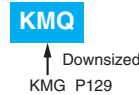


# KMQ Series

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

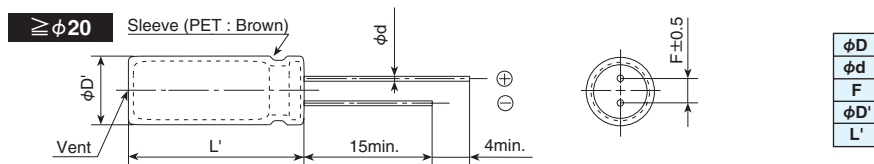
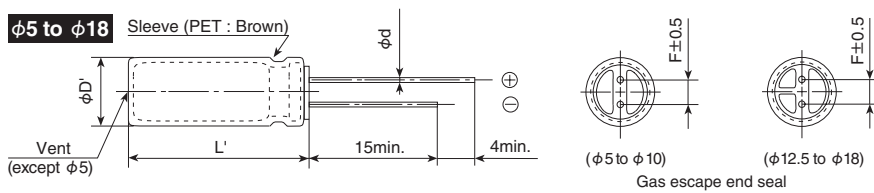


## SPECIFICATIONS

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>						160 to 450V <sub>dc</sub>							
	≤ φ18	I=0.03CV or 4µA, whichever is greater.						CV		Time		After 1 minute		
		(at 20°C after 1 minute)						CV ≤ 1,000		I=0.1CV+40 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 <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 (the peak voltage shall not exceed the rated voltage) 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						

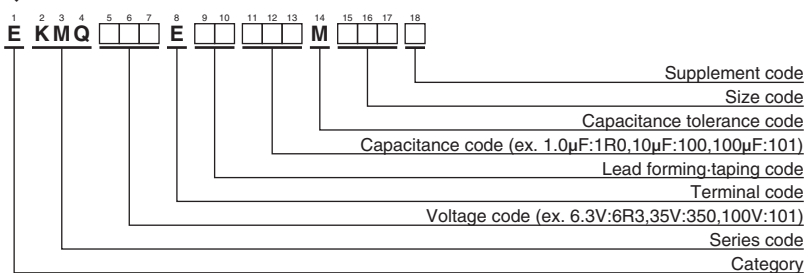
## DIMENSIONS [mm]

