

PC Board Plug-in Ultra miniaturized Capacitors, Series KL5.

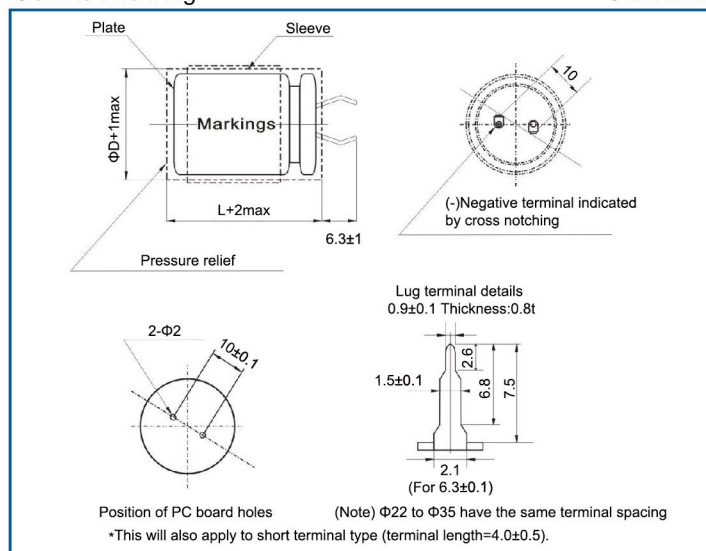
Increased in allowed ripple current by 5 to 40%
 20mm-tall products for every diameter of $\Phi 22$ to $\Phi 35$ are now offered in series
 As many as 4 case sizes available for the same rating
 Guarantees 2000 hours at 85°C



Outline Drawing

Unit: mm

Photo



Marking color: White print on black sleeve

Specifications

No.	Item	Performance									
1	Temperature range(°C)	-40 to +85 (10V~100V)				-25 to +85 (160V~500V)					
2	Leakage current (μA)	Less than 0.02CV or 3mA whichever is smaller (after five minutes) C: Rated Capacitance(μF); V: Rated voltage(V) 20°C									
3	Capacitance tolerance (%)	±20 (20°C, 120Hz)									
4	Tangent of the loss angle (Tan δ)	Rated voltage (V)		10	16	25-35	50,63	80,100	160-500	20°C	
		Tanδ(max)		0.45	0.35	0.30	0.25	0.20	0.15		
5	Low temperature characteristics	Rated voltage (V)		10	16-35	50-100	160-200	250-400	450-500	120Hz	
		Impedance ratio(max)	Z(-25°C)/Z(+20°C)	5	4	3	3	4	4		
			Z(-40°C)/Z(+20°C)	18	15	10	6	8	-		
6	Endurance (85°C) (Applied ripple current)	Test time		2000hours							
		Leakage current		The initial specified value or less							
		Percentage of capacitance change		Within ± 20% of initial value							
		Tangent of the loss angle		200% or less of the initial specified value							
7	Shelf life (85°C)	Test time		1000hours							
		Leakage current		The initial specified value or less							
		Percentage of capacitance change		Within ± 20% of initial value							
		Tangent of the loss angle		200% or less of the initial specified value							
8	Applicable standards	JIS-C-5101-4(IEC60384)									

Coefficient of Frequency for Ripple Current

Capacitance (μF)	Frequency (Hz)				
	50-60	120	1K	10K	50K-100K
CAP ≤ 100	0.80	1.00	1.36	1.48	1.53
100 < CAP ≤ 1000	0.80	1.00	1.25	1.35	1.38
1000 < CAP	0.80	1.00	1.17	1.25	1.28

Coefficient of Temperature for Ripple Current

Temperature(°C)	45	60	70	85
Coefficient	1.55	1.30	1.20	1.00



DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension: Φ DXL(mm)
Ripple Current: A/rms at 120Hz, 85°C

