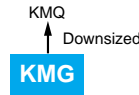


KMG Series

- Endurance with ripple current : 1,000 to 2,000 hours at 105°C
- Solvent resistant type except 350 to 450V_{dc}
(see PRECAUTIONS AND GUIDELINES)
- RoHS Compliant

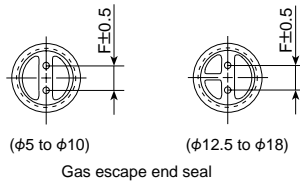
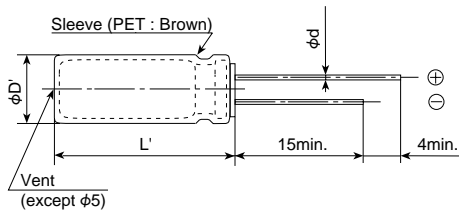


◆ SPECIFICATIONS

Items	Characteristics																						
Category	-55 to +105°C(6.3 to 100V _{dc}) -40 to +105°C(160 to 400V _{dc}) -25 to +105°C(450V _{dc})																						
Temperature Range																							
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}																						
	I=0.03CV or 4µA, whichever is greater.																						
	<table border="1"> <tr> <th>CV</th> <th>Time</th> <th>After 1minute</th> <th>After 5minutes</th> </tr> <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>1,000</td> <td></td> <td>I=0.04CV+100 max.</td> <td>I=0.02CV+25 max.</td> </tr> </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 _{dc})	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 _{dc})	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 _{dc} 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 _{dc}						160 to 450V _{dc}															
	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															

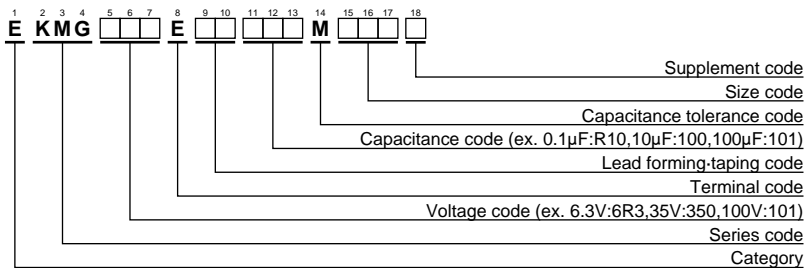
◆ DIMENSIONS [mm]

