		30*36	2.30
	1000	35*37	2.31
		30*40	2.62
		35*37	2.62
	1200	25*45	2.55
		25*40	2.51
		35*30	2.50
		25*50	2.55
		30*30	2.45
	1500	30*35	2.51
		30*50	3.00
		35*42	3.00
1800	35*47	3.28	
	35*52	4.01	
2200	35*52	4.10	
	30*50	3.85	
2700	35*52	4.10	
	35*45	3.80	
250V	100	22*31	0.44
		25*26	0.44
	120	22*31	0.50
		25*26	0.50
	150	22*31	0.60
		25*26	0.60
		30*26	0.60
		30*26	0.60

Rated ripple current (A, rms) at 105°C, 120Hz

## KN series

## Standard Ratings

Rated Voltage	Rated Capacity	Size ΦD*L	Rated ripple current
V	μF	mm	A
250V	220	22*36	1.00
		25*31	1.00
		22*30	0.95
	330	22*46	1.28
		25*36	1.28
		30*31	1.28
	390	35*27	1.28
		22*46	1.48
		30*31	1.48
	470	35*27	1.48
		25*41	1.76
		30*36	1.76
	560	35*32	1.76
		25*30	1.56
		25*35	1.60
		22*36	1.56
		30*30	1.68
		22*40	1.68
	680	25*51	1.93
		30*41	1.93
		35*32	1.93
	820	25*40	2.15
		30*46	2.22
		35*37	2.22
		30*51	2.48
		22*45	2.15
		30*35	2.20
	1000	25*45	2.46
		30*35	2.43
		30*51	2.48
		35*42	2.48
	1200	25*40	2.20
		35*30	2.25
		30*50	2.74
	1500	30*40	2.65
		35*47	2.80
		30*45	2.70
	2200	35*50	3.00
		35*55	3.00
	2200	35*50	3.50
		35*55	3.50
		35*55	5.00
2200	35*60	5.10	
	35*70	5.10	

Rated Voltage	Rated Capacity	Size ΦD*L	Rated ripple current
V	μF	mm	A
400V	100	22*36	0.82
		25*31	0.82
		22*25	0.70
		25*25	0.80
	120	22*36	0.90
		25*31	0.90
		22*25	0.80
		25*25	0.85
	150	22*41	0.98
		25*36	0.98
		30*31	0.95
		35*27	0.95
		22*30	0.90
	180	25*25	0.90
		25*36	1.05
	220	30*30	1.21
		30*41	1.21
		25*40	1.21
		25*35	1.21
		35*32	1.21
		22*40	1.10
		25*30	1.10
	270	30*25	1.10
		30*40	1.40
		25*40	1.30
	330	30*35	1.30
		30*40	1.57
		35*30	1.57
		22*45	1.50
		25*40	1.50
	390	30*35	1.50
		35*35	1.60
		30*40	1.68
	470	35*42	1.71
		35*45	1.94
		25*50	1.80
		30*40	1.80
		35*35	1.80
		30*50	1.85
		30*45	1.85
	35*40	1.85	
	35*50	1.98	

Rated ripple current (A,rms) at 105°C, 120Hz

## KN series

## Standard Ratings

Rated Voltage	Rated Capacity	Size ΦD*L	Rated ripple current	
V	μF	mm	A	
400V	560	35*50	2.23	
		30*45	2.23	
		35*45	2.40	
		35*40	2.40	
	680	35*62	2.85	
		35*50	2.83	
		35*45	2.80	
		30*50	2.70	
	820	35*40	2.65	
		35*62	2.90	
		35*45	2.83	
	1000	35*50	2.85	
		35*70	3.20	
		35*65	3.15	
	1200	35*60	3.15	
		35*50	3.10	
		35*70	3.30	
	450V	82	35*60	3.30
			35*70	3.30
			35*60	3.30
82		22*36	0.64	
		25*31	0.64	
		30*26	0.64	
100		22*41	0.74	
		25*31	0.74	
		30*31	0.74	
		22*25	0.70	
		22*35	0.72	
		25*25	0.72	
120		22*46	0.82	
		25*36	0.82	
		30*31	0.82	
		22*30	0.80	
		25*25	0.80	
		25*30	0.80	
		30*25	0.80	
150		22*51	0.96	
	25*41	0.96		
	30*36	0.96		
	35*27	0.96		
	22*30	0.90		

Rated Voltage	Rated Capacity	Size ΦD*L	Rated ripple current
V	μF	mm	A
450V	150	22*35	0.90
		25*30	0.90
		25*35	0.95
		30*25	0.95
		30*30	0.95
		25*46	1.14
	180	30*36	1.10
		35*32	1.14
		30*41	1.24
	220	35*37	1.24
		22*40	1.20
		25*40	1.20
		25*50	1.20
	270	30*30	1.20
		30*51	1.48
		35*42	1.48
	330	30*40	1.60
		30*50	1.64
		25*50	1.60
		30*35	1.60
		35*30	1.60
	390	35*40	1.80
		35*52	1.86
		35*35	1.65
	470	35*50	1.90
		35*45	1.90
		30*50	1.90
		30*60	1.90
	560	35*50	2.40
		35*45	2.40
		35*40	2.40
		30*50	2.40
680	35*60	2.90	
	35*50	2.85	
	35*45	2.80	
	30*55	2.80	
820	35*70	3.20	
	35*65	3.20	
	35*60	3.20	
1000	35*70	3.30	
	35*65	3.30	
1200	35*80	3.60	

Rated ripple current (A, rms) at 105°C, 120Hz

# KN series

## Standard Ratings

Rated Voltage	Rated Capacity	Size $\phi$ D*L	Rated ripple current
V	$\mu$ F	mm	A
500V	100	22*40	0.90
		22*45	0.94
		25*40	0.94
		30*30	0.94
	120	25*40	0.94
		30*30	0.94
		35*25	0.94
	150	25*40	1.10
		30*35	1.13
		35*30	1.13
	180	25*50	1.39
		30*40	1.40
	220	30*40	1.50
		30*45	1.60
		35*35	1.60
		35*40	1.60
	270	30*50	1.70
		35*40	1.70
	330	30*55	2.10
		30*60	2.10
		35*50	2.10
	390	35*55	2.50
		35*50	2.47
	470	35*55	2.60
		35*60	2.65
	680	35*70	3.10
	820	35*80	3.80
		40*70	3.80
1000	40*80	4.70	

Rated ripple current (A,rms) at 105°C, 120Hz