

KMQ Series

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

KMQ

↑ Downsized
KMG P142

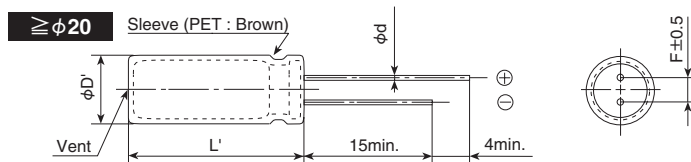
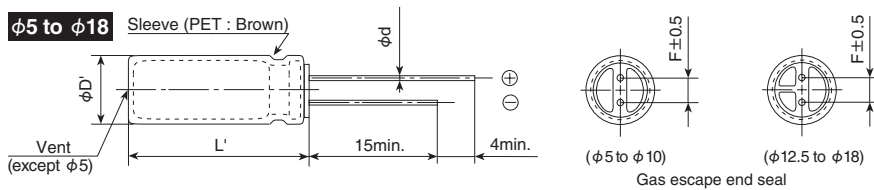


SPECIFICATIONS

Items	Characteristics													
Category	-55 to +105°C(6.3 to 100V _{dc}) -40 to +105°C(160 to 400V _{dc}) -25 to +105°C(450V _{dc})													
Temperature Range														
Rated Voltage Range	6.3 to 450V _{dc}													
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)													
Leakage Current	6.3 to 100V _{dc}						160 to 450V _{dc}							
	≤ φ 18	I=0.03CV or 4μA, whichever is greater.						CV/Time After 1 minute						
								CV ≤ 1,000	I=0.1CV+40 max.					
						CV > 1,000		I=0.04CV+100 max.						
	(at 20°C after 1 minute)						(at 20°C)							
	≥ φ 20						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 (tan δ)	Rated voltage (V _{dc})	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 _{dc})	6.3V	10V	16V	25V	35V	50V	63 to 100V	160 to 200V	250V	350V	400V	450V	
	Z(-25°C)/Z(+20°C)	≤ φ 8	5	4	3	2	2	2	2	3	3	4	4	6
		≥ φ 10	5	4	3	2	2	2	2	3	3	4	4	6
	Z(-40°C)/Z(+20°C)	≤ φ 8	10	8	6	4	3	3	3	8	10	8	8	—
	≥ φ 10	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 _{dc}						160 to 450V _{dc}						
	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						

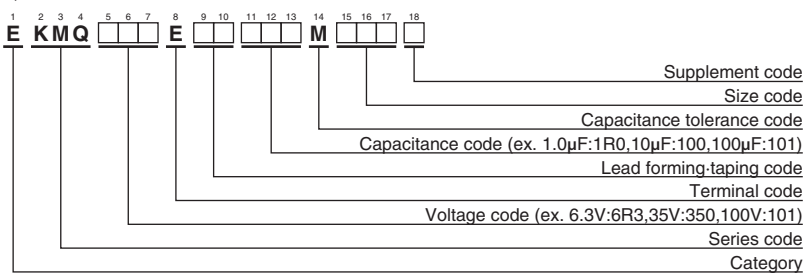
DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16	18	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



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

◆ STANDARD RATINGS

□ is not solvent resistant.