- 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 (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	220	5×11	0.34	140	EKMG6R3E□□221ME11D	50	2,200	16×35.5	0.14	1,470	EKMG500E□□222MLP1S		
	330	6.3×11	0.34	190	EKMG6R3E□□331MF11D		3,300	18×35.5	0.16	1,770	EKMG500E□□332MMP1S		
	470	6.3×11	0.34	230	EKMG6R3E□□471MF11D		63	10	5×11	0.10	46	EKMG630E□□100ME11D	
	1,000	8×11.5	0.34	380	EKMG6R3E□□102MHB5D			22	5×11	0.10	71	EKMG630E□□220ME11D	
	2,200	10×20	0.36	710	EKMG6R3E□□222MJ20S			33	6.3×11	0.10	100	EKMG630E□□330MF11D	
	3,300	10×20	0.38	840	EKMG6R3E□□332MJ20S			47	6.3×11	0.10	120	EKMG630E□□470MF11D	
	4,700	12.5×20	0.40	1,090	EKMG6R3E□□472MK20S			100	10×12.5	0.10	215	EKMG630E□□101MJC5S	
	6,800	12.5×25	0.44	1,350	EKMG6R3E□□682MK25S			220	10×16	0.10	335	EKMG630E□□221MJ16S	
	10,000	16×25	0.52	1,650	EKMG6R3E□□103ML25S			330	10×20	0.10	510	EKMG630E□□331MJ20S	
	15,000	16×35.5	0.62	2,010	EKMG6R3E□□153MLP1S			470	12.5×20	0.10	640	EKMG630E□□471MK20S	
22,000	18×40	0.76	2,350	EKMG6R3E□□223MM40S	1,000	16×25		0.10	930	EKMG630E□□102ML25S			
10	220	6.3×11	0.24	170	EKMG100E□□221MF11D	100		0.10	5×11	0.08	1.5	EKMG101E□□R10ME11D	
	330	6.3×11	0.24	200	EKMG100E□□331MF11D		0.22	5×11	0.08	3.4	EKMG101E□□R22ME11D		
	470	8×11.5	0.24	250	EKMG100E□□471MHB5D		0.33	5×11	0.08	5.0	EKMG101E□□R33ME11D		
	1,000	10×12.5	0.24	460	EKMG100E□□102MJC5S		0.47	5×11	0.08	7.1	EKMG101E□□R47ME11D		
	2,200	10×20	0.26	760	EKMG100E□□222MJ20S		1.0	5×11	0.08	15	EKMG101E□□R10ME11D		
	3,300	12.5×20	0.28	1,000	EKMG100E□□332MK20S		2.2	5×11	0.08	21	EKMG101E□□R22ME11D		
	4,700	12.5×25	0.30	1,260	EKMG100E□□472MK25S		3.3	5×11	0.08	29	EKMG101E□□R33ME11D		
	6,800	16×25	0.34	1,570	EKMG100E□□682ML25S		4.7	5×11	0.08	32	EKMG101E□□R47ME11D		
	10,000	16×35.5	0.42	1,890	EKMG100E□□103MLP1S		10	6.3×11	0.08	54	EKMG101E□□100MF11D		
	15,000	18×35.5	0.52	2,180	EKMG100E□□153MMP1S		22	8×11.5	0.08	93	EKMG101E□□220MHB5D		
16	100	5×11	0.20	110	EKMG160E□□101ME11D	160	33	8×11.5	0.08	130	EKMG101E□□330MHB5D		
	220	6.3×11	0.20	180	EKMG160E□□221MF11D		47	10×12.5	0.08	165	EKMG101E□□470MJC5S		
	330	8×11.5	0.20	260	EKMG160E□□331MHB5D		100	10×20	0.08	265	EKMG101E□□101MJ20S		
	470	8×11.5	0.20	310	EKMG160E□□471MHB5D		220	12.5×25	0.08	440	EKMG101E□□221MK25S		
	1,000	10×16	0.20	560	EKMG160E□□102MJ16S		330	16×25	0.08	540	EKMG101E□□331ML25S		
	2,200	12.5×20	0.22	920	EKMG160E□□222MK20S		470	16×31.5	0.08	715	EKMG101E□□471MLN3S		
	3,300	12.5×25	0.24	1,170	EKMG160E□□332MK25S		1,000	18×40	0.08	985	EKMG101E□□102MM40S		
	4,700	16×25	0.26	1,480	EKMG160E□□472ML25S		200	3.3	6.3×11	0.20	28	EKMG161E□□R33MF11D	
	6,800	16×31.5	0.30	1,780	EKMG160E□□682MLN3S			4.7	6.3×11	0.20	34	EKMG161E□□R47MF11D	
	10,000	18×35.5	0.38	2,060	EKMG160E□□103MMP1S			10	10×12.5	0.20	67	EKMG161E□□100MJC5S	
25	47	5×11	0.16	80	EKMG250E□□470ME11D	250		22	10×20	0.20	120	EKMG161E□□220MJ20S	
