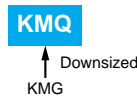


# KMQ Series

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

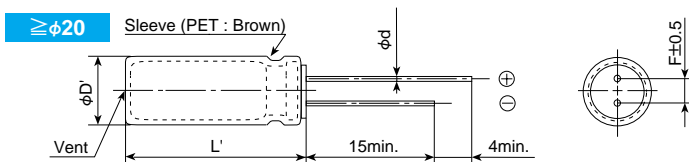
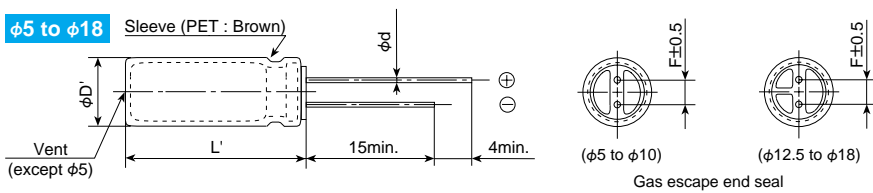


## ◆ SPECIFICATIONS

Items	Characteristics													
Category Temperature Range	-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> )													
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>													
	≤φ18	I=0.03CV or 4μA, whichever is greater.											160 to 450V <sub>dc</sub>	
		(at 20°C after 1 minute)											CV \ Time After 1 minute CV≤1,000 I=0.1CV+40 max. CV>1,000 I=0.04CV+100 max. (at 20°C)	
≥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 <sub>dc</sub> )	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 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 for 1,000 hours (2,000 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 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. (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						

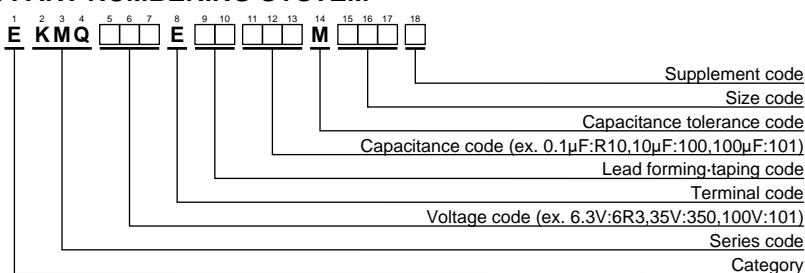
## ◆ DIMENSIONS [mm]

- 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.