- 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 (mAmps/105°C,120Hz)	Part No.	WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mAmps/105°C,120Hz)	Part No.
6.3	1,000	8×11.5	0.28	390	EKMQR3E□□102MHB5D	50	330	10×16	0.12	410	EKMQR50E□□331MJ16S
	2,200	10×16	0.30	635	EKMQR3E□□222MJ16S		470	10×20	0.12	540	EKMQR50E□□471MJ20S
	3,300	10×20	0.32	840	EKMQR3E□□332MJ20S		1,000	12.5×25	0.12	950	EKMQR50E□□102MK25S
	4,700	12.5×20	0.34	1,090	EKMQR3E□□472MK20S		2,200	16×31.5	0.14	1,410	EKMQR50E□□222MLN3S
	6,800	12.5×25	0.38	1,350	EKMQR3E□□682MK25S		3,300	18×35.5	0.16	1,770	EKMQR50E□□332MMP1S
	10,000	16×25	0.46	1,650	EKMQR3E□□103ML25S		4,700	20×40	0.18	2,100	EKMQR50E□□472MN40S
	15,000	16×31.5	0.56	1,820	EKMQR3E□□153MLN3S		6,800	22×50	0.22	2,500	EKMQR50E□□682MP50S
	22,000	18×35.5	0.70	2,280	EKMQR3E□□223MMP1S		22	5×11	0.10	71	EKMQR63E□□220ME11D
10	33,000	20×40	0.92	2,500	EKMQR3E□□333MN40S	33	6.3×11	0.10	100	EKMQR63E□□330MF11D	
	47,000	22×50	1.20	2,780	EKMQR3E□□473MP50S	47	6.3×11	0.10	120	EKMQR63E□□470MF11D	
	220	5×11	0.24	155	EKMQR100E□□153MLN3S	68	8×11.5	0.10	155	EKMQR63E□□680MHB5D	
	330	6.3×11	0.24	210	EKMQR100E□□331MF11D	100	8×11.5	0.10	200	EKMQR63E□□101MHB5D	
	470	6.3×11	0.24	250	EKMQR100E□□471MF11D	220	10×16	0.10	335	EKMQR63E□□221MJ16S	
	1,000	10×12.5	0.24	460	EKMQR100E□□102MJC5S	330	10×20	0.10	510	EKMQR63E□□331MJ20S	
	2,200	10×16	0.26	705	EKMQR100E□□222MJ16S	470	12.5×20	0.10	640	EKMQR63E□□471MK20S	
	3,300	12.5×20	0.28	1,000	EKMQR100E□□332MK20S	1,000	16×25	0.10	930	EKMQR63E□□102ML25S	
	4,700	12.5×25	0.30	1,260	EKMQR100E□□472MK25S	2,200	18×35.5	0.12	1,650	EKMQR63E□□222MMP1S	
	6,800	16×25	0.34	1,570	EKMQR100E□□682ML25S	3,300	20×40	0.14	1,950	EKMQR63E□□332MN40S	
	10,000	16×31.5	0.42	1,820	EKMQR100E□□103MLN3S	4,700	22×50	0.16	2,450	EKMQR63E□□472MP50S	
	15,000	16×35.5	0.52	2,050	EKMQR100E□□153MLP1S	1.0	5×11	0.08	15	EKMQR101E□□1R0ME11D	
22,000	18×40	0.66	2,420	EKMQR100E□□223MM40S	2.2	5×11	0.08	21	EKMQR101E□□2R2ME11D		
33,000	22×50	0.88	3,210	EKMQR100E□□333MP50S	3.3	5×11	0.08	29	EKMQR101E□□3R3ME11D		
16	220	6.3×11	0.20	190	EKMQR160E□□103MLN3S	4.7	5×11	0.08	32	EKMQR101E□□4R7ME11D	
	330	6.3×11	0.20	225	EKMQR160E□□331MF11D	10	5×11	0.08	50	EKMQR101E□□100ME11D	
	470	8×11.5	0.20	315	EKMQR160E□□471MHB5D	22	6.3×11	0.08	93	EKMQR101E□□220MF11D	
	1,000	10×12.5	0.20	500	EKMQR160E□□102MJC5S	33	8×11.5	0.08	130	EKMQR101E□□330MHB5D	
	2,200	10×20	0.22	710	EKMQR160E□□222MJ20S	47	8×11.5	0.08	140	EKMQR101E□□470MHB5D	
	3,300	12.5×25	0.24	1,170	EKMQR160E□□332MK25S	68	10×12.5	0.08	190	EKMQR101E□□680MJC5S	
