

# KMF Series

- Endurance with ripple current: 105°C 2000 to 5000 hours
- Solvent-proof type except 160 to 450V<sub>dc</sub> (see PRECAUTIONS AND GUIDELINES)



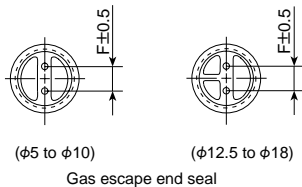
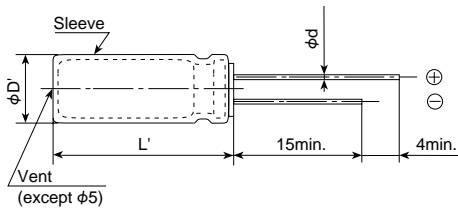
↑ lower Z  
longer life  
KME



## ◆SPECIFICATIONS

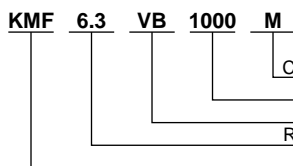
Items	Characteristics														
Category Temperature Range	-55 to +105°C(6.3 to 100V <sub>dc</sub> ) -40 to +105°C(160 to 400V <sub>dc</sub> ) -25 to +105°C(450V <sub>dc</sub> )														
Rated Voltage Range	6.3 to 450V <sub>dc</sub>														
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)														
Leakage Current	6.3 to 100V <sub>dc</sub>						160 to 450V <sub>dc</sub>								
	I=0.03CV or 4μA, whichever is greater. (at 20°C after 1 minute)						CV < 1000			After 1 minute			After 5 minutes		
	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 <sub>dc</sub> )	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 <sub>dc</sub> )	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 <sub>dc</sub>	φ5 & 6.3 : 2000 hours φ8 & 10 : 3000 hours φ12.5 and larger : 5000 hours													
	Time for 160 to 450V <sub>dc</sub>	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 <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 (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 <sub>dc</sub> )	Case code	Frequency(Hz)			
		120	1k	10k	100k
6.3 10	φ5 (to 47μF)	0.40	0.75	0.93	1.00
	φ5 (100μF), φ6.3, φ8	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)	0.30	0.68	0.91	1.00
	φ5 (33μF to), φ6.3, φ8	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)	0.20	0.66	0.90	1.00
	φ5 (4.7μF to), φ6.3, φ8	0.40	0.76	0.93	1.00
	φ10 to φ18	0.60	0.84	0.96	1.00
100	φ5 (to 1μF)	0.20	0.60	0.88	1.00
	φ5 (2.2μF to), φ6.3, φ8	0.30	0.65	0.90	1.00
	φ10 to φ18	0.40	0.75	0.93	1.00
160 to 450	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) Items	V <sub>dc</sub>	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											5X11	3.0	9.0	100			
10																	
22					5X11	1.3	3.9	154	5X11	2.0	6.0	124	5X11	2.0	6.0	124	
33		5X11	1.3	3.9	154	5X11	1.3	3.9	154	5X11	1.3	3.9	154	5X11	1.3	3.9	154
47		5X11	1.3	3.9	154	5X11	1.3	3.9	154	5X11	1.3	3.9	154	5X11	1.3	3.9	154
100		5X11	1.3	3.9	154	5X11	1.3	3.9	154	6.3X11	0.60	1.8	260	6.3X11	0.60	1.8	260
220		6.3X11	0.60	1.8	260	6.3X11	0.60	1.8	260	8X11.5	0.33	0.99	400	8X11.5	0.33	0.99	400
330		6.3X11	0.60	1.8	260	8X11.5	0.33	0.99	400	8X11.5	0.33	0.99	400	10X12.5	0.25	0.75	510
470		8X11.5	0.33	0.99	400	8X11.5	0.33	0.99	400	10X12.5	0.25	0.75	510	10X16	0.19	0.57	635
1,000		10X12.5	0.25	0.75	510	10X16	0.19	0.57	635	10X20	0.14	0.42	860	12.5X20	0.085	0.26	1,120
2,200		12.5X20	0.085	0.26	1,120	12.5X20	0.085	0.26	1,120	12.5X25	0.070	0.21	1,320	16X25	0.060	0.18	1,570
3,300		12.5X20	0.085	0.26	1,120	12.5X25	0.070	0.21	1,320	16X25	0.060	0.18	1,570	16X31.5	0.048	0.14	1,810
4,700		16X25	0.060	0.18	1,570	16X25	0.060	0.18	1,570	16X31.5	0.048	0.14	1,810	18X35.5	0.037	0.11	2,240
6,800		16X25	0.060	0.18	1,570	16X31.5	0.048	0.14	1,810	18X35.5	0.037	0.11	2,240	18X40	0.034	0.10	2,460
10,000		16X31.5	0.048	0.14	1,810	18X35.5	0.037	0.11	2,240	18X40	0.034	0.10	2,460				
15,000		18X35.5	0.037	0.11	2,240												

