

# KMQ Series

- Downsized from current standard KMG series
- Solvent resistant type except 160 to 450V<sub>dc</sub>  
(see PRECAUTIONS AND GUIDELINES)
- RoHS2 Compliant



## SPECIFICATIONS

Items	Characteristics													
Category	-55 to +105°C(6.3 to 100V <sub>dc</sub> ) -40 to +105°C(160 to 400V <sub>dc</sub> ) -25 to +105°C(450V <sub>dc</sub> )													
Temperature Range														
Rated Voltage Range	6.3 to 450V <sub>dc</sub>													
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)													
Leakage Current	6.3 to 100V <sub>dc</sub>												160 to 450V <sub>dc</sub>	
	I=0.03CV or 4μA, whichever is greater.												CV≤1,000 I=0.1CV+40 max.	
													CV>1,000 I=0.04CV+100 max.	
Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 1 minute)														
Dissipation Factor (tan δ)	Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	350 to 400V	450V		
	tan δ (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 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)													
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V <sub>dc</sub> )	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 (the peak voltage shall not exceed the rated voltage) for 1,000 hours (2,000 hours for φ 10 and more) at 105°C.													
	Capacitance change	≤ ±20% of the initial value												
	D.F. (tan δ)	≤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 1,000 hours at 105°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.													
	Rated voltage	6.3 to 100V <sub>dc</sub>						160 to 450V <sub>dc</sub>						
	Capacitance change	≤ ±20% of the initial value						≤ ±20% of the initial value						
	D.F. (tan δ)	≤200% of the initial specified value						≤200% of the initial specified value						
	Leakage current	≤The initial specified value						≤500% of the initial specified value						

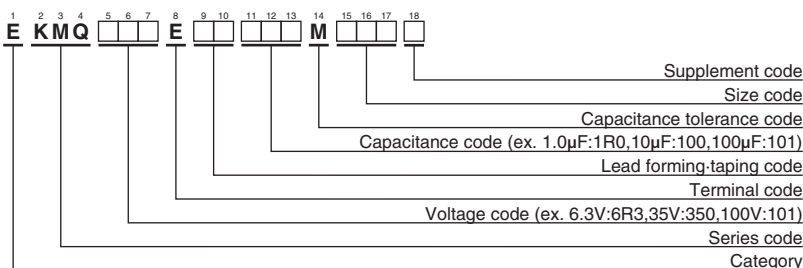
## DIMENSIONS [mm]

- Terminal Code : E



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

## PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆ STANDARD RATINGS

□ is not solvent resistant.

WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mA rms/105°C, 120Hz)	Part No.	WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mA rms/105°C, 120Hz)	Part No.
6.3	1,000	8 × 11.5	0.28	390	EKMQ6R3E□□102MHB5D	63	33	6.3 × 11	0.10	100	EKMQ630E□□330MF11D
	2,200	10 × 16	0.30	635	EKMQ6R3E□□222MJ16S		47	6.3 × 11	0.10	120	EKMQ630E□□470MF11D
	3,300	10 × 20	0.32	840	EKMQ6R3E□□332MJ20S		68	8 × 11.5	0.10	155	EKMQ630E□□680MHB5D
	4,700	12.5 × 20	0.34	1,090	EKMQ6R3E□□472MK20S		100	8 × 11.5	0.10	200	EKMQ630E□□101MHB5D
	6,800	12.5 × 25	0.38	1,350	EKMQ6R3E□□682MK25S		220	10 × 16	0.10	335	EKMQ630E□□221MJ16S
	10,000	16 × 25	0.46	1,650	EKMQ6R3E□□103ML25S		330	10 × 20	0.10	510	EKMQ630E□□331MJ20S
	15,000	16 × 31.5	0.56	1,820	EKMQ6R3E□□153MLN3S		470	12.5 × 20	0.10	640	EKMQ630E□□471MK20S
	22,000	18 × 35.5	0.70	2,280	EKMQ6R3E□□223MMP1S		1,000	16 × 25	0.10	930	EKMQ630E□□102ML25S
10	220	5 × 11	0.24	155	EKMQ100E□□221ME11D	100	2,200	18 × 35.5	0.12	1,650	EKMQ630E□□222MMP1S
	330	6.3 × 11	0.24	210	EKMQ100E□□331MF11D		1.0	5 × 11	0.08	15	EKMQ101E□□1R0ME11D
	470	6.3 × 11	0.24	250	EKMQ100E□□471MF11D		2.2	5 × 11	0.08	21	EKMQ101E□□2R2ME11D
	1,000	10 × 12.5	0.24	460	EKMQ100E□□102MJC5S		3.3	5 × 11	0.08	29	EKMQ101E□□3R3ME11D
	2,200	10 × 16	0.26	705	EKMQ100E□□222MJ16S		4.7	5 × 11	0.08	32	EKMQ101E□□4R7ME11D
	3,300	12.5 × 20	0.28	1,000	EKMQ100E□□332MK20S		10	5 × 11	0.08	50	EKMQ101E□□100ME11D
	4,700	12.5 × 25	0.30	1,260	EKMQ100E□□472MK25S		22	6.3 × 11	0.08	93	EKMQ101E□□220MF11D
	6,800	16 × 25	0.34	1,570	EKMQ100E□□682ML25S		33	8 × 11.5	0.08	130	EKMQ101E□□330MHB5D
	10,000	16 × 31.5	0.42	1,820	EKMQ100E□□103MLN3S		47	8 × 11.5	0.08	140	EKMQ101E□□470MHB5D
	15,000	16 × 35.5	0.52	2,050	EKMQ100E□□153MLP1S		68	10 × 12.5	0.08	190	EKMQ101E□□680MJC5S
16	22,000	18 × 40	0.66	2,420	EKMQ100E□□223MM40S	100	10 × 16	0.08	240	EKMQ101E□□101MJ16S	
	220	6.3 × 11	0.20	190	EKMQ160E□□221MF11D	220	12.5 × 20	0.08	390	EKMQ101E□□221MK20S	
	330	6.3 × 11	0.20	225	EKMQ160E□□331MF11D	330	12.5 × 25	0.08	540	EKMQ101E□□331MK25S	
	470	8 × 11.5	0.20	315	EKMQ160E□□471MHB5D	470	16 × 25	0.08	715	EKMQ101E□□471ML25S	
	1,000	10 × 12.5	0.20	500	EKMQ160E□□102MJC5S	1,000	18 × 35.5	0.08	960	EKMQ101E□□102MMP1S	
	2,200	10 × 20	0.22	710	EKMQ160E□□222MJ20S	160	10	8 × 11.5	0.20	41	EKMQ161E□□100MHB5D
	3,300	12.5 × 25	0.24	1,170	EKMQ160E□□332MK25S		22	10 × 12.5	0.20	92	EKMQ161E□□220MJC5S
	4,700	16 × 25	0.26	1,500	EKMQ160E□□472ML25S		33	10 × 16	0.20	125	EKMQ161E□□330MJ16S
	6,800	16 × 25	0.30	1,600	EKMQ160E□□682ML25S		47	10 × 20	0.20	150	EKMQ161E□□470MJ20S
	10,000	16 × 35.5	0.38	1,930	EKMQ160E□□103MLP1S		68	12.5 × 20	0.20	250	EKMQ161E□□680MK20S
15,000	18 × 40	0.48	2,210	EKMQ160E□□153MM40S	100		12.5 × 25	0.20	310	EKMQ161E□□101MK25S	
25	100	5 × 11	0.16	125	EKMQ250E□□101ME11D		220	16 × 31.5	0.20	540	EKMQ161E□□221MLN3S
	220	6.3 × 11	0.16	200	EKMQ250E□□221MF11D		330	18 × 35.5	0.20	705	EKMQ161E□□331MMP1S
	330	8 × 11.5	0.16	310	EKMQ250E□□331MHB5D		470	18 × 40	0.20	855	EKMQ161E□□471MM40S
	470	10 × 12.5	0.16	380	EKMQ250E□□471MJC5S		200	1.0	6.3 × 11	0.20	16
	1,000	10 × 16	0.16	610	EKMQ250E□□102MJ16S	2.2		6.3 × 11	0.20	25	EKMQ201E□□2R2MF11D
	2,200	12.5 × 25	0.18	1,090	EKMQ250E□□222MK25S	3.3		6.3 × 11	0.20	30	EKMQ201E□□3R3MF11D
	3,300	16 × 25	0.20	1,400	EKMQ250E□□332ML25S	4.7		6.3 × 11	0.20	35	EKMQ201E□□4R7MF11D
	4,700	16 × 25	0.22	1,570	EKMQ250E□□472ML25S	10		8 × 11.5	0.20	57	EKMQ201E□□100MHB5D
	6,800	16 × 35.5	0.26	1,850	EKMQ250E□□682MLP1S	22		10 × 16	0.20	105	EKMQ201E□□220MJ16S
	10,000	18 × 40	0.34	2,000	EKMQ250E□□103MM40S	33		10 × 20	0.20	140	EKMQ201E□□330MJ20S
35	47	5 × 11	0.14	93	EKMQ350E□□470ME11D	47		12.5 × 20	0.20	195	EKMQ201E□□470MK20S
	68	6.3 × 11	0.14	110	EKMQ350E□□680MF11D	68		12.5 × 25	0.20	250	EKMQ201E□□680MK25S
	100	6.3 × 11	0.14	150	EKMQ350E□□101MF11D	100		16 × 25	0.20	335	EKMQ201E□□101ML25S
	220	8 × 11.5	0.14	270	EKMQ350E□□221MHB5D	220	16 × 35.5	0.20	500	EKMQ201E□□221MLP1S	
	330	10 × 12.5	0.14	350	EKMQ350E□□331MJC5S	330	18 × 40	0.20	675	EKMQ201E□□331MM40S	
	470	10 × 16	0.14	460	EKMQ350E□□471MJ16S	250	3.3	6.3 × 11	0.20	28	EKMQ251E□□3R3MF11D
	1,000	12.5 × 20	0.14	810	EKMQ350E□□102MK20S		4.7	6.3 × 11	0.20	35	EKMQ251E□□4R7MF11D
	2,200	16 × 25	0.16	1,260	EKMQ350E□□222ML25S		10	10 × 12.5	0.20	71	EKMQ251E□□100MJC5S
	3,300	16 × 31.5	0.18	1,500	EKMQ350E□□332MLN3S		22	10 × 20	0.20	105	EKMQ251E□□220MJ20S
	4,700	16 × 35.5	0.20	1,780	EKMQ350E□□472MLP1S		33	10 × 20	0.20	140	EKMQ251E□□330MJ20S
6,800	18 × 40	0.24	2,000	EKMQ350E□□682MM40S	47		12.5 × 20	0.20	190	EKMQ251E□□470MK20S	
50	1.0	5 × 11	0.12	13	EKMQ500E□□1R0ME11D		68	16 × 25	0.20	270	EKMQ251E□□680ML25S
	2.2	5 × 11	0.12	20	EKMQ500E□□2R2ME11D		100	16 × 25	0.20	310	EKMQ251E□□101ML25S
	3.3	5 × 11	0.12	25	EKMQ500E□□3R3ME11D		220	18 × 35.5	0.20	485	EKMQ251E□□221MMP1S
	4.7	5 × 11	0.12	30	EKMQ500E□□4R7ME11D		350	2.2	6.3 × 11	0.24	21
	10	5 × 11	0.12	46	EKMQ500E□□100ME11D	3.3		8 × 11.5	0.24	30	EKMQ351E□□3R3MHB5D
	22	5 × 11	0.12	68	EKMQ500E□□220ME11D	4.7		8 × 11.5	0.24	39	EKMQ351E□□4R7MHB5D
	33	5 × 11	0.12	90	EKMQ500E□□330ME11D	10		10 × 12.5	0.24	64	EKMQ351E□□100MJC5S
	47	6.3 × 11	0.12	115	EKMQ500E□□470MF11D	22		12.5 × 20	0.24	130	EKMQ351E□□220MK20S
	68	6.3 × 11	0.12	150	EKMQ500E□□680MF11D	33		12.5 × 25	0.24	170	EKMQ351E□□330MK25S
	100	8 × 11.5	0.12	190	EKMQ500E□□101MHB5D	47		16 × 25	0.24	230	EKMQ351E□□470ML25S
220	10 × 12.5	0.12	300	EKMQ500E□□221MJC5S	68	16 × 25		0.24	285	EKMQ351E□□680ML25S	
330	10 × 16	0.12	410	EKMQ500E□□331MJ16S	100	18 × 31.5		0.24	375	EKMQ351E□□101MMN3S	
470	10 × 20	0.12	540	EKMQ500E□□471MJ20S	400	1.0		6.3 × 11	0.24	15	EKMQ401E□□1R0MF11D
1,000	12.5 × 25	0.12	950	EKMQ500E□□102MK25S		2.2	8 × 11.5	0.24	27	EKMQ401E□□2R2MHB5D	
2,200	16 × 31.5	0.14	1,410	EKMQ500E□□222MLN3S		3.3	8 × 11.5	0.24	34	EKMQ401E□□3R3MHB5D	
3,300	18 × 35.5	0.16	1,770	EKMQ500E□□332MMP1S		4.7	10 × 12.5	0.24	42	EKMQ401E□□4R7MJC5S	
63	22	5 × 11	0.10	71	EKMQ630E□□220ME11D	10	10 × 16	0.24	64	EKMQ401E□□100MJ16S	

