

KMQ Series

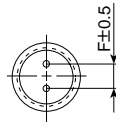
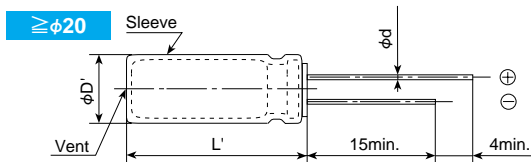
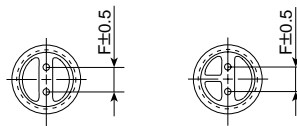
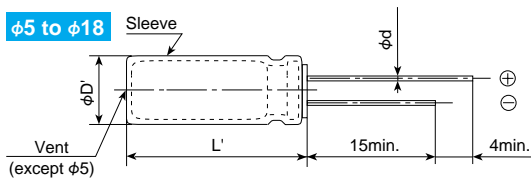
- Downsized from current standard KMG series
- Solvent-proof type except 160 to 450V_{dc}
(see PRECAUTIONS AND GUIDELINES)



◆SPECIFICATIONS

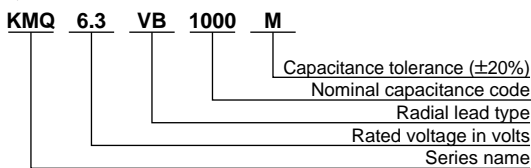
Items	Characteristics																			
Category Temperature Range	-55 to +105°C(6.3 to 100V _{dc}) -40 to +105°C(160 to 400V _{dc}) -25 to +105°C(450V _{dc})																			
Rated Voltage Range	6.3 to 450V _{dc}																			
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)																			
Leakage Current	6.3 to 100V _{dc}																			
	≤φ18	I=0.03CV or 4μA, whichever is greater.										160 to 450V _{dc}								
		(at 20°C after 1 minute)										<table border="1"> <tr> <th>CV</th> <th>Time</th> <th>After 1 minute</th> </tr> <tr> <td>CV≤1000</td> <td></td> <td>I=0.1CV+40 max.</td> </tr> <tr> <td>CV>1000</td> <td></td> <td>I=0.04CV+100 max.</td> </tr> </table>		CV	Time	After 1 minute	CV≤1000		I=0.1CV+40 max.	CV>1000
CV	Time	After 1 minute																		
CV≤1000		I=0.1CV+40 max.																		
CV>1000		I=0.04CV+100 max.																		
≥φ20	I=0.03CV max.										(at 20°C after 3 minutes)									
Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)																				
Dissipation Factor (tanδ)	Rated voltage (V _{dc})	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	350 to 400V	450V								
	tanδ (Max.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.24	0.24								
When nominal capacitance exceeds 1000μF, add 0.02 to the value above for each 1000μF increase. (at 20°C, 120Hz)																				
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V _{dc})	6.3V	10V	16V	25V	35V	50V	63 to 100V	160 to 200V	250V	350V	400V	450V							
	Z(-25°C)/Z(+20°C)	≤φ8	5	4	3	2	2	2	2	3	3	4	4	6						
		≥φ10	5	4	3	2	2	2	2	3	3	4	4	6						
	Z(-40°C)/Z(+20°C)	≤φ8	10	8	6	4	3	3	3	8	10	8	8	—						
	≥φ10	10	8	6	4	3	3	3	4	4	6	6	—							
(at 120Hz)																				
Endurance	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 1000 hours (2000 hours for φ10 and more at 105°C).																			
	Capacitance change	≤±20% of the initial value																		
	D.F. (tanδ)	≤200% of the initial specified value																		
	Leakage current	≤The initial specified value																		
Shelf Life	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.																			
	Rated voltage	6.3 to 100V _{dc}						160 to 450V _{dc}												
	Capacitance change	≤±20% of the initial value						≤±20% of the initial value												
	D.F. (tanδ)	≤200% of the initial specified value						≤200% of the initial specified value												
	Leakage current	≤The initial specified value						≤500% of the initial specified value												

◆DIMENSIONS (Radial Lead Type=VB) [mm]



φD	5	6.3	8	10	12.5	16	18	20	22
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0
φD'	φD+0.5max.							φD+0.5max.	
L'	L+1.5max.							L+2.0max.	

