

105°C Use, High-Reliability, Low Impedance and Long Life Capacitors, Series KPH.

Series KPH Miniature Capacitors

Best for Power Supply

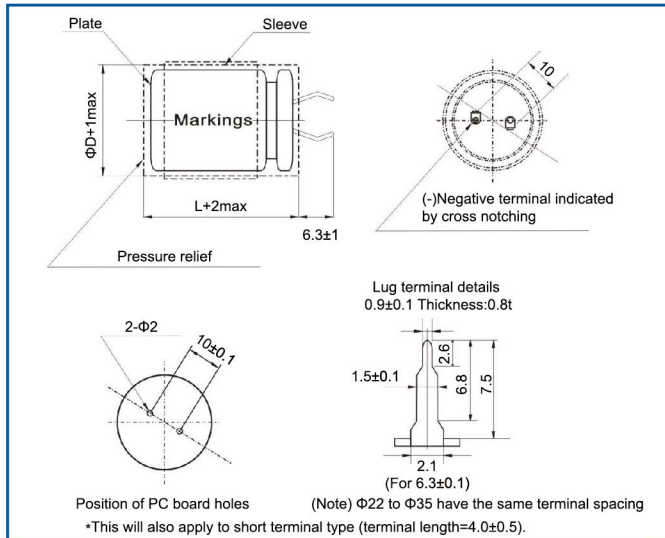
Guarantees 5000 hours at 105°C

RoHS

Outline Drawing

Unit: mm

Photo



Marking color: White print on black sleeve

Specifications

No.	Item	Performance								
1	Temperature range(°C)	-40 to +105(10V~100V)				-25 to +105(160V~450V)				
2	Leakage current (µA)	Less than 0.02CV or 3mA whichever is smaller (after five minutes) C: 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	63-400	450	20°C 120Hz
		Tanδ(max)	0.55	0.40	0.30	0.25	0.20	0.15	0.15	
5	Low temperature characteristics	Rated voltage (V)	10-16	25	35	50-63	80-100	200-400	450	120Hz
		Impedance ratio(max)	$Z_{(-25°C)}/Z_{(+20°C)}$	4	3	3	2	2	4	
6	Endurance (105°C) (Applied ripple current)	Test time	5000hours							
		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 (105°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

Rated Voltage (V)	Frequency (Hz)					
	50	120	300	1K	10K	100K
10~50	0.95	1.00	1.03	1.05	1.08	1.08
63~100	0.92	1.00	1.07	1.13	1.19	1.20
160~250	0.81	1.00	1.17	1.32	1.45	1.50
350~450	0.77	1.00	1.16	1.30	1.41	1.43

Dimension: Φ DXL(mm)
Ripple Current: A/rms at 120Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

μ F	V.DC Contents	10V											
		Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A
5600		22X25	90	1.10									
6800		22X25	78	1.30									
8200													
10000		22X30	56	1.65	25X25	62	1.64						
12000		22X35	45	1.85	25X30	50	1.85	30X25	55	1.89			
15000		22X40	39	2.12	25X35	45	2.12						
18000		22X50	32	2.45	25X40	38	2.43	30X30	45	2.37	35X25	50	2.42
22000								30X35	28	2.73	35X30	35	2.79
27000					25X50	30	3.11	30X40	35	3.13			
33000											35X35	30	3.49
39000								30X50	30	3.99	35X40	28	3.96
47000											35X50	25	4.62

μ F	V.DC Contents	16V											
		Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A
5600		22X25	65	1.44									
6800		22X30	49	1.66	25X25	55	1.66						
8200		22X35	36	1.87									
10000		22X40	30	2.12	25X30	36	2.07	30X25	44	2.11			
12000					25X35	30	2.37	30X30	35	2.37	35X25	42	2.42
15000		22X50	25	2.74	25X40	26	2.71						
18000					25X50	22	3.11	30X35	28	3.02	35X30	35	3.09
22000								30X40	22	3.46	35X35	28	3.49
27000								30X50	18	4.07	35X40	22	4.04
33000													
39000											35X50	18	5.16
47000													

