KMQ Series

- Downsized from current standard KMG series
- Solvent resistant type except 160 to 450Vdc
  (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

KMQ
↑ Downsized
KMG

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃(6.3 to 100Vdc)　−40 to +105℃(160 to 400Vdc)　-25 to +105℃(450Vdc)
Rated Voltage Range	6.3 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	6.3 to 100Vdc: ≦φ18: I=0.03CV or 4μA, whichever is greater. (at 20℃ after 1 minute); ≧φ20: I=0.03CV max. (at 20℃ after 3 minutes) 160 to 450Vdc (at 20℃): CV≦1,000: I=0.1CV+40 max.; CV>1,000: I=0.04CV+100 max. (Time: After 1minute) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)

Dissipation Factor (tanδ)

Rated voltage (Vdc)	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℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V	63 to 100V	160 to 200V	250V	350V	400V	450V
Z(-25℃)/Z(+20℃)	≦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℃)/Z(+20℃)	≦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℃ 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℃).

Capacitance change	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value
Leakage current	≦The initial specified value

Shelf Life

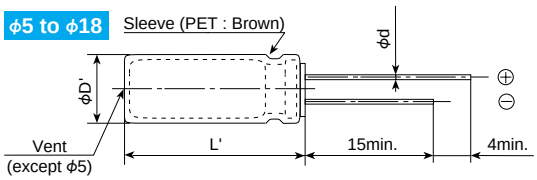
The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

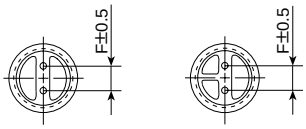
Rated voltage	6.3 to 100Vdc	160 to 450Vdc
Capacitance change	≦±20% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦500% of the initial specified value

◆DIMENSIONS [mm]

- Terminal Code : E

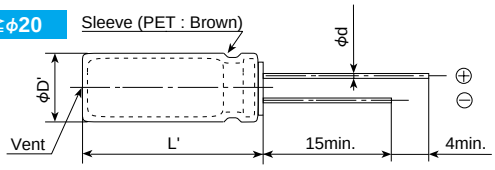
φ5 to φ18

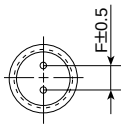




Gas escape end seal

≧φ20





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

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	M	Q				E						M				

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 0.1μF:R10,10μF:100,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,35V:350,100V:101)
- Series code
- Category

