NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

6.3 to 450Vdc low impedance, 105℃

KMF Series

- Endurance with ripple current: 105℃ 2000 to 5000 hours
- Solvent-proof type except 160 to 450Vdc
  (see PRECAUTIONS AND GUIDELINES)

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃(6.3 to 100Vdc) −40 to +105℃(160 to 400Vdc) -25 to +105℃(450Vdc)
Rated Voltage Range	6.3 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	6.3 to 100Vdc: I=0.03CV or 4μA, whichever is greater. (at 20℃ after 1 minute) I=0.01CV or 3μA, whichever is greater. (at 20℃ after 2 minutes)

160 to 450Vdc

CV \ Time	After 1minute	After 5minutes
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℃)

Dissipation Factor (tanδ)

Rated voltage (Vdc)	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℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	400V	450V
Z(−25℃)/Z(+20℃)	4	3	2	2	2	2	2	2	3	5	6
Z(−40℃)/Z(+20℃)	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℃ after subjected to DC voltage with the rated ripple current is applied for the specified period of time at 105℃.

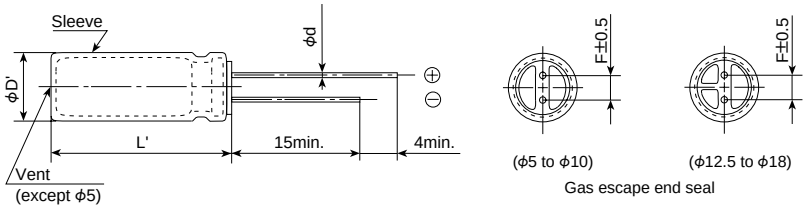
Time for 6.3 to 100Vdc	φ5 & 6.3 : 2000 hours φ8 & 10 : 3000 hours φ12.5 and larger : 5000 hours
Time for 160 to 450Vdc	2000 hours
Capacitance change	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value
Leakage current	≦The initial specified value

Shelf Life

The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1000 hours at 105℃ without voltage applied.

Rated voltage	6.3 to 100Vdc	160 to 450Vdc
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

KMF 6.3 VB 1000 M

- M: Cap tolerance (±20%)
- 1000: Nominal cap code
- VB: Radial lead type
- 6.3: Rated voltage in volts
- KMF: Series name

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

◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Rated Voltage(Vdc)	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

CAT. No. E1001D

KMF Series

◆STANDARD RATINGS

Vdc / Cap (μF) / 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													5X11	3.0	9.0	100
10									5X11	2.0	6.0	124	5X11	2.0	6.0	124
22					5X11	1.3	3.9	154	5X11	1.3	3.9	154	5X11	1.3	3.9	154
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												

Vdc / Cap (μF) / 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					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℃, 100kHz)
(Ωmax/-10℃, 100kHz)
(Ωmax/20℃, 100kHz)
ϕD×L (mm)

Non solvent-proof

Vdc / Cap (μF) / Items	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

Vdc / Cap (μF) / Items	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℃, 100kHz)
(Ωmax/20℃, 100kHz)
ϕD×L (mm)

CAT. No. E1001D