	4,700	16×25	0.26	1,500	EKMQR160E□□472ML25S	100	10×16	0.08	240	EKMQR101E□□101MJ16S	
	6,800	16×25	0.30	1,600	EKMQR160E□□682ML25S	220	12.5×20	0.08	390	EKMQR101E□□221MK20S	
	10,000	16×35.5	0.38	1,930	EKMQR160E□□103MLP1S	330	12.5×25	0.08	540	EKMQR101E□□331MK25S	
	15,000	18×40	0.48	2,210	EKMQR160E□□153MM40S	470	16×25	0.08	715	EKMQR101E□□471ML25S	
	22,000	22×40	0.62	2,710	EKMQR160E□□223MP40S	1,000	18×35.5	0.08	960	EKMQR101E□□102MMP1S	
	100	5×11	0.16	125	EKMQR250E□□101ME11D	2,200	22×50	0.10	1,750	EKMQR101E□□222MP50S	
	220	6.3×11	0.16	200	EKMQR250E□□221MF11D	10	8×11.5	0.20	41	EKMQR161E□□100MHB5D	
	330	8×11.5	0.16	310	EKMQR250E□□331MHB5D	22	10×12.5	0.20	92	EKMQR161E□□220MJC5S	
470	10×12.5	0.16	380	EKMQR250E□□471MJC5S	33	10×16	0.20	125	EKMQR161E□□330MJ16S		
1,000	10×16	0.16	610	EKMQR250E□□102MJ16S	47	10×20	0.20	150	EKMQR161E□□470MJ20S		
2,200	12.5×25	0.18	1,090	EKMQR250E□□222MK25S	68	12.5×20	0.20	250	EKMQR161E□□680MK20S		
3,300	16×25	0.20	1,400	EKMQR250E□□332ML25S	100	12.5×25	0.20	310	EKMQR161E□□101MK25S		
4,700	16×25	0.22	1,570	EKMQR250E□□472ML25S	220	16×31.5	0.20	540	EKMQR161E□□221MLN3S		
6,800	16×35.5	0.26	1,850	EKMQR250E□□682MLP1S	330	18×35.5	0.20	705	EKMQR161E□□331MMP1S		
10,000	18×40	0.34	2,000	EKMQR250E□□103MM40S	470	18×40	0.20	855	EKMQR161E□□471MM40S		
15,000	22×50	0.44	2,750	EKMQR250E□□153MP50S	1.0	6.3×11	0.20	16	EKMQR201E□□1R0MF11D		
25	470	5×11	0.14	93	EKMQR350E□□470ME11D	2.2	6.3×11	0.20	25	EKMQR201E□□2R2MF11D	
	68	6.3×11	0.14	110	EKMQR350E□□680MF11D	3.3	6.3×11	0.20	30	EKMQR201E□□3R3MF11D	
	100	6.3×11	0.14	150	EKMQR350E□□101MF11D	4.7	6.3×11	0.20	35	EKMQR201E□□4R7MF11D	
	220	8×11.5	0.14	270	EKMQR350E□□221MHB5D	10	8×11.5	0.20	57	EKMQR201E□□100MHB5D	
	330	10×12.5	0.14	350	EKMQR350E□□331MJC5S	22	10×16	0.20	105	EKMQR201E□□220MJ16S	
	470	10×16	0.14	460	EKMQR350E□□471MJ16S	33	10×20	0.20	140	EKMQR201E□□330MJ20S	
	1,000	12.5×20	0.14	810	EKMQR350E□□102MK20S	47	12.5×20	0.20	195	EKMQR201E□□470MK20S	
	2,200	16×25	0.16	1,260	EKMQR350E□□222ML25S	68	12.5×25	0.20	250	EKMQR201E□□680MK25S	
	3,300	16×31.5	0.18	1,500	EKMQR350E□□332MLN3S	100	16×25	0.20	335	EKMQR201E□□101ML25S	
	4,700	16×35.5	0.20	1,780	EKMQR350E□□472MLP1S	220	16×35.5	0.20	500	EKMQR201E□□221MLP1S	
	6,800	18×40	0.24	2,000	EKMQR350E□□682MM40S	330	18×40	0.20	675	EKMQR201E□□331MM40S	
	10,000	22×50	0.32	2,650	EKMQR350E□□103MP50S	3.3	6.3×11	0.20	28	EKMQR251E□□3R3MF11D	
35	47	5×11	0.12	13	EKMQR500E□□1R0ME11D	4.7	6.3×11	0.20	35	EKMQR251E□□4R7MF11D	
