

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

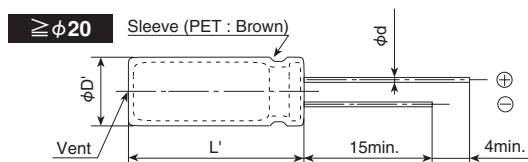
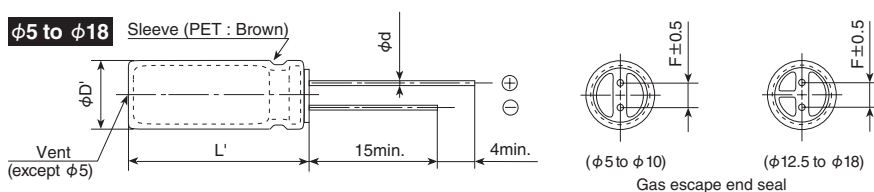


SPECIFICATIONS

Items	Characteristics													
Category														
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}						160 to 450V _{dc}						
	≤ ϕ 18	I=0.03CV or 4μA, whichever is greater. (at 20°C after 1 minute)						CV \ Time		After 1 minute		(at 20°C) (at 20°C after 3 minutes)		
								CV ≤ 1,000		I=0.1CV+40 max.				
								CV > 1,000		I=0.04CV+100 max.				
	≥ ϕ 20	I=0.03CV max.												
	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						

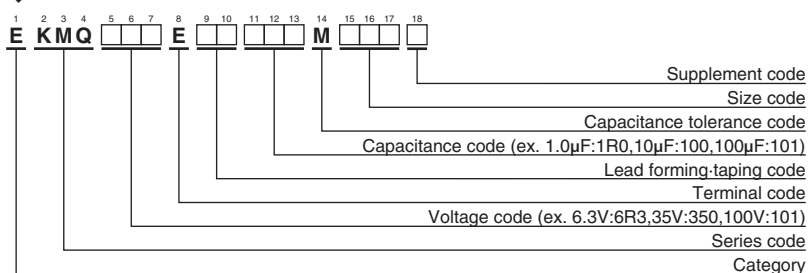
DIMENSIONS [mm]

- 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.