◆PART NUMBERING SYSTEM



Capacitance	Code
0.1μF	R1
0.47μF	R47
1.0μF	1
4.7μF	4R7
10μF	10
100μF	100



◆STANDARD RATINGS

μF \ V_{dc}	6.3		10		16		25		35		50		63	
0.1											5×11	1.3		
0.22											5×11	2.9		
0.33											5×11	4.3		
0.47											5×11	7.0		
1.0											5×11	13		
2.2											5×11	20		
3.3											5×11	25		
4.7											5×11	30		
10											5×11	46		
22											5×11	68	5×11	71
33											5×11	90	6.3×11	100
47										5×11	93	6.3×11	6.3×11	120
68										6.3×11	110	6.3×11	8×11.5	155
100							5×11	125	6.3×11	150	8×11.5	190	8×11.5	200
220			5×11	155	6.3×11	190	6.3×11	200	8×11.5	270	10×12.5	300	10×16	335
330			6.3×11	210	6.3×11	225	8×11.5	310	10×12.5	350	10×16	410	10×20	510
470			6.3×11	250	8×11.5	315	10×12.5	380	10×16	460	10×20	540	12.5×20	640
1,000	8×11.5	390	10×12.5	460	10×12.5	500	10×16	610	12.5×20	810	12.5×25	950	16×25	930
2,200	10×16	635	10×16	705	10×20	710	12.5×25	1,090	16×25	1,260	16×31.5	1,410	18×35.5	1,650
3,300	10×20	840	12.5×20	1,000	12.5×25	1,170	16×25	1,400	16×31.5	1,500	18×35.5	1,770	20×40	1,950
4,700	12.5×20	1,090	12.5×25	1,260	16×25	1,500	16×25	1,570	16×35.5	1,780	20×40	2,100	22×50	2,450
6,800	12.5×25	1,350	16×25	1,570	16×25	1,600	16×35.5	1,850	18×40	2,000	22×50	2,500		
10,000	16×25	1,650	16×31.5	1,820	16×35.5	1,930	18×40	2,000	22×50	2,650				
15,000	16×31.5	1,820	16×35.5	2,050	18×40	2,210	22×50	2,750						
22,000	18×35.5	2,280	18×40	2,420	22×40	2,710								
33,000	20×40	2,500	22×50	3,210										
47,000	22×50	2,780												

Rated ripple current (mA rms) at 105°C, 120Hz
 Case size ϕ D×L (mm)

Non solvent-proof

μF \ V_{dc}	100		160		200		250		350		400		450	
0.1	5×11	1.5												
0.22	5×11	3.4												
0.33	5×11	5.0												
0.47	5×11	7.1									6.3×11	8.5		
1.0	5×11	15			6.3×11	16					6.3×11	15		
2.2	5×11	21			6.3×11	25			6.3×11	21	8×11.5	27	8×11.5	20
3.3	5×11	29			6.3×11	30	6.3×11	28	8×11.5	30	8×11.5	34	10×12.5	28
4.7	5×11	32			6.3×11	35	6.3×11	35	8×11.5	39	10×12.5	42	10×12.5	32
10	5×11	50	8×11.5	41	8×11.5	57	10×12.5	71	10×12.5	64	10×16	64	10×20	56
22	6.3×11	93	10×12.5	92	10×16	105	10×20	105	12.5×20	130	12.5×25	145	12.5×25	100
33	8×11.5	130	10×16	125	10×20	140	10×20	140	12.5×25	170	16×25	195	16×25	125
47	8×11.5	140	10×20	150	12.5×20	195	12.5×20	190	16×25	230	16×25	200	16×31.5	155
68	10×12.5	190	12.5×20	250	12.5×25	250	16×25	270	16×25	285	16×31.5	240	18×35.5	185
100	10×16	240	12.5×25	310	16×25	335	16×25	310	18×31.5	375	18×35.5	310	18×40	200
220	12.5×20	390	16×31.5	540	16×35.5	500	18×35.5	485						
330	12.5×25	540	18×35.5	705	18×40	675								
470	16×25	715	18×40	855										
1,000	18×35.5	960												
2,200	22×50	1,750												

Rated ripple current (mA rms) at 105°C, 120Hz
 Case size ϕ D×L (mm)

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

(ϕ 5 to ϕ 18)

Capacitance (μF)	Frequency (Hz)					
	50	120	300	1k	10k	100k
0.1 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 68	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

(ϕ 20 to ϕ 22)

Rated Voltage (V_{dc})	Frequency (Hz)					
	50	120	300	1k	10k	100k
6.3 to 50	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100	0.92	1.00	1.07	1.13	1.19	1.20