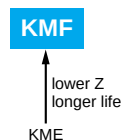


KMF Series

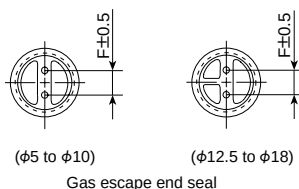
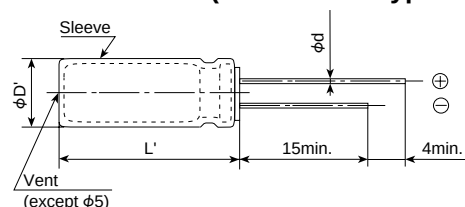
- Endurance with ripple current: 105°C 2000 to 5000 hours
- Solvent-proof type except 160 to 450V_{dc}
(see PRECAUTIONS AND GUIDELINES)



SPECIFICATIONS

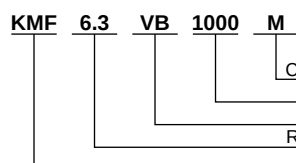
Items	Characteristics															
Category																
Temperature Range	-55 to +105°C(6.3 to 100V _{dc}) -40 to +105°C(160 to 400V _{dc}) -25 to +105°C(450V _{dc})															
Rated Voltage Range	6.3 to 450V _{dc}															
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)															
Leakage Current	6.3 to 100V _{dc}								160 to 450V _{dc}							
	I=0.03CV or 4μA, whichever is greater. (at 20°C after 1 minute)								CV		Time		After 1minute		After 5minutes	
	I=0.01CV or 3μA, whichever is greater. (at 20°C after 2 minutes)								CV≤1000		I=0.1CV+40		I=0.03CV+15			
									CV>1000		I=0.04CV+100		I=0.02CV+25			
	Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C)															
Dissipation Factor (tanδ)	Rated voltage (V _{dc})	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	400V	450V				
	tanδ (Max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.20	0.24	0.24				
	When nominal capacitance exceeds 1000μF, add 0.02 to the value above for each 1000μF 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	400V	450V				
	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	2	2	3	5	6				
	Z(-40°C)/Z(+20°C)	8	6	4	3	3	3	3	3	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 for the specified period of time at 105°C.															
	Time for 6.3 to 100V _{dc}	φ5 & 6.3 : 2000 hours φ8 & 10 : 3000 hours φ12.5 and larger : 5000 hours														
	Time for 160 to 450V _{dc}	2000 hours														
	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 1000 hours at 105°C without voltage applied.															
	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 (Radial Lead Type=VB) [mm]



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



Capacitance	Code
0.47μF	R47
4.7μF	4R7
10μF	10
100μF	100
470μF	470

RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Rated Voltage(V _{dc})	Case code	Frequency(Hz)	120	1k	10k	100k
6.3 10	φ5 (to 47μF)	φ5 (100μF), φ6.3, φ8	0.40	0.75	0.93	1.00
		φ10 to φ18	0.70	0.86	0.96	1.00
		φ10 to φ18	0.85	0.95	0.98	1.00
16 to 35	φ5 (to 22μF)	φ5 (33μF to), φ6.3, φ8	0.30	0.68	0.91	1.00
		φ10 to φ18	0.50	0.80	0.94	1.00
		φ10 to φ18	0.70	0.88	0.97	1.00
50 63	φ5 (to 3.3μF)	φ5 (4.7μF to), φ6.3, φ8	0.20	0.66	0.90	1.00
		φ10 to φ18	0.40	0.76	0.93	1.00
		φ10 to φ18	0.60	0.84	0.96	1.00
100	φ5 (to 1μF)	φ5 (2.2μF to), φ6.3, φ8	0.20	0.60	0.88	1.00
		φ10 to φ18	0.30	0.65	0.90	1.00
		φ10 to φ18	0.40	0.75	0.93	1.00
160 to 450	φ10	φ10	0.25	0.61	0.88	1.00
		φ12.5 to φ18	0.35	0.66	0.89	1.00