VV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mArms/ 105°C, 120Hz)	Part No.	VV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mArms/ 105°C, 120Hz)	Part No.	
6.3	1,000	8 × 11.5	0.28	390	EKMQ6R3E□□102MHB5D	50	330	10 × 16	0.12	410	EKMQ500E□□331MJ16S	
	2,200	10 × 16	0.30	635	EKMQ6R3E□□222MJ16S		470	10 × 20	0.12	540	EKMQ500E□□471MJ20S	
	3,300	10 × 20	0.32	840	EKMQ6R3E□□332MJ20S		1,000	12.5 × 25	0.12	950	EKMQ500E□□102MK25S	
	4,700	12.5 × 20	0.34	1,090	EKMQ6R3E□□472MK20S		2,200	16 × 31.5	0.14	1,410	EKMQ500E□□222MLN3S	
	6,800	12.5 × 25	0.38	1,350	EKMQ6R3E□□682MK25S		3,300	18 × 35.5	0.16	1,770	EKMQ500E□□332MMP1S	
	10,000	16 × 25	0.46	1,650	EKMQ6R3E□□103ML25S		4,700	20 × 40	0.18	2,100	EKMQ500E□□472MN40S	
	15,000	16 × 31.5	0.56	1,820	EKMQ6R3E□□153MLN3S		6,800	22 × 50	0.22	2,500	EKMQ500E□□682MP50S	
	22,000	18 × 35.5	0.70	2,280	EKMQ6R3E□□223MMP1S		63	22	5 × 11	0.10	71	EKMQ630E□□220ME11D
	33,000	20 × 40	0.92	2,500	EKMQ6R3E□□333MMN40S			33	6.3 × 11	0.10	100	EKMQ630E□□330MF11D
47,000	22 × 50	1.20	2,780	EKMQ6R3E□□473MP50S	47	6.3 × 11		0.10	120	EKMQ630E□□470MF11D		
10	220	5 × 11	0.24	155	EKMQ100E□□221ME11D	68		8 × 11.5	0.10	155	EKMQ630E□□680MHB5D	
	330	6.3 × 11	0.24	210	EKMQ100E□□331MF11D	100		8 × 11.5	0.10	200	EKMQ630E□□101MHB5D	
	470	6.3 × 11	0.24	250	EKMQ100E□□471MF11D	220		10 × 16	0.10	335	EKMQ630E□□221MJ16S	
	1,000	10 × 12.5	0.24	460	EKMQ100E□□102MJC5S	330		10 × 20	0.10	510	EKMQ630E□□331MJ20S	
	2,200	10 × 16	0.26	705	EKMQ100E□□222MJ16S	470		12.5 × 20	0.10	640	EKMQ630E□□471MK20S	
	3,300	12.5 × 20	0.28	1,000	EKMQ100E□□332MK20S	1,000		16 × 25	0.10	930	EKMQ630E□□102ML25S	
	4,700	12.5 × 25	0.30	1,260	EKMQ100E□□472MK25S	2,200		18 × 35.5	0.12	1,650	EKMQ630E□□222MMP1S	
	6,800	16 × 25	0.34	1,570	EKMQ100E□□682ML25S	3,300		20 × 40	0.14	1,950	EKMQ630E□□332MMN40S	
	10,000	16 × 31.5	0.42	1,820	EKMQ100E□□103MLN3S	4,700	22 × 50	0.16	2,450	EKMQ630E□□472MP50S		
	15,000	16 × 35.5	0.52	2,050	EKMQ100E□□153MLP1S	100	1.0	5 × 11	0.08	15	EKMQ101E□□1R0ME11D	
	22,000	18 × 40	0.66	2,420	EKMQ100E□□223MM40S		2.2	5 × 11	0.08	21	EKMQ101E□□2R2ME11D	
33,000	22 × 50	0.88	3,210	EKMQ100E□□333MP50S	3.3		5 × 11	0.08	29	EKMQ101E□□3R3ME11D		
16	220	6.3 × 11	0.20	190	EKMQ160E□□221MF11D		4.7	5 × 11	0.08	32	EKMQ101E□□4R7ME11D	
	330	6.3 × 11	0.20	225	EKMQ160E□□331MF11D		10	5 × 11	0.08	50	EKMQ101E□□100ME11D	
	470	8 × 11.5	0.20	315	EKMQ160E□□471MHB5D		22	6.3 × 11	0.08	93	EKMQ101E□□220MF11D	
	1,000	10 × 12.5	0.20	500	EKMQ160E□□102MJC5S		33	8 × 11.5	0.08	130	EKMQ101E□□330MHB5D	
	2,200	10 × 20	0.22	710	EKMQ160E□□222MJ20S		47	8 × 11.5	0.08	140	EKMQ101E□□470MHB5D	
	3,300	12.5 × 25	0.24	1,170	EKMQ160E□□332MK25S		68	10 × 12.5	0.08	190	EKMQ101E□□680MJC5S	
	4,700	16 × 25	0.26	1,500	EKMQ160E□□472ML25S		100	10 × 16	0.08	240	EKMQ101E□□101MJ16S	
	6,800	16 × 25	0.30	1,600	EKMQ160E□□682ML25S		220	12.5 × 20	0.08	390	EKMQ101E□□221MK20S	
	10,000	16 × 35.5	0.38	1,930	EKMQ160E□□103MLP1S	330	12.5 × 25	0.08	540	EKMQ101E□□331MK25S		
	15,000	18 × 40	0.48	2,210	EKMQ160E□□153MM40S	470	16 × 25	0.08	715	EKMQ101E□□471ML25S		
