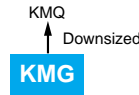


# KMG Series

- Endurance with ripple current : 1,000 to 2,000 hours at 105°C
- Solvent resistant type except 350 to 450V<sub>dc</sub>  
(see PRECAUTIONS AND GUIDELINES)
- RoHS Compliant

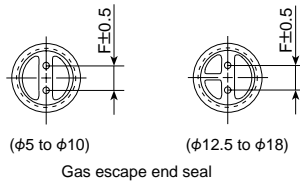
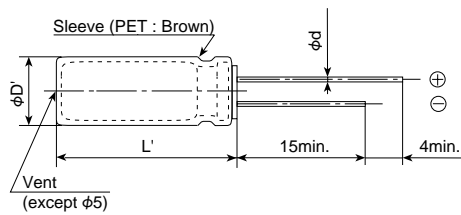


## ◆ SPECIFICATIONS

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>																						
	I=0.03CV or 4µA, whichever is greater.																						
	160 to 450V <sub>dc</sub>																						
	<table border="1"> <thead> <tr> <th>CV</th> <th>Time</th> <th>After 1minute</th> <th>After 5minutes</th> </tr> </thead> <tbody> <tr> <td>CV≤1,000</td> <td></td> <td>I=0.1CV+40 max.</td> <td>I=0.03CV+15 max.</td> </tr> <tr> <td>CV&gt;1,000</td> <td></td> <td>I=0.04CV+100 max.</td> <td>I=0.02CV+25 max.</td> </tr> </tbody> </table>												CV	Time	After 1minute	After 5minutes	CV≤1,000		I=0.1CV+40 max.	I=0.03CV+15 max.	CV>1,000		I=0.04CV+100 max.
CV	Time	After 1minute	After 5minutes																				
CV≤1,000		I=0.1CV+40 max.	I=0.03CV+15 max.																				
CV>1,000		I=0.04CV+100 max.	I=0.02CV+25 max.																				
(at 20°C after 1 minute) (at 20°C)																							
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.)	0.34	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	63V	100V	160 to 250V	350 to 400V	450V											
	Z(-25°C)/Z(+20°C)	5	4	3	2	2	2	2	2	3	6	6											
	Z(-40°C)/Z(+20°C)	12	10	8	5	4	3	3	3	4	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 to meet the following two conditions 1) : 160V <sub>dc</sub> and larger, 2) : φ12.5 and larger) 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															

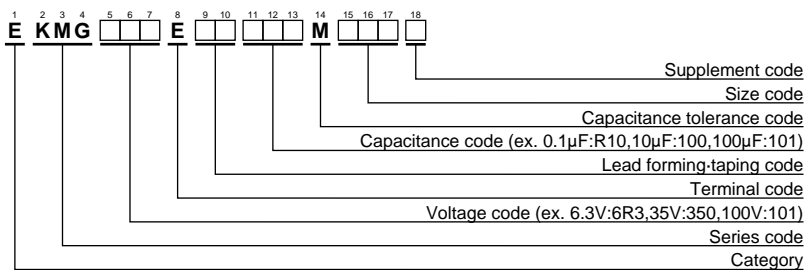
## ◆ DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max						