◆STANDARD RATINGS

Cap (μF)	V _{dc} Items	6.3			10			16			25		
		Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple
4.7											5×11	3.0	9.0
10								5×11	2.0	6.0	5×11	2.0	6.0
22					5×11	1.3	3.9	5×11	1.3	3.9	5×11	1.3	3.9
33		5×11	1.3	3.9	5×11	1.3	3.9	5×11	1.3	3.9	5×11	1.3	3.9
47		5×11	1.3	3.9	5×11	1.3	3.9	5×11	1.3	3.9	5×11	1.3	3.9
100		5×11	1.3	3.9	5×11	1.3	3.9	6.3×11	0.60	1.8	6.3×11	0.60	1.8
220		6.3×11	0.60	1.8	6.3×11	0.60	1.8	8×11.5	0.33	0.99	8×11.5	0.33	0.99
330		6.3×11	0.60	1.8	8×11.5	0.33	0.99	8×11.5	0.33	0.99	10×12.5	0.25	0.75
470		8×11.5	0.33	0.99	8×11.5	0.33	0.99	10×12.5	0.25	0.75	10×16	0.19	0.57
1,000		10×12.5	0.25	0.75	10×16	0.19	0.57	10×20	0.14	0.42	12.5×20	0.085	0.26
2,200		12.5×20	0.085	0.26	12.5×20	0.085	0.26	12.5×25	0.070	0.21	16×25	0.060	0.18
3,300		12.5×20	0.085	0.26	12.5×25	0.070	0.21	16×25	0.060	0.18	16×31.5	0.048	0.14
4,700		16×25	0.060	0.18	16×25	0.060	0.18	16×31.5	0.048	0.14	18×35.5	0.037	0.11
6,800		16×25	0.060	0.18	16×31.5	0.048	0.14	18×35.5	0.037	0.11	18×40	0.034	0.10
10,000		16×31.5	0.048	0.14	18×35.5	0.037	0.11	18×40	0.034	0.10			
15,000		18×35.5	0.037	0.11	2,240								

Cap (μF)	V _{dc} Items	35			50			63			100		
		Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple
0.47					5×11	7.0	21.0				5×11	10.0	35.0
1.0					5×11	5.0	15.0				5×11	7.0	25.0
2.2					5×11	4.0	12.0				5×11	6.0	21.0
3.3					5×11	3.5	11.0				5×11	5.0	18.0
4.7		5×11	3.0	9.0	5×11	3.0	9.0	5×11	4.0	14.0	5×11	4.0	14.0
10		5×11	2.0	6.0	5×11	2.0	6.0	5×11	2.5	8.8	6.3×11	1.2	4.2
22		5×11	1.3	3.9	5×11	1.3	3.9	6.3×11	1.2	4.2	8×11.5	0.66	2.3
33		5×11	1.3	3.9	6.3×11	0.60	1.8	6.3×11	1.2	4.2	10×12.5	0.50	1.8
47		6.3×11	0.60	1.8	6.3×11	0.60	1.8	8×11.5	0.56	2.0	10×16	0.32	1.1
100		8×11.5	0.33	0.99	8×11.5	0.33	0.99	10×12.5	0.50	1.8	12.5×20	0.16	0.56
220		10×12.5	0.25	0.75	10×16	0.19	0.57	10×20	0.27	0.95	16×25	0.090	0.32
330		10×16	0.19	0.57	10×20	0.14	0.42	12.5×20	0.16	0.56	16×25	0.090	0.32
470		10×20	0.14	0.42	12.5×20	0.085	0.26	12.5×25	0.14	0.49	16×31.5	0.060	0.21
1,000		12.5×25	0.070	0.21	16×25	0.060	0.18	16×31.5	0.060	0.21			
2,200		16×31.5	0.048	0.14	18×35.5	0.037	0.11						
3,300		18×35.5	0.037	0.11	2,240								
4,700		18×40	0.034	0.10	2,460								
6,800													

(mArms/105°C, 100kHz)
(Ω_{max}/-10°C, 100kHz)
(Ω_{max}/20°C, 100kHz)
φD×L (mm)

		Non solvent-proof								
Cap (μF) <i>Items</i>	V _{dc}	160			200			250		
		Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple
	4.7							10×16	3.5	165
	10	10×16	1.5	250	10×16	1.5	250	10×20	2.8	230
	22	10×20	1.1	350	10×20	1.1	350	12.5×25	1.2	360
	33	12.5×20	0.71	440	12.5×20	0.71	440	12.5×25	1.2	360
	47	12.5×25	0.46	600	12.5×25	0.46	600	16×25	0.60	570
	100	16×25	0.24	910	16×31.5	0.17	1,160	18×35.5	0.30	935
	220	18×35.5	0.14	1,370	18×35.5	0.14	1,370	18×40	0.27	1,000

		Non solvent-proof					
Cap (μF)	V _{dc} Items	400			450		
		Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple
2.2					10×16	7.9	110
3.3		10×20	2.9	195	10×20	6.2	135
4.7		10×25	2.3	220	12.5×20	3.7	190
10		12.5×25	1.2	360	12.5×25	2.6	250
22		16×25	0.61	570	16×31.5	1.0	480
33		16×31.5	0.46	700	18×35.5	0.62	650
47		18×31.5	0.33	860	↑	↑	↑

(mArms/105°C, 100kHz)
(Ω_{max}/20°C, 100kHz)
φD×L (mm)