V.DC μ F Contents	10V								16V							
	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A
4700	22X20	2.40							22X20	2.40						
6800	22X25	2.84							22X25	2.84						
8200	22X25	2.90							22X25	2.90						
10000	22X30	3.06	25X25	3.06					22X30	3.06	25X25	3.06				
12000	22X30	3.43	25X25	3.43					22X30	3.43	25X25	3.43				
15000	22X35	3.94	25X30	3.94					22X35	3.94	25X30	3.94				
18000	22X40	4.34	25X30	4.34					22X40	4.34	25X30	4.34				
22000	22X45	4.80	25X35	4.80	30X30	4.80			22X45	4.80	25X35	4.80	30X30	4.80		
27000			25X45	7.57	30X35	7.57					25X45	7.57	30X35	7.57		
33000			25X50	8.20	30X40	8.20	35X30	8.20			25X50	8.20	30X40	8.20	35X30	8.20
39000					30X45	8.33	35X35	8.33					30X45	8.33	35X35	8.33
47000					30X50	8.96	35X40	8.96					30X50	8.96	35X40	8.96
56000							35X45	10.5							35X45	10.5
68000							35X50	10.8							35X50	10.8

V.DC μ F Contents	25V								35V							
	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A
2200									22X25	2.18						
3300									22X25	2.46						
3900									22X30	2.64						
4700	22X25	2.64							22X30	2.68	25X25	2.68				
5600	22X30	2.78														
6800	22X30	2.93	25X25	2.93					22X35	3.06	25X30	3.06				
8200	22X30	3.05	25X25	3.05												
10000	22X35	3.43	25X30	3.43	30X25	3.43			22X45	3.60	25X40	3.60	30X30	3.60		
12000	22X40	3.84	25X35	3.84	30X30	3.84					25X45	4.08	30X35	4.08	35X30	4.08
15000	22X50	4.39	25X40	4.39	30X35	4.39					25X50	3.92	30X40	3.92	35X30	3.92
18000			25X45	4.80	30X35	4.80							30X45	4.70	35X35	4.70
22000			25X50	5.40	30X40	5.40							30X50	5.45	35X40	5.45
27000					30X45	5.97	35X35	5.97							35X45	5.78
33000					30X50	6.24	35X40	6.24							35X50	6.36
39000							35X45	7.10								
47000							35X50	7.60								

Dimension: Φ DXL(mm)

Ripple Current: A/rms at 120Hz, 85°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V.DC Contents μ F	50V								63V							
	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A
1000									22X25	1.58						
1500	22X25	1.44							22X25	1.68						
2200	22X25	2.04							22X30	2.52	25X25	2.52				
2700	22X30	2.30							22X35	2.82	25X30	2.82				
3300	22X30	2.64							22X40	3.12			30X25	3.12		
3900									22X45	3.21	25X35	3.21	30X30	3.21		
4700			25X30	2.88	30X25	2.88			22X50	3.28	25X40	3.28			35X25	3.28
5600			25X35	3.06	30X30	3.06					25X45	3.86	30X35	3.86	35X30	3.86
6800			25X40	3.24	30X30	3.24					25X50	4.32	30X40	4.32	35X30	4.32
8200			25X45	3.48	30X35	3.48							30X45	4.44	35X35	4.44
10000			25X50	3.96	30X40	3.96	35X30	3.96							35X50	4.77
12000					30X45	4.10	35X35	4.10								
15000					30X50	4.70	35X40	4.70								
18000							35X45	5.31								
22000							35X50	5.85								

V.DC Contents μ F	80V								100V							
	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A
470									22X20	1.34						
680	22X20	1.34							22X25	1.53						
1000	22X25	1.62							22X30	1.62	25X25	1.62				
1200									22X35	1.74	25X30	1.74				
1500	22X30	1.76	25X25	1.76					22X40	1.85	25X35	1.85	30X30	1.85		
1800	22X35	1.82	25X30	1.82					22X45	2.20	25X40	2.20	30X30	2.20		
2200	22X40	2.52	25X30	2.52	30X25	2.52			22X50	2.64	25X40	2.64	30X30	2.64		
2700	22X45	2.76			30X30	2.76					25X45	3.16	30X35	3.16		
3300	22X50	3.24	25X40	3.24	30X30	3.24					25X50	3.42	30X40	3.42		
3900			25X45	3.40	30X35	3.40							30X45	3.58	35X35	3.58
4700			25X50	3.60	30X40	3.60							30X50	3.72	35X40	3.72
5600					30X40	3.78	35X35	3.78							35X45	3.72
6800					30X50	4.60	35X40	4.60							35X50	4.10
8200							35X50	4.92								