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

KMQ Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	1,000	8×11.5	0.28	390	EKMQ6R3E□□102MHB5D
	2,200	10×16	0.30	635	EKMQ6R3E□□222MJ16S
	3,300	10×20	0.32	840	EKMQ6R3E□□332MJ20S
	4,700	12.5×20	0.34	1,090	EKMQ6R3E□□472MK20S
	6,800	12.5×25	0.38	1,350	EKMQ6R3E□□682MK25S
	10,000	16×25	0.46	1,650	EKMQ6R3E□□103ML25S
	15,000	16×31.5	0.56	1,820	EKMQ6R3E□□153MLN3S
	22,000	18×35.5	0.70	2,280	EKMQ6R3E□□223MMP1S
	33,000	20×40	0.92	2,500	EKMQ6R3E□□333MN40S
	47,000	22×50	1.20	2,780	EKMQ6R3E□□473MP50S
10	220	5×11	0.24	155	EKMQ100E□□221ME11D
	330	6.3×11	0.24	210	EKMQ100E□□331MF11D
	470	6.3×11	0.24	250	EKMQ100E□□471MF11D
	1,000	10×12.5	0.24	460	EKMQ100E□□102MJC5S
	2,200	10×16	0.26	705	EKMQ100E□□222MJ16S
	3,300	12.5×20	0.28	1,000	EKMQ100E□□332MK20S
	4,700	12.5×25	0.30	1,260	EKMQ100E□□472MK25S
	6,800	16×25	0.34	1,570	EKMQ100E□□682ML25S
	10,000	16×31.5	0.42	1,820	EKMQ100E□□103MLN3S
	15,000	16×35.5	0.52	2,050	EKMQ100E□□153MLP1S
	22,000	18×40	0.66	2,420	EKMQ100E□□223MM40S
	33,000	22×50	0.88	3,210	EKMQ100E□□333MP50S
16	220	6.3×11	0.20	190	EKMQ160E□□221MF11D
	330	6.3×11	0.20	225	EKMQ160E□□331MF11D
	470	8×11.5	0.20	315	EKMQ160E□□471MHB5D
	1,000	10×12.5	0.20	500	EKMQ160E□□102MJC5S
	2,200	10×20	0.22	710	EKMQ160E□□222MJ20S
	3,300	12.5×25	0.24	1,170	EKMQ160E□□332MK25S
	4,700	16×25	0.26	1,500	EKMQ160E□□472ML25S
	6,800	16×25	0.30	1,600	EKMQ160E□□682ML25S
	10,000	16×35.5	0.38	1,930	EKMQ160E□□103MLP1S
	15,000	18×40	0.48	2,210	EKMQ160E□□153MM40S
	22,000	22×40	0.62	2,710	EKMQ160E□□223MP40S
25	100	5×11	0.16	125	EKMQ250E□□101ME11D
	220	6.3×11	0.16	200	EKMQ250E□□221MF11D
	330	8×11.5	0.16	310	EKMQ250E□□331MHB5D
	470	10×12.5	0.16	380	EKMQ250E□□471MJC5S
	1,000	10×16	0.16	610	EKMQ250E□□102MJ16S
	2,200	12.5×25	0.18	1,090	EKMQ250E□□222MK25S
	3,300	16×25	0.20	1,400	EKMQ250E□□332ML25S
	4,700	16×25	0.22	1,570	EKMQ250E□□472ML25S
	6,800	16×35.5	0.26	1,850	EKMQ250E□□682MLP1S
	10,000	18×40	0.34	2,000	EKMQ250E□□103MM40S
	15,000	22×50	0.44	2,750	EKMQ250E□□153MP50S
35	47	5×11	0.14	93	EKMQ350E□□470ME11D
	68	6.3×11	0.14	110	EKMQ350E□□680MF11D
	100	6.3×11	0.14	150	EKMQ350E□□101MF11D
	220	8×11.5	0.14	270	EKMQ350E□□221MHB5D
	330	10×12.5	0.14	350	EKMQ350E□□331MJC5S
	470	10×16	0.14	460	EKMQ350E□□471MJ16S
	1,000	12.5×20	0.14	810	EKMQ350E□□102MK20S
	2,200	16×25	0.16	1,260	EKMQ350E□□222ML25S
	3,300	16×31.5	0.18	1,500	EKMQ350E□□332MLN3S
	4,700	16×35.5	0.20	1,780	EKMQ350E□□472MLP1S
	6,800	18×40	0.24	2,000	EKMQ350E□□682MM40S
	10,000	22×50	0.32	2,650	EKMQ350E□□103MP50S
50	0.10	5×11	0.12	1.3	EKMQ500E□□R10ME11D
	0.22	5×11	0.12	2.9	EKMQ500E□□R22ME11D
	0.33	5×11	0.12	4.3	EKMQ500E□□R33ME11D
	0.47	5×11	0.12	7.0	EKMQ500E□□R47ME11D
	1.0	5×11	0.12	13	EKMQ500E□□1R0ME11D
	2.2	5×11	0.12	20	EKMQ500E□□2R2ME11D
	3.3	5×11	0.12	25	EKMQ500E□□3R3ME11D
	4.7	5×11	0.12	30	EKMQ500E□□4R7ME11D
	10	5×11	0.12	46	EKMQ500E□□100ME11D
	22	5×11	0.12	68	EKMQ500E□□220ME11D
	33	5×11	0.12	90	EKMQ500E□□330ME11D
50	47	6.3×11	0.12	115	EKMQ500E□□470MF11D
	68	6.3×11	0.12	150	EKMQ500E□□680MF11D
	100	8×11.5	0.12	190	EKMQ500E□□101MHB5D
	220	10×12.5	0.12	300	EKMQ500E□□221MJC5S
	330	10×16	0.12	410	EKMQ500E□□331MJ16S
	470	10×20	0.12	540	EKMQ500E□□471MJ20S
	1,000	12.5×25	0.12	950	EKMQ500E□□102MK25S
	2,200	16×31.5	0.14	1,410	EKMQ500E□□222MLN3S