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105°C,120Hz)	Part No.	WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105°C,120Hz)	Part No.
6.3	1,000	8×11.5	0.28	390	EKMQR3E□□102MHB5D	50	47	6.3×11	0.12	115	EKMQR50E□□470MF11D
	2,200	10×16	0.30	635	EKMQR3E□□222MJ16S		68	6.3×11	0.12	150	EKMQR50E□□680MF11D
	3,300	10×20	0.32	840	EKMQR3E□□332MJ20S		100	8×11.5	0.12	190	EKMQR50E□□101MHB5D
	4,700	12.5×20	0.34	1,090	EKMQR3E□□472MK20S		220	10×12.5	0.12	300	EKMQR50E□□221MJC5S
	6,800	12.5×25	0.38	1,350	EKMQR3E□□682MK25S		330	10×16	0.12	410	EKMQR50E□□331MJ16S
	10,000	16×25	0.46	1,650	EKMQR3E□□103ML25S		470	10×20	0.12	540	EKMQR50E□□471MJ20S
	15,000	16×31.5	0.56	1,820	EKMQR3E□□153MLN3S		1,000	12.5×25	0.12	950	EKMQR50E□□102MK25S
	22,000	18×35.5	0.70	2,280	EKMQR3E□□223MMP1S		2,200	16×31.5	0.14	1,410	EKMQR50E□□222MLN3S
	33,000	20×40	0.92	2,500	EKMQR3E□□333MN40S		3,300	18×35.5	0.16	1,770	EKMQR50E□□332MMP1S
	47,000	22×50	1.20	2,780	EKMQR3E□□473MP50S		4,700	20×40	0.18	2,100	EKMQR50E□□472MN40S
10	220	5×11	0.24	155	EKMQR100E□□221ME11D	6,800	22×50	0.22	2,500	EKMQR50E□□682MP50S	
	330	6.3×11	0.24	210	EKMQR100E□□331MF11D	63	22	5×11	0.10	71	EKMQR630E□□220ME11D
	470	6.3×11	0.24	250	EKMQR100E□□471MF11D		33	6.3×11	0.10	100	EKMQR630E□□330MF11D
	1,000	10×12.5	0.24	460	EKMQR100E□□102MJC5S		47	6.3×11	0.10	120	EKMQR630E□□470MF11D
	2,200	10×16	0.26	705	EKMQR100E□□222MJ16S		68	8×11.5	0.10	155	EKMQR630E□□680MHB5D
	3,300	12.5×20	0.28	1,000	EKMQR100E□□332MK20S		100	8×11.5	0.10	200	EKMQR630E□□101MHB5D
	4,700	12.5×25	0.30	1,260	EKMQR100E□□472MK25S		220	10×16	0.10	335	EKMQR630E□□221MJ16S
	6,800	16×25	0.34	1,570	EKMQR100E□□682ML25S		330	10×20	0.10	510	EKMQR630E□□331MJ20S
	10,000	16×31.5	0.42	1,820	EKMQR100E□□103MLN3S		470	12.5×20	0.10	640	EKMQR630E□□471MK20S
	15,000	16×35.5	0.52	2,050	EKMQR100E□□153MLP1S		1,000	16×25	0.10	930	EKMQR630E□□102ML25S
22,000	18×40	0.66	2,420	EKMQR100E□□223MMP40S	2,200		18×35.5	0.12	1,650	EKMQR630E□□222MMP1S	
16	33,000	22×50	0.88	3,210	EKMQR100E□□333MP50S	3,300	20×40	0.14	1,950	EKMQR630E□□332MN40S	
	220	6.3×11	0.20	190	EKMQR160E□□221MF11D	4,700	22×50	0.16	2,450	EKMQR630E□□472MP50S	
	330	6.3×11	0.20	225	EKMQR160E□□331MF11D	100	0.10	5×11	0.08	1.5	EKMQR101E□□R10ME11D
	470	8×11.5	0.20	315	EKMQR160E□□471MHB5D		0.22	5×11	0.08	3.4	EKMQR101E□□R22ME11D
	1,000	10×12.5	0.20	500	EKMQR160E□□102MJC5S		0.33	5×11	0.08	5.0	EKMQR101E□□R33ME11D
	2,200	10×20	0.22	710	EKMQR160E□□222MJ20S		0.47	5×11	0.08	7.1	EKMQR101E□□R47ME11D
	3,300	12.5×25	0.24	1,170	EKMQR160E□□332MK25S		1.0	5×11	0.08	15	EKMQR101E□□R10ME11D
	4,700	16×25	0.26	1,500	EKMQR160E□□472ML25S		2.2	5×11	0.08	21	EKMQR101E□□R22ME11D
	6,800	16×25	0.30	1,600	EKMQR160E□□682ML25S		3.3	5×11	0.08	29	EKMQR101E□□R33ME11D
	10,000	16×35.5	0.38	1,930	EKMQR160E□□103MLP1S		4.7	5×11	0.08	32	EKMQR101E□□R47ME11D
15,000	18×40	0.48	2,210	EKMQR160E□□153MM40S	10		5×11	0.08	50	EKMQR101E□□R100ME11D	
22,000	22×40	0.62	2,710	EKMQR160E□□223MP40S	22		6.3×11	0.08	93	EKMQR101E□□R220MF11D	
25	100	5×11	0.16	125	EKMQR250E□□101ME11D	33	8×11.5	0.08	130	EKMQR101E□□R330MHB5D	
	220	6.3×11	0.16	200	EKMQR250E□□221MF11D	47	8×11.5	0.08	140	EKMQR101E□□R470MHB5D	
	330	8×11.5	0.16	310	EKMQR250E□□331MHB5D	68	10×12.5	0.08	190	EKMQR101E□□R680MJC5S	
	470	10×12.5	0.16	380	EKMQR250E□□471MJC5S	100	10×16	0.08	240	EKMQR101E□□R101MJ16S	
	1,000	10×16	0.16	610	EKMQR250E□□102MJ16S	220	12.5×20	0.08	390	EKMQR101E□□R221MK20S	
	2,200	12.5×25	0.18	1,090	EKMQR250E□□222MK25S	330	12.5×25	0.08	540	EKMQR101E□□R331MK25S	
	3,300	16×25	0.20	1,400	EKMQR250E□□332ML25S	470	16×25	0.08	715	EKMQR101E□□R471ML25S	
	4,700	16×25	0.22	1,570	EKMQR250E□□472ML25S	1,000	18×35.5	0.08	960	EKMQR101E□□R102MMP1S	
	6,800	16×35.5	0.26	1,850	EKMQR250E□□682MLP1S	2,200	22×50	0.10	1,750	EKMQR101E□□R222MP50S	
	10,000	18×40	0.34	2,000	EKMQR250E□□103MM40S	160	10	8×11.5	0.20	41	EKMQR161E□□R100MHB5D
15,000	22×50	0.44	2,750	EKMQR250E□□153MP50S	22		10×12.5	0.20	92	EKMQR161E□□R220MJC5S	
47	5×11	0.14	93	EKMQR350E□□R470ME11D	33		10×16	0.20	125	EKMQR161E□□R330MJ16S	
68	6.3×11	0.14	110	EKMQR350E□□R680MF11D	47		10×20	0.20	150	EKMQR161E□□R470MJ20S	
100	6.3×11	0.14	150	EKMQR350E□□R101MF11D	68		12.5×20	0.20	250	EKMQR161E□□R680MK20S	
220	8×11.5	0.14	270	EKMQR350E□□R221MHB5D	100		12.5×25	0.20	310	EKMQR161E□□R101MK25S	
330	10×12.5	0.14	350	EKMQR350E□□R331MJC5S	220		16×31.5	0.20	540	EKMQR161E□□R221MLN3S	
470	10×16	0.14	460	EKMQR350E□□R471MJ16S	330		18×35.5	0.20	705	EKMQR161E□□R331MMP1S	
1,000	12.5×20	0.14	810	EKMQR350E□□R102MK20S	470		18×40	0.20	855	EKMQR161E□□R471MM40S	
2,200	16×25	0.16	1,260	EKMQR350E□□R222ML25S	200		1.0	6.3×11	0.20	16	EKMQR201E□□R10R0MF11D
3,300	16×31.5	0.18	1,500	EKMQR350E□□R332MLN3S		2.2	6.3×11	0.20	25	EKMQR201E□□R22R2MF11D	
4,700	16×35.5	0.20	1,780	EKMQR350E□□R472MLP1S		3.3	6.3×11	0.20	30	EKMQR201E□□R33R3MF11D	
6,800	18×40	0.24	2,000	EKMQR350E□□R682MM40S		4.7	6.3×11	0.20	35	EKMQR201E□□R47R7MF11D	
10,000	22×50	0.32	2,650	EKMQR350E□□R103MP50S		10	8×11.5	0.20	57	EKMQR201E□□R100MHB5D	
0.10	5×11	0.12	1.3	EKMQR500E□□R10ME11D		22	10×16	0.20	105	EKMQR201E□□R220MJ16S	
0.22	5×11	0.12	2.9	EKMQR500E□□R22ME11D		33	10×20	0.20	140	EKMQR201E□□R330MJ20S	
0.33	5×11	0.12	4.3	EKMQR500E□□R33ME11D		47	12.5×20	0.20	195	EKMQR201E□□R470MK20S	
0.47	5×11	0.12	7.0	EKMQR500E□□R47ME11D		68	12.5×25	0.20	250	EKMQR201E□□R680MK25S	
1.0	5×11	0.12	13	EKMQR500E□□R10R0ME11D		100	16×25	0.20	335	EKMQR201E□□R101ML25S	
2.2	5×11	0.12	20	EKMQR500E□□R22R2ME11D	220	16×35.5	0.20	500	EKMQR201E□□R221MLP1S		
3.3	5×11	0.12	25	EKMQR500E□□R33R3ME11D	330	18×40	0.20	675	EKMQR201E□□R331MM40S		
4.7	5×11	0.12	30	EKMQR500E□□R47R7ME11D	250	3.3	6.3×11	0.20	28	EKMQR251E□□R33R3MF11D	
10	5×11	0.12	46	EKMQR500E□□R100ME11D		4.7	6.3×11	0.20	35	EKMQR251E□□R47R7MF11D	
22	5×11	0.12	68	EKMQR500E□□R220ME11D		10	10×12.5	0.20	71	EKMQR251E□□R100MJC5S	
33	5×11	0.12	90	EKMQR500E□□R330ME11D		22	10×20	0.20	105	EKMQR251E□□R220MJ20S	