Dimension: Φ DXL(mm)
Ripple Current: A/rms at 120Hz, 85°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V.DC μ F Contents	160V								200V							
	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A
150									22X20	0.96						
180	22X20	1.12														
220									22X25	1.36						
270	22X25	1.35							22X25	1.50						
330									22X30	1.89	25X25	1.89				
390	22X30	1.66	25X25	1.66					22X30	1.92	25X25	1.92				
470	22X30	1.76	25X25	1.76					22X35	2.23	25X30	2.23	30X25	2.23		
560	22X35	2.03	25X30	2.03	30X25	2.03			22X40	2.57	25X35	2.57	30X25	2.57		
680	22X40	2.36	25X35	2.36	30X25	2.36	35X20	2.36	22X45	2.98	25X35	2.98	30X30	2.98		
820	22X45	2.72	25X40	2.72	30X35	2.72					25X45	3.26	30X35	3.26	35X25	3.26
1000			25X45	3.13	30X35	3.13	35X30	3.13			25X50	3.92	30X35	3.92	35X30	3.92
1200			25X50	3.44	30X35	3.44	35X30	3.44					30X45	4.25	35X35	4.25
1500			25X50	3.96	30X45	3.96	35X30	3.96					30X50	4.99	35X40	4.99
1800					30X50	4.47	35X40	4.47							35X45	5.84
2200							35X45	4.65							35X50	6.07
2700							35X50	4.76								

V.DC μ F Contents	250V								350V							
	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A
100									22X25	0.76						
120	22X20	0.85							22X30	0.89	25X25	0.89				
150	22X25	0.98							22X35	0.99	25X30	0.99	30X25	0.99		
180	22X25	1.12							22X40	1.15	25X35	1.15	30X25	1.15		
220	22X25	1.36	25X25	1.36					22X45	1.40	25X40	1.40	30X30	1.40	35X25	1.40
270	22X30	1.50	25X25	1.50							25X45	1.63	30X35	1.63	35X25	1.63
330	22X35	1.89	25X30	1.89	30X25	1.89					25X50	1.88	30X40	1.88	35X30	1.88
390	22X40	1.92	25X35	1.92	30X25	2.04							30X45	2.12	35X35	2.12
470	22X45	2.23	25X40	2.23	30X30	2.38							30X50	2.41	35X40	2.41
560			25X45	2.57	30X35	2.81	35X25	2.81							35X45	2.90
680			25X50	2.98	30X40	3.11	35X30	3.11							35X50	3.20
820					30X45	3.55	35X35	3.55								
1000					30X50	4.00	35X40	4.00								
1200							35X45	4.55								
1500							35X50	5.34								



Dimension: Φ DXL(mm)

Ripple Current: A/rms at 120Hz, 85°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V.DC μ F Contents	400V								450V								
	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A	
47	22X20	0.42								22X25	0.36						
68	22X25	0.51															
82	22X25	0.83								22X30	0.89	25X25	0.89				
100	22X30	1.03	25X25	1.03						22X35	1.03	25X30	1.03				
120	22X30	1.07	25X25	1.07						22X40	1.19	25X35	1.19				
150	22X35	1.26	25X30	1.26	30X25	1.26				22X50	1.39	25X40	1.39	30X30	1.39		
180	22X40	1.46	25X35	1.46	30X30	1.46				22X50	1.52			30X35	1.52		
220	22X50	1.75	25X40	1.75	30X35	1.75						25X50	1.76	30X35	1.76	35X35	1.76
270			25X45	1.96	30X35	1.96	35X30	1.96									
330			25X50	2.26	30X40	2.26	35X35	2.26						30X45	2.29	35X35	2.29
390					30X45	2.50	35X40	2.50								35X40	2.54
470							35X45	2.80								35X45	2.89
560							35X50	3.16									

V.DC μ F Contents	500V							
	Φ DXL	A	Φ DXL	A	Φ DXL	A	Φ DXL	A
100					30X25	0.90		
120					30X30	1.00	35X25	1.00
150					30X35	1.20		
180					30X40	1.40	35X30	1.30
220					30X45	1.60	35X35	1.50
270					30X50	1.80	35X40	1.70
330							35X45	2.00
390							35X50	2.30