	22,000	22 × 40	0.62	2,710	EKMQ160E□□223MP40S	1,000	18 × 35.5	0.08	960	EKMQ101E□□102MMP1S		
25	100	5 × 11	0.16	125	EKMQ250E□□101ME11D	2,200	22 × 50	0.10	1,750	EKMQ101E□□222MP50S		
	220	6.3 × 11	0.16	200	EKMQ250E□□221MF11D	160	10	8 × 11.5	0.20	41	EKMQ161E□□100MHB5D	
	330	8 × 11.5	0.16	310	EKMQ250E□□331MHB5D		22	10 × 12.5	0.20	92	EKMQ161E□□220MJC5S	
	470	10 × 12.5	0.16	380	EKMQ250E□□471MJC5S		33	10 × 16	0.20	125	EKMQ161E□□330MJ16S	
	1,000	10 × 16	0.16	610	EKMQ250E□□102MJ16S		47	10 × 20	0.20	150	EKMQ161E□□470MJ20S	
	2,200	12.5 × 25	0.18	1,090	EKMQ250E□□222MK25S		68	12.5 × 20	0.20	250	EKMQ161E□□680MK20S	
	3,300	16 × 25	0.20	1,400	EKMQ250E□□332ML25S		100	12.5 × 25	0.20	310	EKMQ161E□□101MK25S	
	4,700	16 × 25	0.22	1,570	EKMQ250E□□472ML25S		220	16 × 31.5	0.20	540	EKMQ161E□□221MLN3S	
	6,800	16 × 35.5	0.26	1,850	EKMQ250E□□682MLP1S		330	18 × 35.5	0.20	705	EKMQ161E□□331MMP1S	
	10,000	18 × 40	0.34	2,000	EKMQ250E□□103MM40S		470	18 × 40	0.20	855	EKMQ161E□□471MM40S	
	15,000	22 × 50	0.44	2,750	EKMQ250E□□153MP50S		200	1.0	6.3 × 11	0.20	16	EKMQ201E□□1R0MF11D
35	47	5 × 11	0.14	93	EKMQ350E□□470ME11D			2.2	6.3 × 11	0.20	25	EKMQ201E□□2R2MF11D
	68	6.3 × 11	0.14	110	EKMQ350E□□680MF11D	3.3		6.3 × 11	0.20	30	EKMQ201E□□3R3MF11D	
	100	6.3 × 11	0.14	150	EKMQ350E□□101MF11D	4.7		6.3 × 11	0.20	35	EKMQ201E□□4R7MF11D	
	220	8 × 11.5	0.14	270	EKMQ350E□□221MHB5D	10		8 × 11.5	0.20	57	EKMQ201E□□100MHB5D	
	330	10 × 12.5	0.14	350	EKMQ350E□□331MJC5S	22		10 × 16	0.20	105	EKMQ201E□□220MJ16S	
	470	10 × 16	0.14	460	EKMQ350E□□471MJ16S	33		10 × 20	0.20	140	EKMQ201E□□330MJ20S	
	1,000	12.5 × 20	0.14	810	EKMQ350E□□102MK20S	47		12.5 × 20	0.20	195	EKMQ201E□□470MK20S	
	2,200	16 × 25	0.16	1,260	EKMQ350E□□222ML25S	68		12.5 × 25	0.20	250	EKMQ201E□□680MK25S	
	3,300	16 × 31.5	0.18	1,500	EKMQ350E□□332MLN3S	100		16 × 25	0.20	335	EKMQ201E□□101ML25S	
	4,700	16 × 35.5	0.20	1,780	EKMQ350E□□472MLP1S	220		16 × 35.5	0.20	500	EKMQ201E□□221MLP1S	
	6,800	18 × 40	0.24	2,000	EKMQ350E□□682MM40S	330	18 × 40	0.20	675	EKMQ201E□□331MM40S		
10,000	22 × 50	0.32	2,650	EKMQ350E□□103MP50S	250	3.3	6.3 × 11	0.20	28	EKMQ251E□□3R3MF11D		
50	1.0	5 × 11	0.12	13		EKMQ500E□□1R0ME11D	4.7	6.3 × 11	0.20	35	EKMQ251E□□4R7MF11D	
	2.2	5 × 11	0.12	20		EKMQ500E□□2R2ME11D	10	10 × 12.5	0.20	71	EKMQ251E□□100MJC5S	
	3.3	5 × 11	0.12	25		EKMQ500E□□3R3ME11D	22	10 × 20	0.20	105	EKMQ251E□□220MJ20S	
	4.7	5 × 11	0.12	30		EKMQ500E□□4R7ME11D	33	10 × 20	0.20	140	EKMQ251E□□330MJ20S	
	10	5 × 11	0.12	46		EKMQ500E□□100ME11D	47	12.5 × 20	0.20	190	EKMQ251E□□470MK20S	
	22	5 × 11	0.12	68		EKMQ500E□□220ME11D	68	16 × 25	0.20	270	EKMQ251E□□680ML25S	
	33	5 × 11	0.12	90		EKMQ500E□□330ME11D	100	16 × 25	0.20	310	EKMQ251E□□101ML25S	
	47	6.3 × 11	0.12	115		EKMQ500E□□470MF11D	220	18 × 35.5	0.20	485	EKMQ251E□□221MMP1S	
	68	6.3 × 11	0.12	150		EKMQ500E□□680MF11D	350	2.2	6.3 × 11	0.24	21	EKMQ351E□□2R2MF11D
	100	8 × 11.5	0.12	190		EKMQ500E□□101MHB5D		3.3	8 × 11.5	0.24	30	EKMQ351E□□3R3MHB5D
	220	10 × 12.5	0.12	300	EKMQ500E□□221MJC5S	4.7		8 × 11.5	0.24	39	EKMQ351E□□4R7MHB5D	