	100	6.3×11	0.16	130	EKMG250E□□101MF11D			33	10×20	0.20	145	EKMG161E□□330MJ20S	
	220	8×11.5	0.16	230	EKMG250E□□221MHB5D			47	12.5×20	0.20	195	EKMG161E□□470MK20S	
	330	8×11.5	0.16	310	EKMG250E□□331MHB5D			100	16×25	0.20	335	EKMG161E□□101ML25S	
	470	10×12.5	0.16	380	EKMG250E□□471MJC5S			220	16×31.5	0.20	540	EKMG161E□□221MLN3S	
	1,000	10×20	0.16	680	EKMG250E□□102MJ20S			330	18×35.5	0.20	705	EKMG161E□□331MMP1S	
	2,200	12.5×25	0.18	1,090	EKMG250E□□222MK25S			350	3.3	6.3×11	0.20	28	EKMG201E□□R33MF11D
	3,300	16×25	0.20	1,400	EKMG250E□□332ML25S		4.7		8×11.5	0.20	39	EKMG201E□□R47MHB5D	
	4,700	16×31.5	0.22	1,710	EKMG250E□□472MLN3S		10		10×16	0.20	74	EKMG201E□□100MJ16S	
	6,800	18×35.5	0.26	2,040	EKMG250E□□682MMP1S		22		10×20	0.20	120	EKMG201E□□220MJ20S	
35	47	5×11	0.14	90	EKMG350E□□470ME11D	400	33		12.5×20	0.20	160	EKMG201E□□330MK20S	
	100	6.3×11	0.14	150	EKMG350E□□101MF11D		47		12.5×20	0.20	195	EKMG201E□□470MK20S	
	220	8×11.5	0.14	270	EKMG350E□□221MHB5D		100		16×25	0.20	335	EKMG201E□□101ML25S	
	330	10×12.5	0.14	350	EKMG350E□□331MJC5S		220		18×35.5	0.20	575	EKMG201E□□221MMP1S	
	470	10×16	0.14	460	EKMG350E□□471MJ16S		500		2.2	6.3×11	0.20	23	EKMG251E□□R22MF11D
	1,000	12.5×20	0.14	810	EKMG350E□□102MK20S				3.3	8×11.5	0.20	32	EKMG251E□□R33MHB5D
	2,200	16×25	0.16	1,260	EKMG350E□□222ML25S			4.7	8×11.5	0.20	39	EKMG251E□□R47MHB5D	
	3,300	16×35.5	0.18	1,610	EKMG350E□□332MLP1S			10	10×16	0.20	74	EKMG251E□□100MJ16S	
	4,700	18×35.5	0.20	1,910	EKMG350E□□472MMP1S			22	12.5×20	0.20	130	EKMG251E□□220MK20S	
	50	0.10	5×11	0.12	1.3			EKMG500E□□R10ME11D	550	33	12.5×20	0.20	160
0.22		5×11	0.12	2.9	EKMG500E□□R22ME11D	47		12.5×25		0.20	210	EKMG251E□□470MK25S	
0.33		5×11	0.12	4.3	EKMG500E□□R33ME11D	100		16×31.5		0.20	365	EKMG251E□□101MLN3S	
0.47		5×11	0.12	6.2	EKMG500E□□R47ME11D	220		18×40		0.20	585	EKMG251E□□221MM40S	
1.0		5×11	0.12	13	EKMG500E□□R10ME11D	630		0.47		6.3×11	0.24	11	EKMG351E□□R47MF11D
2.2		5×11	0.12	20	EKMG500E□□R22ME11D		1.0	6.3×11		0.24	15	EKMG351E□□R10MF11D	
3.3		5×11	0.12	25	EKMG500E□□R33ME11D		2.2	8×11.5		0.24	26	EKMG351E□□R22MHB5D	
4.7		5×11	0.12	30	EKMG500E□□R47ME11D		3.3	10×12.5		0.24	38	EKMG351E□□R33MJC5S	
10		5×11	0.12	40	EKMG500E□□100ME11D		4.7	10×16		0.24	50	EKMG351E□□R47MJ16S	
22		5×11	0.12	65	EKMG500E□□220ME11D		10	10×20		0.24	80	EKMG351E□□100MJ20S	
33	5×11	0.12	90	EKMG500E□□330ME11D	22		12.5×20	0.24	130	EKMG351E□□220MK20S			
47	6.3×11	0.12	110	EKMG500E□□470MF11D	33		16×25	0.24	195	EKMG351E□□330ML25S			
100	8×11.5	0.12	180	EKMG500E□□101MHB5D	47		16×25	0.24	230	EKMG351E□□470ML25S			
220	10×12.5	0.12	300	EKMG500E□□221MJC5S	100		18×31.5	0.24	375	EKMG351E□□101MMN3S			
330	10×16	0.12	410	EKMG500E□□331MJ16S	400	1.0	6.3×11	0.24	15	EKMG401E□□R10MF11D			
470	10×20	0.12	530	EKMG500E□□471MJ20S		2.2	8×11.5	0.24	26	EKMG401E□□R22MHB5D			
1,000	12.5×25	0.12	950	EKMG500E□□102MK25S		3.3	10×12.5	0.24	38	EKMG401E□□R33MJC5S			