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.
6.3	1,000	8 × 11.5	0.28	390	EKMQR3E□□102MHB5D	50	330	10 × 16	0.12	410	EKMQ500E□□331MJ16S
	2,200	10 × 16	0.30	635	EKMQR3E□□222MJ16S		470	10 × 20	0.12	540	EKMQ500E□□471MJ20S
	3,300	10 × 20	0.32	840	EKMQR3E□□332MJ20S		1,000	12.5 × 25	0.12	950	EKMQ500E□□102MK25S
	4,700	12.5 × 20	0.34	1,090	EKMQR3E□□472MK20S		2,200	16 × 31.5	0.14	1,410	EKMQ500E□□222MLN3S
	6,800	12.5 × 25	0.38	1,350	EKMQR3E□□682MK25S		3,300	18 × 35.5	0.16	1,770	EKMQ500E□□332MMP1S
	10,000	16 × 25	0.46	1,650	EKMQR3E□□103ML25S		4,700	20 × 40	0.18	2,100	EKMQ500E□□472MN40S
	15,000	16 × 31.5	0.56	1,820	EKMQR3E□□153MLN3S		6,800	22 × 50	0.22	2,500	EKMQ500E□□682MP50S
	22,000	18 × 35.5	0.70	2,280	EKMQR3E□□223MMP1S		22	5 × 11	0.10	71	EKMQR3E□□220ME11D
	33,000	20 × 40	0.92	2,500	EKMQR3E□□333MMP1S		33	6.3 × 11	0.10	100	EKMQR3E□□330MF11D
	47,000	22 × 50	1.20	2,780	EKMQR3E□□473MP50S		47	6.3 × 11	0.10	120	EKMQR3E□□470MF11D
10	220	5 × 11	0.24	155	EKMQR3E□□221ME11D	63	68	8 × 11.5	0.10	155	EKMQR3E□□680MHB5D
	330	6.3 × 11	0.24	210	EKMQR3E□□331MF11D		100	8 × 11.5	0.10	200	EKMQR3E□□101MHB5D
	470	6.3 × 11	0.24	250	EKMQR3E□□471MF11D		220	10 × 16	0.10	335	EKMQR3E□□221MJ16S
	1,000	10 × 12.5	0.24	460	EKMQR3E□□102MJC5S		330	10 × 20	0.10	510	EKMQR3E□□331MJ20S
	2,200	10 × 16	0.26	705	EKMQR3E□□222MJ16S		470	12.5 × 20	0.10	640	EKMQR3E□□471MK20S
	3,300	12.5 × 20	0.28	1,000	EKMQR3E□□332MK20S		1,000	16 × 25	0.10	930	EKMQR3E□□102ML25S
	4,700	12.5 × 25	0.30	1,260	EKMQR3E□□472MK25S		2,200	18 × 35.5	0.12	1,650	EKMQR3E□□222MMP1S
	6,800	16 × 25	0.34	1,570	EKMQR3E□□682ML25S		3,300	20 × 40	0.14	1,950	EKMQR3E□□332MN40S
	10,000	16 × 31.5	0.42	1,820	EKMQR3E□□103MLN3S		4,700	22 × 50	0.16	2,450	EKMQR3E□□472MP50S
	15,000	16 × 35.5	0.52	2,050	EKMQR3E□□153MLP1S	100	1.0	5 × 11	0.08	15	EKMQR3E□□1R0ME11D
16	22,000	18 × 40	0.66	2,420	EKMQR3E□□223MMP1S		2.2	5 × 11	0.08	21	EKMQR3E□□2R2ME11D
	33,000	22 × 50	0.88	3,210	EKMQR3E□□333MMP1S		3.3	5 × 11	0.08	29	EKMQR3E□□3R3ME11D
	220	6.3 × 11	0.20	190	EKMQR3E□□221MF11D		4.7	5 × 11	0.08	32	EKMQR3E□□4R7ME11D
	330	6.3 × 11	0.20	225	EKMQR3E□□331MF11D		10	5 × 11	0.08	50	EKMQR3E□□100ME11D
	470	8 × 11.5	0.20	315	EKMQR3E□□471MHB5D		22	6.3 × 11	0.08	93	EKMQR3E□□220MF11D
	1,000	10 × 12.5	0.20	500	EKMQR3E□□102MJC5S		33	8 × 11.5	0.08	130	EKMQR3E□□330MHB5D
	2,200	10 × 20	0.22	710	EKMQR3E□□222MJ20S		47	8 × 11.5	0.08	140	EKMQR3E□□471MHB5D
	3,300	12.5 × 25	0.24	1,170	EKMQR3E□□332MK25S		68	10 × 12.5	0.08	190	EKMQR3E□□680MJC5S
	4,700	16 × 25	0.26	1,500	EKMQR3E□□472ML25S		100	10 × 16	0.08	240	EKMQR3E□□101MJ16S
	6,800	16 × 25	0.30	1,600	EKMQR3E□□682ML25S	160	220	12.5 × 20	0.08	390	EKMQR3E□□221MK20S
25	10,000	16 × 35.5	0.38	1,930	EKMQR3E□□103MLP1S		330	12.5 × 25	0.08	540	EKMQR3E□□331MK25S
	15,000	18 × 40	0.48	2,210	EKMQR3E□□153MM40S		470	16 × 25	0.08	715	EKMQR3E□□471ML25S
	22,000	22 × 40	0.62	2,710	EKMQR3E□□223MP40S		1,000	18 × 35.5	0.08	960	EKMQR3E□□102MMP1S