□ : Enter the appropriate lead forming or taping code.

◆STANDARD RATINGS

□ is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mA rms/105°C,120Hz)	Part No.	WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mA rms/105°C,120Hz)	Part No.	
250	33	10×20	0.20	140	EKMQ251E□□330MJ20S	400	3.3	8×11.5	0.24	34	EKMQ401E□□3R3MHB5D	
	47	12.5×20	0.20	190	EKMQ251E□□470MK20S		4.7	10×12.5	0.24	42	EKMQ401E□□4R7MJC5S	
	68	16×25	0.20	270	EKMQ251E□□680ML25S		10	10×16	0.24	64	EKMQ401E□□100MJ16S	
	100	16×25	0.20	310	EKMQ251E□□101ML25S		22	12.5×25	0.24	145	EKMQ401E□□220MK25S	
	220	18×35.5	0.20	485	EKMQ251E□□221MMP1S		33	16×25	0.24	195	EKMQ401E□□330ML25S	
350	2.2	6.3×11	0.24	21	EKMQ351E□□2R2MF11D	400	47	16×25	0.24	200	EKMQ401E□□470ML25S	
	3.3	8×11.5	0.24	30	EKMQ351E□□3R3MHB5D		68	16×31.5	0.24	240	EKMQ401E□□680MLN3S	
	4.7	8×11.5	0.24	39	EKMQ351E□□4R7MHB5D		100	18×35.5	0.24	310	EKMQ401E□□101MMP1S	
	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	0.47	6.3×11	0.24	8.5	EKMQ401E□□R47MF11D	47	16×31.5	0.24	155	EKMQ451E□□470MLN3S		
	1.0	6.3×11	0.24	15	EKMQ401E□□1R0MF11D	68	18×35.5	0.24	185	EKMQ451E□□680MMP1S		
	2.2	8×11.5	0.24	27	EKMQ401E□□2R2MHB5D	100	18×40	0.24	200	EKMQ451E□□101MM40S		

□ : 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
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

(φ20 to φ22)

Rated Voltage (Vdc)	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.