## ◆ PART NUMBERING SYSTEM



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

## ◆STANDARD RATINGS

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.
6.3	33	5×11	0.34	54	EKMG6R3E□□330ME11D	35	3,300	16×35.5	0.18	1,610	EKMG350E□□332MLP1S
	47	5×11	0.34	64	EKMG6R3E□□470ME11D		4,700	18×35.5	0.20	1,910	EKMG350E□□472MMP1S
	100	5×11	0.34	94	EKMG6R3E□□101ME11D		0.10	5×11	0.12	1.3	EKMG500E□□R10ME11D
	220	5×11	0.34	140	EKMG6R3E□□221ME11D		0.22	5×11	0.12	2.9	EKMG500E□□R22ME11D
	330	6.3×11	0.34	190	EKMG6R3E□□331MF11D		0.33	5×11	0.12	4.3	EKMG500E□□R33ME11D
	470	6.3×11	0.34	230	EKMG6R3E□□471MF11D		0.47	5×11	0.12	6.2	EKMG500E□□R47ME11D
	1,000	8×11.5	0.34	380	EKMG6R3E□□102MHB5D		1.0	5×11	0.12	13	EKMG500E□□R10ME11D
	2,200	10×20	0.36	710	EKMG6R3E□□222MJ20S		2.2	5×11	0.12	20	EKMG500E□□R22ME11D
	3,300	10×20	0.38	840	EKMG6R3E□□332MJ20S		3.3	5×11	0.12	25	EKMG500E□□R33ME11D
	4,700	12.5×20	0.40	1,090	EKMG6R3E□□472MK20S		4.7	5×11	0.12	30	EKMG500E□□R47ME11D
	6,800	12.5×25	0.44	1,350	EKMG6R3E□□682MK25S		10	5×11	0.12	40	EKMG500E□□R100ME11D
	10,000	16×25	0.52	1,650	EKMG6R3E□□103ML25S		22	5×11	0.12	65	EKMG500E□□R220ME11D
	15,000	16×35.5	0.62	2,010	EKMG6R3E□□153MLP1S		33	5×11	0.12	90	EKMG500E□□R33ME11D
22,000	18×40	0.76	2,350	EKMG6R3E□□223MM40S	47	6.3×11	0.12	110	EKMG500E□□R470MF11D		
10	22	5×11	0.24	46	EKMG100E□□220ME11D	100	8×11.5	0.12	180	EKMG500E□□R101MHB5D	
	33	5×11	0.24	57	EKMG100E□□330ME11D	220	10×12.5	0.12	300	EKMG500E□□R221MJC5S	
	47	5×11	0.24	68	EKMG100E□□470ME11D	330	10×16	0.12	410	EKMG500E□□R331MJ16S	
	100	5×11	0.24	100	EKMG100E□□101ME11D	470	10×20	0.12	530	EKMG500E□□R471MJ20S	
	220	6.3×11	0.24	170	EKMG100E□□221MF11D	1,000	12.5×25	0.12	950	EKMG500E□□R102MK25S	
	330	6.3×11	0.24	200	EKMG100E□□331MF11D	2,200	16×35.5	0.14	1,470	EKMG500E□□R222MLP1S	
	470	8×11.5	0.24	250	EKMG100E□□471MHB5D	3,300	18×35.5	0.16	1,770	EKMG500E□□R332MMP1S	
	1,000	10×12.5	0.24	460	EKMG100E□□102MJC5S	10	5×11	0.10	46	EKMG630E□□100ME11D	
	2,200	10×20	0.26	760	EKMG100E□□222MJ20S	22	5×11	0.10	71	EKMG630E□□220ME11D	
	3,300	12.5×20	0.28	1,000	EKMG100E□□332MK20S	33	6.3×11	0.10	100	EKMG630E□□330MF11D	
	4,700	12.5×25	0.30	1,260	EKMG100E□□472MK25S	47	6.3×11	0.10	120	EKMG630E□□470MF11D	
	6,800	16×25	0.34	1,570	EKMG100E□□682ML25S	100	10×12.5	0.10	215	EKMG630E□□101MJC5S	
	10,000	16×35.5	0.42	1,890	EKMG100E□□103MLP1S	220	10×16	0.10	335	EKMG630E□□221MJ16S	
15,000	18×35.5	0.52	2,180	EKMG100E□□153MMP1S	330	10×20	0.10	510	EKMG630E□□331MJ20S		
16	10	5×11	0.20	34	EKMG160E□□100ME11D	470	12.5×20	0.10	640	EKMG630E□□471MK20S	
	22	5×11	0.20	51	EKMG160E□□220ME11D	1,000	16×25	0.10	930	EKMG630E□□102ML25S	
	33	5×11	0.20	63	EKMG160E□□330ME11D	0.10	5×11	0.08	1.5	EKMG101E□□R10ME11D	
	47	5×11	0.20	75	EKMG160E□□470ME11D	0.22	5×11	0.08	3.4	EKMG101E□□R22ME11D	