	100	5 × 11	0.16	125	EKMQR3E□□101ME11D		2,200	22 × 50	0.10	1,750	EKMQR3E□□222MP50S
	220	6.3 × 11	0.16	200	EKMQR3E□□221MF11D		10	8 × 11.5	0.20	41	EKMQR3E□□100MHB5D
	330	8 × 11.5	0.16	310	EKMQR3E□□331MHB5D		22	10 × 12.5	0.20	92	EKMQR3E□□220MJC5S
	470	10 × 12.5	0.16	380	EKMQR3E□□471MJC5S		33	10 × 16	0.20	125	EKMQR3E□□330MJ16S
	1,000	10 × 16	0.16	610	EKMQR3E□□102MJ16S		47	10 × 20	0.20	150	EKMQR3E□□470MJ20S
	2,200	12.5 × 25	0.18	1,090	EKMQR3E□□222MK25S		68	12.5 × 20	0.20	250	EKMQR3E□□680MK20S
	3,300	16 × 25	0.20	1,400	EKMQR3E□□332ML25S	200	100	12.5 × 25	0.20	310	EKMQR3E□□101MK25S
35	4,700	16 × 25	0.22	1,570	EKMQR3E□□472ML25S		220	16 × 31.5	0.20	540	EKMQR3E□□221MLN3S
	6,800	16 × 35.5	0.26	1,850	EKMQR3E□□682MLP1S		330	18 × 35.5	0.20	705	EKMQR3E□□331MMP1S
	10,000	18 × 40	0.34	2,000	EKMQR3E□□103MM40S		470	18 × 40	0.20	855	EKMQR3E□□471MM40S
	15,000	22 × 50	0.44	2,750	EKMQR3E□□153MP50S		1.0	6.3 × 11	0.20	16	EKMQR3E□□1R0MF11D
	47	5 × 11	0.14	93	EKMQR3E□□470ME11D		2.2	6.3 × 11	0.20	25	EKMQR3E□□2R2MF11D
	68	6.3 × 11	0.14	110	EKMQR3E□□680MF11D		3.3	6.3 × 11	0.20	30	EKMQR3E□□3R3MF11D
	100	6.3 × 11	0.14	150	EKMQR3E□□101MF11D		4.7	6.3 × 11	0.20	35	EKMQR3E□□4R7MF11D
	220	8 × 11.5	0.14	270	EKMQR3E□□221MHB5D		10	8 × 11.5	0.20	57	EKMQR3E□□100MHB5D
	330	10 × 12.5	0.14	350	EKMQR3E□□331MJC5S		22	10 × 16	0.20	105	EKMQR3E□□220MJ16S
	470	10 × 16	0.14	460	EKMQR3E□□471MJ16S		33	10 × 20	0.20	140	EKMQR3E□□330MJ20S
	1,000	12.5 × 20	0.14	810	EKMQR3E□□102MK20S	250	47	12.5 × 20	0.20	195	EKMQR3E□□470MK20S
50	2,200	16 × 25	0.16	1,260	EKMQR3E□□222ML25S		68	12.5 × 25	0.20	250	EKMQR3E□□680MK25S
	3,300	16 × 31.5	0.18	1,500	EKMQR3E□□332MLN3S		100	16 × 25	0.20	335	EKMQR3E□□101ML25S
	4,700	16 × 35.5	0.20	1,780	EKMQR3E□□472MLP1S		220	16 × 35.5	0.20	500	EKMQR3E□□221MLP1S
	6,800	18 × 40	0.24	2,000	EKMQR3E□□682MM40S		330	18 × 40	0.20	675	EKMQR3E□□331MM40S
	10,000	22 × 50	0.32	2,650	EKMQR3E□□103MP50S		3.3	6.3 × 11	0.20	28	EKMQR3E□□3R3MF11D
	1.0	5 × 11	0.12	13	EKMQR3E□□1R0ME11D		4.7	6.3 × 11	0.20	35	EKMQR3E□□4R7MF11D
	2.2	5 × 11	0.12	20	EKMQR3E□□2R2ME11D		10	10 × 12.5	0.20	71	EKMQR3E□□100MJC5S
	3.3	5 × 11	0.12	25	EKMQR3E□□3R3ME11D		22	10 × 20	0.20	105	EKMQR3E□□220MJ20S
	4.7	5 × 11	0.12	30	EKMQR3E□□4R7ME11D		33	10 × 20	0.20	140	EKMQR3E□□330MJ20S
	10	5 × 11	0.12	46	EKMQR3E□□100ME11D		47	12.5 × 20	0.20	190	EKMQR3E□□470MK20S
	22	5 × 11	0.12	68	EKMQR3E□□220ME11D	350	68	16 × 25	0.20	270	EKMQR3E□□680ML25S
	33	5 × 11	0.12	90	EKMQR3E□□330ME11D		100	16 × 25	0.20	310	EKMQR3E□□101ML25S
	47	6.3 × 11	0.12	115	EKMQR3E□□470MF11D		220	18 × 35.5	0.20	485	EKMQR3E□□221MMP1S
	68	6.3 × 11	0.12	150	EKMQR3E□□680MF11D		2.2	6.3 × 11	0.24	21	EKMQR3E□□2R2MF11D
	100	8 × 11.5	0.12	190	EKMQR3E□□101MHB5D		3.3	8 × 11.5	0.24	30	EKMQR3E□□3R3MHB5D
	220	10 × 12.5	0.12	300	EKMQR3E□□221MJC5S		4.7	8 × 11.5	0.24	39	EKMQR3E□□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.