□ : 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 _{rms} /105°C,120Hz)	Part No.
400	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

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mA _{rms} /105°C,120Hz)	Part No.
450	2.2	10×12.5	0.24	23	EKMG451E□□2R2MJC5S
	3.3	10×16	0.24	31	EKMG451E□□3R3MJ16S
	4.7	10×20	0.24	40	EKMG451E□□4R7MJ20S
	10	12.5×20	0.24	65	EKMG451E□□100MK20S
	22	16×25	0.24	115	EKMG451E□□220ML25S
	33	16×31.5	0.24	155	EKMG451E□□330MLN3S
	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.

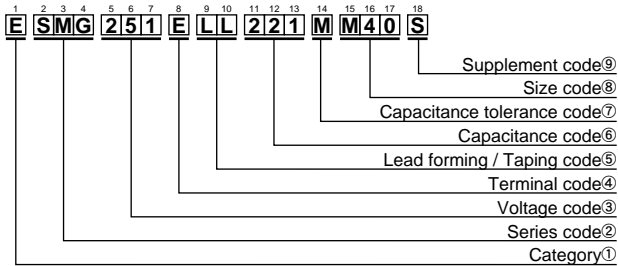


PART NUMBERING SYSTEM

Product code guide (Radial lead type)

(Example : SMG series, 250V-220 μ F, ϕ 18 \times 40L, Straight lead with bulk)

Please refer to the following table



①Category

Type	Code 1th
Polar	E
Bi-polar	B

②Series code

Series name	Code		
	2th	3th	4th
SMG	S	M	G
FL	F	L	—
No series name	C	S	T

③Voltage code

Voltage (V)	Code		
	5th	6th	7th
4	4	R	0
6.3	6	R	3
10	1	0	0
16	1	6	0
25	2	5	0
35	3	5	0
50	5	0	0
63	6	3	0
80	8	0	0
100	1	0	1
160	1	6	1
200	2	0	1
250	2	5	1
315	3	B	1
350	3	5	1
400	4	0	1
420	4	2	1
450	4	5	1
500	5	0	1

④Terminal code

Type	Code 8th
Radial lead	E

⑤Lead forming / Taping code

Type	Contents	Code	
		9th	10th
Lead forming (Radial lead /Bulk)	Straight	L	L
	CC(3.5mm)	C	3
	CC(5.0mm)	C	5
	FC	F	C
	FM	F	M
	MC	M	C
	BC	B	C
Taping (Radial lead)	RC	R	C
	Straight	T	D
	Sloping clinch	T	D
	Straight (Skip a hole)	T	E
	Clinch (F=2.5mm)	T	A
	Clinch (F=3.5mm)	T	B
Clinch (F=5.0mm)	T	C	

Refer to product guide for lead forming and taping specifications.

⑥Capacitance code

Cap. (μ F)	Code		
	11th	12th	13th
0.10	R	1	0
0.22	R	2	2
0.33	R	3	3
0.47	R	4	7
0.68	R	6	8
1.0	1	R	0
2.2	2	R	2
3.3	3	R	3
4.7	4	R	7
6.8	6	R	8
10	1	0	0
22	2	2	0
33	3	3	0
47	4	7	0
68	6	8	0
100	1	0	1
220	2	2	1
330	3	3	1
470	4	7	1
680	6	8	1
1,000	1	0	2
2,200	2	2	2
3,300	3	3	2
4,700	4	7	2
6,800	6	8	2
10,000	1	0	3
22,000	2	2	3
33,000	3	3	3
47,000	4	7	3
68,000	6	8	3

⑦Capacitance tolerance

Tol. (%)	Code 14th
\pm 20	M
\pm 10	K
-10 to +30	Q
-10 to +50	T

⑧Size code

ϕ D	Code 15th
	4
5	E
6.3	F
8	H
10	J
12.5	K
14.5	U
16	L
18	M
20	N
22	P
25.4	Q

L	Code	
	16th	17th
5	0	5
7	0	7
9	0	9
11	1	1
11.5	B	5
12.0	1	2
12.5	C	5
13	1	3
15	1	5
16	1	6
20	2	0
25	2	5
30	3	0
31.5	N	3
35	3	5
35.5	P	1
40	4	0
45	4	5
50	5	0
55	5	5
60	6	0

⑨Supplement code

Sleeve material	Terminal plating material	Code 18th
PET	Sn-Bi	D
	Sn100%	S
Sleeveless (Coating case)	Sn-Bi	G
	Sn100%	H

* Refer to the appendix (Part number) for codes not listed here.