	100	5×11	0.20	110	EKMG160E□□101ME11D	0.33	5×11	0.08	5.0	EKMG101E□□R33ME11D	
	220	6.3×11	0.20	180	EKMG160E□□221MF11D	0.47	5×11	0.08	7.1	EKMG101E□□R47ME11D	
	330	8×11.5	0.20	260	EKMG160E□□331MHB5D	1.0	5×11	0.08	15	EKMG101E□□R10ME11D	
	470	8×11.5	0.20	310	EKMG160E□□471MHB5D	2.2	5×11	0.08	21	EKMG101E□□R22ME11D	
	1,000	10×16	0.20	560	EKMG160E□□102MJ16S	3.3	5×11	0.08	29	EKMG101E□□R33ME11D	
	2,200	12.5×20	0.22	920	EKMG160E□□222MK20S	4.7	5×11	0.08	32	EKMG101E□□R47ME11D	
	3,300	12.5×25	0.24	1,170	EKMG160E□□332MK25S	10	6.3×11	0.08	54	EKMG101E□□R100MF11D	
	4,700	16×25	0.26	1,480	EKMG160E□□472ML25S	22	8×11.5	0.08	93	EKMG101E□□R220MHB5D	
	6,800	16×31.5	0.30	1,780	EKMG160E□□682MLN3S	33	8×11.5	0.08	130	EKMG101E□□R330MHB5D	
10,000	18×35.5	0.38	2,060	EKMG160E□□103MMP1S	47	10×12.5	0.08	165	EKMG101E□□R470MJC5S		
25	4.7	5×11	0.16	25	EKMG250E□□47R7ME11D	100	10×20	0.08	265	EKMG101E□□R101MJ20S	
	10	5×11	0.16	36	EKMG250E□□100ME11D	220	12.5×25	0.08	440	EKMG101E□□R221MK25S	
	22	5×11	0.16	54	EKMG250E□□220ME11D	330	16×25	0.08	540	EKMG101E□□R331ML25S	
	33	5×11	0.16	67	EKMG250E□□330ME11D	470	16×31.5	0.08	715	EKMG101E□□R471MLN3S	
	47	5×11	0.16	80	EKMG250E□□470ME11D	1,000	18×40	0.08	985	EKMG101E□□R102MM40S	
	100	6.3×11	0.16	130	EKMG250E□□101MF11D	3.3	6.3×11	0.20	28	EKMG161E□□R333MF11D	
	220	8×11.5	0.16	230	EKMG250E□□221MHB5D	4.7	6.3×11	0.20	34	EKMG161E□□R477MF11D	
	330	8×11.5	0.16	310	EKMG250E□□331MHB5D	10	10×12.5	0.20	67	EKMG161E□□R100MJC5S	
	470	10×12.5	0.16	380	EKMG250E□□471MJC5S	22	10×20	0.20	120	EKMG161E□□R220MJ20S	
	1,000	10×20	0.16	680	EKMG250E□□102MJ20S	33	10×20	0.20	145	EKMG161E□□R330MJ20S	
	2,200	12.5×25	0.18	1,090	EKMG250E□□222MK25S	47	12.5×20	0.20	195	EKMG161E□□R470MK20S	
	3,300	16×25	0.20	1,400	EKMG250E□□332ML25S	100	16×25	0.20	335	EKMG161E□□R101ML25S	
	4,700	16×31.5	0.22	1,710	EKMG250E□□472MLN3S	220	16×31.5	0.20	540	EKMG161E□□R221MLN3S	
6,800	18×35.5	0.26	2,040	EKMG250E□□682MMP1S	330	18×35.5	0.20	705	EKMG161E□□R331MMP1S		
35	4.7	5×11	0.14	28	EKMG350E□□47R7ME11D	3.3	6.3×11	0.20	28	EKMG201E□□R333MF11D	
	10	5×11	0.14	41	EKMG350E□□100ME11D	4.7	8×11.5	0.20	39	EKMG201E□□R477MHB5D	
	22	5×11	0.14	61	EKMG350E□□220ME11D	10	10×16	0.20	74	EKMG201E□□R100MJ16S	
	33	5×11	0.14	75	EKMG350E□□330ME11D	22	10×20	0.20	120	EKMG201E□□R220MJ20S	
	47	5×11	0.14	90	EKMG350E□□470ME11D	33	12.5×20	0.20	160	EKMG201E□□R330MK20S	
	100	6.3×11	0.14	150	EKMG350E□□101MF11D	47	12.5×20	0.20	195	EKMG201E□□R470MK20S	
	220	8×11.5	0.14	270	EKMG350E□□221MHB5D	100	16×25	0.20	335	EKMG201E□□R101ML25S	
	330	10×12.5	0.14	350	EKMG350E□□331MJC5S	220	18×35.5	0.20	575	EKMG201E□□R221MMP1S	
	470	10×16	0.14	460	EKMG350E□□471MJ16S	2.2	6.3×11	0.20	23	EKMG251E□□R222MF11D	
	1,000	12.5×20	0.14	810	EKMG350E□□102MK20S	3.3	8×11.5	0.20	32	EKMG251E□□R333MHB5D	
2,200	16×25	0.16	1,260	EKMG350E□□222ML25S	4.7	8×11.5	0.20	39	EKMG251E□□R477MHB5D		