Cap (μF) Items	V <sub>dc</sub>	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					5X11	7.0	21.0	66				5X11	10.0	35.0	55		
1.0					5X11	5.0	15.0	78				5X11	7.0	25.0	66		
2.2					5X11	4.0	12.0	88				5X11	6.0	21.0	72		
3.3					5X11	3.5	11.0	94				5X11	5.0	18.0	78		
4.7		5X11	3.0	9.0	100	5X11	3.0	9.0	100	5X11	4.0	14.0	88	5X11	4.0	14.0	88
10		5X11	2.0	6.0	124	5X11	2.0	6.0	124	5X11	2.5	8.8	124	6.3X11	1.2	4.2	180
22		5X11	1.3	3.9	154	5X11	1.3	3.9	154	6.3X11	1.2	4.2	180	8X11.5	0.66	2.3	282
33		5X11	1.3	3.9	154	6.3X11	0.60	1.8	260	6.3X11	1.2	4.2	180	10X12.5	0.50	1.8	380
47		6.3X11	0.60	1.8	260	6.3X11	0.60	1.8	260	8X11.5	0.56	2.0	305	10X16	0.32	1.1	500
100		8X11.5	0.33	0.99	400	8X11.5	0.33	0.99	400	10X12.5	0.50	1.8	380	12.5X20	0.16	0.56	890
220		10X12.5	0.25	0.75	510	10X16	0.19	0.57	635	10X20	0.27	0.95	620	16X25	0.090	0.32	1,440
330		10X16	0.19	0.57	635	10X20	0.14	0.42	860	12.5X20	0.16	0.56	890	16X25	0.090	0.32	1,440
470		10X20	0.14	0.42	860	12.5X20	0.085	0.26	1,120	12.5X25	0.14	0.49	1,040	16X31.5	0.060	0.21	1,790
1,000		12.5X25	0.070	0.21	1,320	16X25	0.060	0.18	1,570	16X31.5	0.060	0.21	1,790				
2,200		16X31.5	0.048	0.14	1,810	18X35.5	0.037	0.11	2,240								
3,300		18X35.5	0.037	0.11	2,240												
4,700		18X40	0.034	0.10	2,460												
6,800																	

(mArms/105°C, 100kHz)  
 (Ω<sub>max</sub>/-10°C, 100kHz)  
 (Ω<sub>max</sub>/20°C, 100kHz)  
 φD×L (mm)

Non solvent-proof										
Cap (μF) Items	V <sub>dc</sub>	160			200			250		
		Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple
4.7								10X16	3.5	165
10		10X16	1.5	250	10X16	1.5	250	10X20	2.8	230
22		10X20	1.1	350	10X20	1.1	350	12.5X25	1.2	360
33		12.5X20	0.71	440	12.5X20	0.71	440	12.5X25	1.2	360
47		12.5X25	0.46	600	12.5X25	0.46	600	16X25	0.60	570
100		16X25	0.24	910	16X31.5	0.17	1,160	18X35.5	0.30	935
220		18X35.5	0.14	1,370	18X35.5	0.14	1,370	18X40	0.27	1,000

Non solvent-proof							
Cap (μF) Items	V <sub>dc</sub>	400			450		
		Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple
2.2					10X16	7.9	110
3.3		10X20	2.9	195	10X20	6.2	135
4.7		10X25	2.3	220	12.5X20	3.7	190
10		12.5X25	1.2	360	12.5X25	2.6	250
22		16X25	0.61	570	16X31.5	1.0	480
33		16X31.5	0.46	700	18X35.5	0.62	650
47		18X31.5	0.33	860			

(mArms/105°C, 100kHz)  
 (Ω<sub>max</sub>/20°C, 100kHz)  
 φD×L (mm)