

# 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)
- RoHS2 Compliant

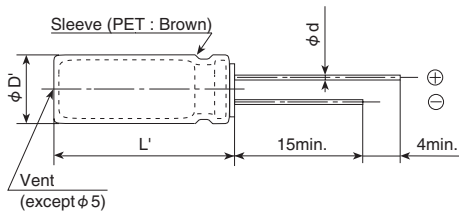


## SPECIFICATIONS

Items	Characteristics															
Category	-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> )															
Temperature Range																
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>									
	I=0.03CV or 4μA, whichever is greater.															
							CV	Time		After 1 minute		After 5 minutes				
							CV ≤ 1,000			I=0.1CV+40 max.		I=0.03CV+15 max.				
						(after 1 minute)						CV > 1,000	I=0.04CV+100 max.		I=0.02CV+25 max.	
Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C)																
Dissipation Factor (tan δ)	Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	350 to 400V	450V				
	tan δ (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 (the peak voltage shall not exceed the rated voltage) for 1,000 hours (2,000 hours to meet the following two conditions 1): 160V <sub>dc</sub> and larger, 2) : φ 12.5 and larger) 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 <sub>dc</sub>						160 to 450V <sub>dc</sub>								
	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								

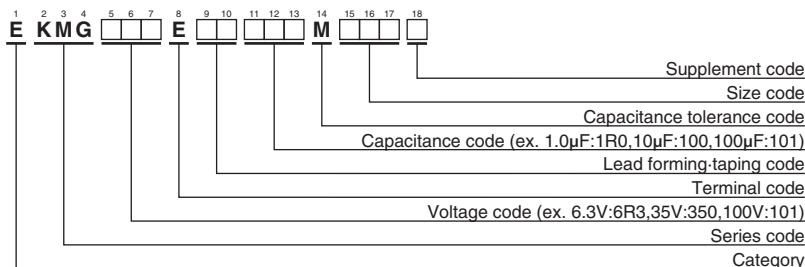
## DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
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 (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mAmps/105°C, 120Hz)	Part No.	WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mAmps/105°C, 120Hz)	Part No.	
6.3	220	5 × 11	0.34	140	EKMG6R3E□□221ME11D	63	10	5 × 11	0.10	46	EKMG630E□□100ME11D	
	330	6.3 × 11	0.34	190	EKMG6R3E□□331MF11D		22	5 × 11	0.10	71	EKMG630E□□220ME11D	
	470	6.3 × 11	0.34	230	EKMG6R3E□□471MF11D		33	6.3 × 11	0.10	100	EKMG630E□□330MF11D	
	1,000	8 × 11.5	0.34	380	EKMG6R3E□□102MHB5D		47	6.3 × 11	0.10	120	EKMG630E□□470MF11D	
	2,200	10 × 20	0.36	710	EKMG6R3E□□222MJ20S		100	10 × 12.5	0.10	215	EKMG630E□□101MJC5S	
	3,300	10 × 20	0.38	840	EKMG6R3E□□332MJ20S		220	10 × 16	0.10	335	EKMG630E□□221MJ16S	
	4,700	12.5 × 20	0.40	1,090	EKMG6R3E□□472MK20S		330	10 × 20	0.10	510	EKMG630E□□331MJ20S	
	6,800	12.5 × 25	0.44	1,350	EKMG6R3E□□682MK25S		470	12.5 × 20	0.10	640	EKMG630E□□471MK20S	
	10,000	16 × 25	0.52	1,650	EKMG6R3E□□103ML25S		1,000	16 × 25	0.10	930	EKMG630E□□102ML25S	
	15,000	16 × 35.5	0.62	2,010	EKMG6R3E□□153MLP1S							
22,000	18 × 40	0.76	2,350	EKMG6R3E□□223MM40S								
10	220	6.3 × 11	0.24	170	EKMG100E□□221MF11D	100	1.0	5 × 11	0.08	15	EKMG101E□□1R0ME11D	
	330	6.3 × 11	0.24	200	EKMG100E□□331MF11D		2.2	5 × 11	0.08	21	EKMG101E□□2R2ME11D	
	470	8 × 11.5	0.24	250	EKMG100E□□471MHB5D		3.3	5 × 11	0.08	29	EKMG101E□□3R3ME11D	
	1,000	10 × 12.5	0.24	460	EKMG100E□□102MJC5S		4.7	5 × 11	0.08	32	EKMG101E□□4R7ME11D	