μ F	V.DC Contents	25V											
		Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A
2200													
3300													
3900		22X25	68	1.31									
4700		22X30	57	1.51	25X25	57	1.51						
5600		22X35	50	1.70									
6800		22X40	42	1.92	25X30	43	1.87	30X25	46	1.90			
8200					25X35	38	2.14	30X30	42	2.15	35X25	46	2.19
10000		22X50	36	2.45	25X40	38	2.43						
12000					25X50	32	2.78	30X35	36	2.70	35X30	42	2.76
15000								30X40	28	3.13	35X35	34	3.16
18000								30X50	22	3.64	35X40	30	3.61
27000											35X50	22	4.70

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension: Φ DXL(mm)
Ripple Current: A/rms at 120Hz, 105°C

V.DC μ F Contents	35V												
	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	
2200	22X25	90	1.10										
3300	22X30	60	1.42	25X25	60	1.41							
3900	22X35	54	1.58	25X30	56	1.58							
4700	22X40	48	1.78				30X25		1.77				
5600				25X35		1.98	30X30		1.98	35X25			2.03
6800	22X50	34	2.26	25X40	37	2.24							
8200				25X50	32	2.57	30X35	35	2.50	35X30	37	2.55	
10000							30X40	28	2.86	35X35	32	2.88	
12000							30X50	24	3.32	35X40	28	3.30	
15000													
18000										35X50	24	4.29	
27000													

V.DC μ F Contents	50V												
	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	
1000													
1200													
1500	22X25	160	1.02										
1800	22X30	120	1.17	25X25	130	1.17							
2200	22X35	90	1.33										
2700	22X40	80	1.51	25X30	85	1.47	30X25	90	1.50				
3300	22X45	70	1.70	25X35	72	1.70	30X30	74	1.70	35X25	76	1.74	
3900	22X50	60	1.91	25X40	64	1.89							
4700							30X35	64	2.11	35X30	66	2.16	
5600				25X50	54	2.38	30X40	56	2.39	35X35	59	2.41	
6800							30X50	47	2.79	35X40	50	2.78	
10000										35X50	45	3.57	

V.DC μ F Contents	63V												
	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	
1000	22X25	159	1.00										
1200	22X30	130	1.15	25X25	142	1.15							
1500	22X35	116	1.32										
1800	22X40	98	1.49	25X30	116	1.45	30X25		1.48				
2200				25X35	92	1.67	30X30	95	1.68	35X25	102	1.71	
2700	22X50	82	1.92	25X40	86	1.90	30X35	88	1.93				
3300				25X50	74	2.20				35X30	86	2.18	
3900							30X40	70	2.41	35X35	74	2.43	
4700							30X50	56	2.80	35X40	60	2.78	
5600													
6800										35X50	52	3.55	
10000													



Dimension: Φ DXL(mm)
Ripple Current: A/rms at 120Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

μ F	V.DC Contents	80V											
		Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A
390													
560													
680	22X25	160	0.97										
820	22X30	146	1.12										
1000	22X35	130	1.27	25X25	133	1.23							
1200	22X40	112	1.42	25X30	116	1.39	30X25	120	1.41				
1500				25X35	98	1.62							
1800	22X50	84	1.84	25X40	87	1.82	30X30	95	1.78	35X25	101	1.82	
2200				25X50	79	2.11	30X35	82	2.05	35X30	85	2.09	
2700							30X40	74	2.35	35X35	77	2.37	
3300							30X50	61	2.75	35X40	65	2.73	
4700										35X50	58	3.46	

μ F	V.DC Contents	100V											
		Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A
390	22X25	210	0.78										
560	22X30	182	0.99	25X25	190	0.98							
680	22X35	166	1.12										
820	22X40	143	1.26	25X30	149	1.23	30X25	155	1.25				
1000				25X35	126	1.41	30X30	129	1.42	35X25	134	1.45	
1200	22X50		1.60	25X40	105	1.59	30X35	110	1.61				
1500				25X50	90	1.86	30X40	98	1.87	35X30	106	1.85	
1800										35X35	89	2.07	
2200							30X50	70	2.40	35X40	76	2.39	
2700										35X50	66	2.81	
3300													
4700													