□ : Enter the appropriate lead forming or taping code.

◆ STANDARD RATINGS

is not solvent resistant.

WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mA <sub>rms</sub> /105°C, 120Hz)	Part No.	WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mA <sub>rms</sub> /105°C, 120Hz)	Part No.
400	22	12.5 × 25	0.24	145	EKMQ401E□□220MK25S	450	4.7	10 × 12.5	0.24	32	EKMQ451E□□4R7MJC5S
	33	16 × 25	0.24	195	EKMQ401E□□330ML25S		10	10 × 20	0.24	56	EKMQ451E□□100MJ20S
	47	16 × 25	0.24	200	EKMQ401E□□470ML25S		22	12.5 × 25	0.24	100	EKMQ451E□□220MK25S
	68	16 × 31.5	0.24	240	EKMQ401E□□680MLN3S		33	16 × 25	0.24	125	EKMQ451E□□330ML25S
	100	18 × 35.5	0.24	310	EKMQ401E□□101MMP1S		47	16 × 31.5	0.24	155	EKMQ451E□□470MLN3S
450	2.2	8 × 11.5	0.24	20	EKMQ451E□□2R2MHB5D	68	18 × 35.5	0.24	185	EKMQ451E□□680MMP1S	
	3.3	10 × 12.5	0.24	28	EKMQ451E□□3R3MJC5S	100	18 × 40	0.24	200	EKMQ451E□□101MM40S	

□ □ : Enter the appropriate lead forming or taping code.

◆ RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

Capacitance(μF)	Frequency(Hz)	50	120	300	1k	10k	100k
1.0 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

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.