	2,200	10 × 20	0.26	760	EKMG100E□□222MJ20S		10	6.3 × 11	0.08	54	EKMG101E□□100MF11D	
	3,300	12.5 × 20	0.28	1,000	EKMG100E□□332MK20S		22	8 × 11.5	0.08	93	EKMG101E□□220MHB5D	
	4,700	12.5 × 25	0.30	1,260	EKMG100E□□472MK25S		33	8 × 11.5	0.08	130	EKMG101E□□330MHB5D	
	6,800	16 × 25	0.34	1,570	EKMG100E□□682ML25S		47	10 × 12.5	0.08	165	EKMG101E□□470MJC5S	
	10,000	16 × 35.5	0.42	1,890	EKMG100E□□103MLP1S		100	10 × 20	0.08	265	EKMG101E□□101MJ20S	
	15,000	18 × 35.5	0.52	2,180	EKMG100E□□153MMP1S		220	12.5 × 25	0.08	440	EKMG101E□□221MK25S	
16	100	5 × 11	0.20	110	EKMG160E□□101ME11D	160	330	16 × 25	0.08	540	EKMG101E□□331ML25S	
	220	6.3 × 11	0.20	180	EKMG160E□□221MF11D		470	16 × 31.5	0.08	715	EKMG101E□□471MLN3S	
	330	8 × 11.5	0.20	260	EKMG160E□□331MHB5D		1,000	18 × 40	0.08	985	EKMG101E□□102MM40S	
	470	8 × 11.5	0.20	310	EKMG160E□□471MHB5D							
	1,000	10 × 16	0.20	560	EKMG160E□□102MJ16S		3.3	6.3 × 11	0.20	28	EKMG161E□□3R3MF11D	
	2,200	12.5 × 20	0.22	920	EKMG160E□□222MK20S		4.7	6.3 × 11	0.20	34	EKMG161E□□4R7MF11D	
	3,300	12.5 × 25	0.24	1,170	EKMG160E□□332MK25S		10	10 × 12.5	0.20	67	EKMG161E□□100MJC5S	
	4,700	16 × 25	0.26	1,480	EKMG160E□□472ML25S		22	10 × 20	0.20	120	EKMG161E□□220MJ20S	
	6,800	16 × 31.5	0.30	1,780	EKMG160E□□682MLN3S		33	10 × 20	0.20	145	EKMG161E□□330MJ20S	
	10,000	18 × 35.5	0.38	2,060	EKMG160E□□103MMP1S		47	12.5 × 20	0.20	195	EKMG161E□□470MK20S	
25	47	5 × 11	0.16	80	EKMG250E□□470ME11D	200	100	16 × 25	0.20	335	EKMG161E□□101ML25S	
	100	6.3 × 11	0.16	130	EKMG250E□□101MF11D		220	16 × 31.5	0.20	540	EKMG161E□□221MLN3S	
	220	8 × 11.5	0.16	230	EKMG250E□□221MHB5D		330	18 × 35.5	0.20	705	EKMG161E□□331MMP1S	
	330	8 × 11.5	0.16	310	EKMG250E□□331MHB5D							
	470	10 × 12.5	0.16	380	EKMG250E□□471MJC5S		3.3	6.3 × 11	0.20	28	EKMG201E□□3R3MF11D	
	1,000	10 × 20	0.16	680	EKMG250E□□102MJ20S		4.7	8 × 11.5	0.20	39	EKMG201E□□4R7MHB5D	
	2,200	12.5 × 25	0.18	1,090	EKMG250E□□222MK25S		10	10 × 16	0.20	74	EKMG201E□□100MJ16S	
	3,300	16 × 25	0.20	1,400	EKMG250E□□332ML25S		22	10 × 20	0.20	120	EKMG201E□□220MJ20S	
	4,700	16 × 31.5	0.22	1,710	EKMG250E□□472MLN3S		33	12.5 × 20	0.20	160	EKMG201E□□330MK20S	
	6,800	18 × 35.5	0.26	2,040	EKMG250E□□682MMP1S		47	12.5 × 20	0.20	195	EKMG201E□□470MK20S	
35	47	5 × 11	0.14	90	EKMG350E□□470ME11D	250	100	16 × 25	0.20	335	EKMG201E□□101ML25S	
	100	6.3 × 11	0.14	150	EKMG350E□□101MF11D		220	18 × 35.5	0.20	575	EKMG201E□□221MMP1S	
	220	8 × 11.5	0.14	270	EKMG350E□□221MHB5D							
	330	10 × 12.5	0.14	350	EKMG350E□□331MJC5S		2.2	6.3 × 11	0.20	23	EKMG251E□□2R2MF11D	
	470	10 × 16	0.14	460	EKMG350E□□471MJ16S		3.3	8 × 11.5	0.20	32	EKMG251E□□3R3MHB5D	
	1,000	12.5 × 20	0.14	810	EKMG350E□□102MK20S		4.7	8 × 11.5	0.20	39	EKMG251E□□4R7MHB5D	
	2,200	16 × 25	0.16	1,260	EKMG350E□□222ML25S		10	10 × 16	0.20	74	EKMG251E□□100MJ16S	