□ : Enter the appropriate lead forming or taping code.

**◆STANDARD RATINGS**
 is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mA <sub>rms</sub> /105°C,120Hz)	Part No.	WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mA <sub>rms</sub> /105°C,120Hz)	Part No.
250	10	10×16	0.20	74	EKMG251E□□100MJ16S	400	1.0	6.3×11	0.24	15	EKMG401E□□1R0MF11D
	22	12.5×20	0.20	130	EKMG251E□□220MK20S		2.2	8×11.5	0.24	26	EKMG401E□□2R2MHB5D
	33	12.5×20	0.20	160	EKMG251E□□330MK20S		3.3	10×12.5	0.24	38	EKMG401E□□3R3MJC5S
	47	12.5×25	0.20	210	EKMG251E□□470MK25S		4.7	10×16	0.24	50	EKMG401E□□4R7MJ16S
	100	16×31.5	0.20	365	EKMG251E□□101MLN3S		10	10×20	0.24	80	EKMG401E□□100MJ20S
	220	18×40	0.20	585	EKMG251E□□221MM40S		22	12.5×25	0.24	145	EKMG401E□□220MK25S
350	0.47	6.3×11	0.24	11	EKMG351E□□R47MF11D		33	16×25	0.24	195	EKMG401E□□330ML25S
	1.0	6.3×11	0.24	15	EKMG351E□□1R0MF11D		47	16×31.5	0.24	250	EKMG401E□□470MLN3S
	2.2	8×11.5	0.24	26	EKMG351E□□2R2MHB5D		100	16×40	0.24	350	EKMG401E□□101ML40S
	3.3	10×12.5	0.24	38	EKMG351E□□3R3MJC5S		450	2.2	10×12.5	0.24	23
	4.7	10×16	0.24	50	EKMG351E□□4R7MJ16S	3.3		10×16	0.24	31	EKMG451E□□3R3MJ16S
	10	10×20	0.24	80	EKMG351E□□100MJ20S	4.7		10×20	0.24	40	EKMG451E□□4R7MJ20S
	22	12.5×20	0.24	130	EKMG351E□□220MK20S	10		12.5×20	0.24	65	EKMG451E□□100MK20S
	33	16×25	0.24	195	EKMG351E□□330ML25S	22		16×25	0.24	115	EKMG451E□□220ML25S
	47	16×25	0.24	230	EKMG351E□□470ML25S	33		16×31.5	0.24	155	EKMG451E□□330MLN3S
	100	18×31.5	0.24	375	EKMG351E□□101MMN3S	47		16×35.5	0.24	185	EKMG451E□□470MLP1S

 : Enter the appropriate lead forming or taping code.

**◆RATED RIPPLE CURRENT MULTIPLIERS**

## ●Frequency Multipliers

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 47	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

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.