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

◆STANDARD RATINGS

is not solvent resistant.

WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mA _{rms} /105°C, 120Hz)	Part No.	WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mA _{rms} /105°C, 120Hz)	Part No.
350	10	10 × 12.5	0.24	64	EKMQ351E□□100MJC5S	450	2.2	8 × 11.5	0.24	20	EKMQ451E□□2R2MHB5D
	22	12.5 × 20	0.24	130	EKMQ351E□□220MK20S		3.3	10 × 12.5	0.24	28	EKMQ451E□□3R3MJC5S
	33	12.5 × 25	0.24	170	EKMQ351E□□330MK25S		4.7	10 × 12.5	0.24	32	EKMQ451E□□4R7MJC5S
	47	16 × 25	0.24	230	EKMQ351E□□470ML25S		10	10 × 20	0.24	56	EKMQ451E□□100MJ20S
	68	16 × 25	0.24	285	EKMQ351E□□680ML25S		22	12.5 × 25	0.24	100	EKMQ451E□□220MK25S
	100	18 × 31.5	0.24	375	EKMQ351E□□101MMN3S		33	16 × 25	0.24	125	EKMQ451E□□330ML25S
400	1.0	6.3 × 11	0.24	15	EKMQ401E□□1R0MF11D	47	16 × 31.5	0.24	155	EKMQ451E□□470MLN3S	
	2.2	8 × 11.5	0.24	27	EKMQ401E□□2R2MHB5D	68	18 × 35.5	0.24	185	EKMQ451E□□680MMP1S	
	3.3	8 × 11.5	0.24	34	EKMQ401E□□3R3MHB5D	100	18 × 40	0.24	200	EKMQ451E□□101MM40S	
	4.7	10 × 12.5	0.24	42	EKMQ401E□□4R7MJC5S						
	10	10 × 16	0.24	64	EKMQ401E□□100MJ16S						
	22	12.5 × 25	0.24	145	EKMQ401E□□220MK25S						
	33	16 × 25	0.24	195	EKMQ401E□□330ML25S						
	47	16 × 25	0.24	200	EKMQ401E□□470ML25S						
	68	16 × 31.5	0.24	240	EKMQ401E□□680MLN3S						
	100	18 × 35.5	0.24	310	EKMQ401E□□101MMP1S						

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

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

(φ5 to φ18)

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

(φ20 to φ22)

Capacitance(μF)	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

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.