	3,300	16 × 35.5	0.18	1,610	EKMG350E□□332MLP1S		22	12.5 × 20	0.20	130	EKMG251E□□220MK20S	
	4,700	18 × 35.5	0.20	1,910	EKMG350E□□472MMP1S		33	12.5 × 20	0.20	160	EKMG251E□□330MK20S	
							47	12.5 × 25	0.20	210	EKMG251E□□470MK25S	
50	1.0	5 × 11	0.12	13	EKMG500E□□1R0ME11D	350	100	16 × 31.5	0.20	365	EKMG251E□□101MLN3S	
	2.2	5 × 11	0.12	20	EKMG500E□□2R2ME11D		220	18 × 40	0.20	585	EKMG251E□□221MM40S	
	3.3	5 × 11	0.12	25	EKMG500E□□3R3ME11D							
	4.7	5 × 11	0.12	30	EKMG500E□□4R7ME11D		1.0	6.3 × 11	0.24	15	EKMG351E□□1R0MF11D	
	10	5 × 11	0.12	40	EKMG500E□□100ME11D		2.2	8 × 11.5	0.24	26	EKMG351E□□2R2MHB5D	
	22	5 × 11	0.12	65	EKMG500E□□220ME11D		3.3	10 × 12.5	0.24	38	EKMG351E□□3R3MJC5S	
	33	5 × 11	0.12	90	EKMG500E□□330ME11D		4.7	10 × 16	0.24	50	EKMG351E□□4R7MJ16S	
	47	6.3 × 11	0.12	110	EKMG500E□□470MF11D		10	10 × 20	0.24	80	EKMG351E□□100MJ20S	
	100	8 × 11.5	0.12	180	EKMG500E□□101MHB5D		22	12.5 × 20	0.24	130	EKMG351E□□220MK20S	
	220	10 × 12.5	0.12	300	EKMG500E□□221MJC5S		33	16 × 25	0.24	195	EKMG351E□□330ML25S	
400	330	10 × 16	0.12	410	EKMG500E□□331MJ16S	400	47	16 × 25	0.24	230	EKMG351E□□470ML25S	
	470	10 × 20	0.12	530	EKMG500E□□471MJ20S		100	18 × 31.5	0.24	375	EKMG351E□□101MLN3S	
	1,000	12.5 × 25	0.12	950	EKMG500E□□102MK25S							
	2,200	16 × 35.5	0.14	1,470	EKMG500E□□222MLP1S		1.0	6.3 × 11	0.24	15	EKMG401E□□1R0MF11D	
	3,300	18 × 35.5	0.16	1,770	EKMG500E□□332MMP1S		2.2	8 × 11.5	0.24	26	EKMG401E□□2R2MHB5D	
							3.3	10 × 12.5	0.24	38	EKMG401E□□3R3MJC5S	
							4.7	10 × 16	0.24	50	EKMG401E□□4R7MJ16S	
							10	10 × 20	0.24	80	EKMG401E□□100MJ20S	
							22	12.5 × 25	0.24	145	EKMG401E□□220MK25S	
							33	16 × 25	0.24	195	EKMG401E□□330ML25S	
					47	16 × 31.5	0.24	250	EKMG401E□□470MLN3S			
					100	16 × 40	0.24	350	EKMG401E□□101ML40S			

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

**KMG**Series

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

WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mA <sub>rms</sub> / 105°C, 120Hz)	Part No.
450	2.2	10 × 12.5	0.24	23	EKMG451E <input type="checkbox"/> <input type="checkbox"/> 2R2MJC5S
	3.3	10 × 16	0.24	31	EKMG451E <input type="checkbox"/> <input type="checkbox"/> 3R3MJ16S
	4.7	10 × 20	0.24	40	EKMG451E <input type="checkbox"/> <input type="checkbox"/> 4R7MJ20S
	10	12.5 × 20	0.24	65	EKMG451E <input type="checkbox"/> <input type="checkbox"/> 100MK20S
	22	16 × 25	0.24	115	EKMG451E <input type="checkbox"/> <input type="checkbox"/> 220ML25S
	33	16 × 31.5	0.24	155	EKMG451E <input type="checkbox"/> <input type="checkbox"/> 330MLN3S
	47	16 × 35.5	0.24	185	EKMG451E <input type="checkbox"/> <input type="checkbox"/> 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
1.0 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.