	2.2	5×11	0.12	20	EKMQR500E□□2R2ME11D	10	10×12.5	0.20	71	EKMQR251E□□100MJC5S	
	3.3	5×11	0.12	25	EKMQR500E□□3R3ME11D	22	10×20	0.20	105	EKMQR251E□□220MJ20S	
	4.7	5×11	0.12	30	EKMQR500E□□4R7ME11D	33	10×20	0.20	140	EKMQR251E□□330MJ20S	
	10	5×11	0.12	46	EKMQR500E□□100ME11D	47	12.5×20	0.20	190	EKMQR251E□□470MK20S	
	22	5×11	0.12	68	EKMQR500E□□220ME11D	68	16×25	0.20	270	EKMQR251E□□680ML25S	
	33	5×11	0.12	90	EKMQR500E□□330ME11D	100	16×25	0.20	310	EKMQR251E□□101ML25S	
	47	6.3×11	0.12	115	EKMQR500E□□470MF11D	220	18×35.5	0.20	485	EKMQR251E□□221MMP1S	
	68	6.3×11	0.12	150	EKMQR500E□□680MF11D	2.2	6.3×11	0.24	21	EKMQR351E□□2R2MF11D	
	100	8×11.5	0.12	190	EKMQR500E□□101MHB5D	3.3	8×11.5	0.24	30	EKMQR351E□□3R3MHB5D	
	220	10×12.5	0.12	300	EKMQR500E□□221MJC5S	4.7	8×11.5	0.24	39	EKMQR351E□□4R7MHB5D	
	50	1.0	5×11	0.12	13	EKMQR500E□□1R0ME11D	2.2	6.3×11	0.24	21	EKMQR351E□□2R2MF11D
2.2		5×11	0.12	20	EKMQR500E□□2R2ME11D	3.3	8×11.5	0.24	30	EKMQR351E□□3R3MHB5D	
3.3		5×11	0.12	25	EKMQR500E□□3R3ME11D	4.7	8×11.5	0.24	39	EKMQR351E□□4R7MHB5D	
4.7		5×11	0.12	30	EKMQR500E□□4R7ME11D	10	10×12.5	0.20	71	EKMQR251E□□100MJC5S	
10		5×11	0.12	46	EKMQR500E□□100ME11D	22	10×20	0.20	105	EKMQR251E□□220MJ20S	
22		5×11	0.12	68	EKMQR500E□□220ME11D	33	10×20	0.20	140	EKMQR251E□□330MJ20S	
33		5×11	0.12	90	EKMQR500E□□330ME11D	47	12.5×20	0.20	190	EKMQR251E□□470MK20S	
47		6.3×11	0.12	115	EKMQR500E□□470MF11D	68	16×25	0.20	270	EKMQR251E□□680ML25S	
68		6.3×11	0.12	150	EKMQR500E□□680MF11D	100	16×25	0.20	310	EKMQR251E□□101ML25S	
100		8×11.5	0.12	190	EKMQR500E□□101MHB5D	220	18×35.5	0.20	485	EKMQR251E□□221MMP1S	
220		10×12.5	0.12	300	EKMQR500E□□221MJC5S	2.2	6.3×11	0.24	21	EKMQR351E□□2R2MF11D	
						3.3	8×11.5	0.24	30	EKMQR351E□□3R3MHB5D	
					4.7	8×11.5	0.24	39	EKMQR351E□□4R7MHB5D		

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

◆STANDARD RATINGS

□ is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mA <sub>rms</sub> /105°C,120Hz)	Part No.
350	10	10×12.5	0.24	64	EKMQ351E□□100MJC5S
	22	12.5×20	0.24	130	EKMQ351E□□220MK20S
	33	12.5×25	0.24	170	EKMQ351E□□330MK25S
	47	16×25	0.24	230	EKMQ351E□□470ML25S
	68	16×25	0.24	285	EKMQ351E□□680ML25S
	100	18×31.5	0.24	375	EKMQ351E□□101MMN3S
400	1.0	6.3×11	0.24	15	EKMQ401E□□1R0MF11D
	2.2	8×11.5	0.24	27	EKMQ401E□□2R2MHB5D
	3.3	8×11.5	0.24	34	EKMQ401E□□3R3MHB5D
	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

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

Rated Voltage (V <sub>dc</sub> )	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.