μ F	V.DC Contents	160V											
		Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A
180													
220													
270													
330	22X25	680	0.98										
390	22X30	590	1.10	25X25	620	1.09							
470	22X30	540	1.21	25X25	560	1.19							
560	22X35	470	1.40	25X30	490	1.40	30X25	510	1.40				
680	22X40	390	1.62	25X35	410	1.61	30X25	430	1.54				
820	22X45	320	1.86	25X40	340	1.86	30X30	360	1.79	35X25	380	1.79	
1000				25X45	300	2.15	30X35	320	2.09	35X25	340	1.98	
1200							30X35	280	2.09	35X30	300	2.29	
1500							30X35	240	2.29	35X35	260	2.72	
1800							30X45	200	1.80	35X40	220	3.09	



DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension: Φ DXL(mm)
Ripple Current: A/rms at 120Hz, 105°C

V.DC μ F Contents	200V												
	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	
180	22X25	840	0.63										
220													
270	22X30	680	0.81	25X25		0.81							
330	22X35	510	0.92	25X30	525	0.92	30X25	540	0.94				
390	22X40	460	1.02										
470	22X50	420	1.17	25X35	430	1.15	30X30	450	1.15	35X25	465	1.22	
560				25X40	365	1.28	30X35		1.30	35X30		1.47	
680				25X50	310	1.48	30X40	320	1.49	35X35	325	1.65	
820													
1000							30X50	200	1.91	35X40	220	1.90	
1200										35X50	180	2.21	
1500													

V.DC μ F Contents	250V												
	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	
68													
82													
100													
120													
150	22X25	870	0.57										
180	22X30	765	0.66										
220	22X35	650	0.75										
270	22X40	540	0.85				30X25	570	0.85				
330				25X35	460	0.96	30X30	470	0.96	35X25	485	1.02	
390	22X50	410	1.08	25X40	420	1.07							
470				25X50	370	1.22	30X35	380	1.19	35X30	395	1.22	
560							30X40	320	1.35	35X35	335	1.36	
680							30X50	300	1.58	35X40	280	1.57	
1000										35X50	220	2.02	

V.DC μ F Contents	350V												
	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	
68	22X25	1350	0.39										
82	22X30	1200	0.49										
100	22X35	1120	0.55	25X25	1140	0.49							
120	22X40	900	0.63	25X30	920	0.55	30X25	940	0.56				
150				25X35	860	0.60				35X25	900	0.69	
180	22X50	680	0.73	25X40	710	0.72	30X30	730	0.71				
220				25X50	540	0.93	30X35	650	0.82	35X30	680	0.83	
270							30X40	560	0.94	35X35	580	1.04	
330							30X50	470	1.19	35X40	490	1.19	
390													
470										35X50	460	1.38	
560													
680													
1000													



Dimension: Φ DXL(mm)
Ripple Current: A/rms at 120Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V.DC μ F Contents	400V												
	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	
39													
47													
56	22X25	1460	0.34										
68	22X30	1210	0.44	25X25	1250	0.40							
82	22X35		0.50										
100				25X30	1090	0.50	30X25	1120	0.51				
120	22X40	900	0.57	25X35	920	0.58				35X25	950	0.61	
150	22X50	710	0.67	25X40	730	0.66	30X30	730	0.65				
180							30X35	650	0.74	35X30	680	0.83	
220				25X50	540	0.84	30X40	560	0.84	35X35	580	0.94	
270							30X50	470	1.10	35X40	490	1.09	
330													
390										35X50	460	1.26	

V.DC μ F Contents	450V												
	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	Φ DXL	Impedance	A	
39	22X25	2280	0.37										
47	22X30	2150	0.41										
56	22X30	2020	0.44	25X25	2030	0.47							
68	22X35	1900	0.50	25X30	1920	0.53							
82	22X40	1760	0.56	25X30	1780	0.55	30X25	1800	0.57				
100	22X45	1600	0.64	25X35	1620	0.63	30X30	1640	0.64				
120	22X50	1210	0.72	25X40	1250	0.71	30X30	1260	0.71	35X25	1270	0.71	
150				25X45	1070	0.81	30X35	1080	0.81	35X30	1100	0.83	
180				25X50	880	0.91	30X40	890	0.92	35X35	910	0.93	
220							30X45	800	1.05	35X40	810	1.07	
270										35X45	650	1.22	
330										35X50	490	1.39	
390													