	3,300	18×35.5	0.16	1,770	EKMQ500E□□332MMP1S
	4,700	20×40	0.18	2,100	EKMQ500E□□472MN40S
	6,800	22×50	0.22	2,500	EKMQ500E□□682MP50S
63	22	5×11	0.10	71	EKMQ630E□□220ME11D
	33	6.3×11	0.10	100	EKMQ630E□□330MF11D
	47	6.3×11	0.10	120	EKMQ630E□□470MF11D
	68	8×11.5	0.10	155	EKMQ630E□□680MHB5D
	100	8×11.5	0.10	200	EKMQ630E□□101MHB5D
	220	10×16	0.10	335	EKMQ630E□□221MJ16S
	330	10×20	0.10	510	EKMQ630E□□331MJ20S
	470	12.5×20	0.10	640	EKMQ630E□□471MK20S
	1,000	16×25	0.10	930	EKMQ630E□□102ML25S
	2,200	18×35.5	0.12	1,650	EKMQ630E□□222MMP1S
	3,300	20×40	0.14	1,950	EKMQ630E□□332MN40S
	4,700	22×50	0.16	2,450	EKMQ630E□□472MP50S
100	0.10	5×11	0.08	1.5	EKMQ101E□□R10ME11D
	0.22	5×11	0.08	3.4	EKMQ101E□□R22ME11D
	0.33	5×11	0.08	5.0	EKMQ101E□□R33ME11D
	0.47	5×11	0.08	7.1	EKMQ101E□□R47ME11D
	1.0	5×11	0.08	15	EKMQ101E□□1R0ME11D
	2.2	5×11	0.08	21	EKMQ101E□□2R2ME11D
	3.3	5×11	0.08	29	EKMQ101E□□3R3ME11D
	4.7	5×11	0.08	32	EKMQ101E□□4R7ME11D
	10	5×11	0.08	50	EKMQ101E□□100ME11D
	22	6.3×11	0.08	93	EKMQ101E□□220MF11D
	33	8×11.5	0.08	130	EKMQ101E□□330MHB5D
	47	8×11.5	0.08	140	EKMQ101E□□470MHB5D
	68	10×12.5	0.08	190	EKMQ101E□□680MJC5S
	100	10×16	0.08	240	EKMQ101E□□101MJ16S
	220	12.5×20	0.08	390	EKMQ101E□□221MK20S
	330	12.5×25	0.08	540	EKMQ101E□□331MK25S
	470	16×25	0.08	715	EKMQ101E□□471ML25S
	1,000	18×35.5	0.08	960	EKMQ101E□□102MMP1S
	2,200	22×50	0.10	1,750	EKMQ101E□□222MP50S
160	10	8×11.5	0.20	41	EKMQ161E□□100MHB5D
	22	10×12.5	0.20	92	EKMQ161E□□220MJC5S
	33	10×16	0.20	125	EKMQ161E□□330MJ16S
	47	10×20	0.20	150	EKMQ161E□□470MJ20S
	68	12.5×20	0.20	250	EKMQ161E□□680MK20S
	100	12.5×25	0.20	310	EKMQ161E□□101MK25S
	220	16×31.5	0.20	540	EKMQ161E□□221MLN3S
	330	18×35.5	0.20	705	EKMQ161E□□331MMP1S
	470	18×40	0.20	855	EKMQ161E□□471MM40S
200	1.0	6.3×11	0.20	16	EKMQ201E□□1R0MF11D
	2.2	6.3×11	0.20	25	EKMQ201E□□2R2MF11D
	3.3	6.3×11	0.20	30	EKMQ201E□□3R3MF11D
	4.7	6.3×11	0.20	35	EKMQ201E□□4R7MF11D
	10	8×11.5	0.20	57	EKMQ201E□□100MHB5D
	22	10×16	0.20	105	EKMQ201E□□220MJ16S
	33	10×20	0.20	140	EKMQ201E□□330MJ20S
	47	12.5×20	0.20	195	EKMQ201E□□470MK20S
	68	12.5×25	0.20	250	EKMQ201E□□680MK25S
	100	16×25	0.20	335	EKMQ201E□□101ML25S
	220	16×35.5	0.20	500	EKMQ201E□□221MLP1S
	330	18×40	0.20	675	EKMQ201E□□331MM40S
250	3.3	6.3×11	0.20	28	EKMQ251E□□3R3MF11D
	4.7	6.3×11	0.20	35	EKMQ251E□□4R7MF11D
	10	10×12.5	0.20	71	EKMQ251E□□100MJC5S
	22	10×20	0.20	105	EKMQ251E□□220MJ20S

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

KMQ Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
250	33	10×20	0.20	140	EKMQ251E□□330MJ20S
	47	12.5×20	0.20	190	EKMQ251E□□470MK20S
	68	16×25	0.20	270	EKMQ251E□□680ML25S
	100	16×25	0.20	310	EKMQ251E□□101ML25S
	220	18×35.5	0.20	485	EKMQ251E□□221MMP1S
350	2.2	6.3×11	0.24	21	EKMQ351E□□2R2MF11D
	3.3	8×11.5	0.24	30	EKMQ351E□□3R3MHB5D
	4.7	8×11.5	0.24	39	EKMQ351E□□4R7MHB5D
	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	0.47	6.3×11	0.24	8.5	EKMQ401E□□R47MF11D
	1.0	6.3×11	0.24	15	EKMQ401E□□1R0MF11D
	2.2	8×11.5	0.24	27	EKMQ401E□□2R2MHB5D

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
400	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
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
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℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.