



The KMA series capacitors are designed for use in ultra miniature applications, as the nominal height is 7mm. The KMA series also has a rated lifetime of 1,000 hours at 105°C. Typical applications include video tape recorders, car audio equipment, and other personal electronic products.

Size

The KMA series capacitors were developed to withstand HCFC cleaning agents for five minutes by ultrasonic, vapor or immersion. This solvent proof design allows all circuit board components to be cleaned together, at the same time, without resorting to more expensive epoxy end-sealed capacitors. Refer to the Mini-Glossary for recommended cleaning conditions.

Summary of Specifications

- Radial lead terminals.
- Capacitance range: 0.1 to 220µF.
- Voltage range: 4 to 63VDC.
- Operating temperature range: -55°C to +105°C.
- Leakage current: 0.01CV or 3μA, whichever is greater, after 2 minutes at +20°C.
- Standard capacitance tolerance: ±20%
- Nominal case size (D×L): 4×7mm to 6.3×7mm.
- Rated lifetime: 1,000 hours at +105°C.

KMA Specifications

Item	Characteristics								
Operating Temperature Range	−55 to +105°C								
Rated Voltage Range	4 to 63VDC								
Capacitance Range	0.1 to 220µF								
Capacitance Tolerance	±20% (M) at +20°C,	120Hz							
Leakage Current	I = 0.01CV or 3μ A, whichever is greater, after 2 minutes at +20°C.								
	Where I = Leakage current (μ A), C = Nominal capacitance (μ F) and V = Rated voltage (V						(V)		
Dissipation Factor (Tan δ)	At +20°C, 120Hz								
	Rated Voltage (V)	4	6.3	10	16	25	35	50	63
	Tan δ (DF)	0.35	0.22	0.19	0.16	0.14	0.12	0.10	0.08
Characteristics	exceed the values given below. Rated Voltage (V) 4 6.3 10 16 25 35 50 63								
			1			0.5	0.5	50	
	Z(-25°C)/Z(+20°C)	4	3	2	2	23	2	2	2
	Z(-40°C)/Z(+20°C)	10	6	5	3	3	3	3	3
Load Life	The following specifications shall be satisfied when the capacitors are restored to +20°C after subjecting them to the DC rated voltage for 1,000 hours at +105°C. The sum of DC voltage and peak AC voltage must not exceed the full rated voltage of the capacitors. Capacitance change: ≤ ±25% of initial measured value for ≤ 16V : ≤ ±20% of initial measured value for ≥25V Tan δ (DF) : ≤ 200% of initial specified value Leakage current : ≤ initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to +20°C after exposing them for 500 hours at +105°C without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements.Capacitance change: $\leq \pm 25\%$ of initial measured value for $\leq 16V$ $: \leq \pm 20\%$ of initial measured value for $\geq 25V$ Tan δ (DF) $: \leq 200\%$ of initial specified valueLeakage current $: \leq initial specified value$								
Others	Satisfies characteristic W of JIS C5141								

Part Numbering System for KMA Series When ordering, always specify complete catalog number for KMA Series.

<u>KMA 25 VB 4</u>	25 VB 47R M 6X7 LL	Lead Length: LL is Standard. Case Code: See Case Sizes in Tables. Capacitance Tolerance: $M = \pm 20\%$ Capacitance Value: Expressed in Microfarads. The first two digits are significant figures, and the third digit indicates the number of zeros for capacitance of 100μ F or more. R indicates the decimal point for capacitance less than 100μ F (e.g. $P47 = .47\mu$ F; $4P7 = 4.7\mu$ F;
		$47R = 47\mu$ F; $471 = 470\mu$ F; $472 = 4,700\mu$ F; $473 = 47,000\mu$ F). ————————————————————————————————————
		——— DC Rated Voltage: Expressed in Volts (e.g. 25 = 25WVDC).

Diagram of Dimensions

VB/Radial Lead Unit: mm PVC Sleeve Ød Ð Øģ' Øģ ł Θ Ø4~Ø7 4 MIN. 🗲 15 MIN Gas escape end seal for all case diameters. ØD ØD'max. L'max. Ød F±0.5 ØD+0.5 L+1.0 0.45 4 1.5 For optional lead configurations and tape and ammo 5 L+1.0 0.45 2.0 ØD+0.5 packaging, refer to the beginning of the Miniature section. 6.3 ØD+0.5 L+1.0 0.45 2.5

Standard Voltage Ratings - VB/Radial Lead

Rated Voltage (WVDC)	Capacitance (µF)	Catalog Part Number	Nominal Case Size* D×L (mm)	Maximum ESR (Ω) at +20°C, 120Hz	Maximum Ripple Current (mA rms) at +105℃, 120Hz
	33	KMA4VB33RM4X7LL	4 × 7	17.58	26
4 Volts	47	KMA4VB47RM4X7LL	4 × 7	12.343	34
5 Volts Surge	100	KMA4VB101M5X7LL	5 × 7	5.801	61
	220	KMA4VB221M6X7LL	6.3 × 7	2.637	95
6.3 Volts	22	KMA6.3VB22RM4X7LL	4 × 7	16.575	31
8 Volts Surge	47	KMA6.3VB47RM5X7LL	5 × 7	7.759	47
	15	KMA10VB15BM4X7LL	4 × 7	20.995	00
10 Volts					28
	33	KMA10VB33RM5X7LL	5 × 7	9.543	43
13 Volts Surge	68	KMA10VB68RM6X7LL	6.3 × 7	4.631	63
	100	KMA10VB101M6X7LL	6.3 × 7	3.149	80
	6.8	KMA16VB6R8M4X7LL	4 × 7	39	20
	10	KMA16VB10RM4X7LL	4 × 7	26.52	25
16 Volts	15	KMA16VB15RM5X7LL	5 × 7	17.68	31
20 Volts Surge	22	KMA16VB22RM5X7LL	5 × 7	12.055	39
.	47	KMA16VB47RM6X7LL	6.3 × 7	5.643	59
	100	KMA16VB101M6X7LL	6.3 × 7	2.652	97
25 Volts	33	KMA25VB33RM6X7LL	6.3 × 7	7.032	53
32 Volts Surge	47	KMA25VB35RM0X7LL	6.3 × 7	4.937	71
oz volto odrge	47	RIVIA23VD47 RIVIOA7 EL	0.5 × 1	4.957	11
	4.7	KMA35VB4R7M4X7LL	4 × 7	42.319	20
	6.8	KMA35VB6R8M5X7LL	5 × 7	29.25	24
35 Volts	10	KMA35VB10RM5X7LL	5 × 7	19.89	30
44 Volts Surge	15	KMA35VB15RM6X7LL	6.3 × 7	13.26	37
-	22	KMA35VB22RM6X7LL	6.3 × 7	9.041	47
ſ	33	KMA35VB33RM6X7LL	6.3 × 7	6.027	64

*The case sizes in table are with no sleeve, refer to diagram for case sizes with sleeve.

KMA MINIATURE - 105°C

Standard Voltage Ratings - VB/Radial Lead

Rated Voltage (WVDC)	Capacitance (μF)	Catalog Part Number	Nominal Case Size* D×L (mm)	Maximum ESR (Ω) at +20°C, 120Hz	Maximum Ripple Current (mA rms) at +105°C, 120Hz
	0.1	KMA50VBR10M4X7LL	4 × 7	1,657.5	1.3
	0.15	KMA50VBR15M4X7LL	4 × 7	1,105.0	2.0
	0.22	KMA50VBR22M4X7LL	4 × 7	753.409	2.9
	0.33	KMA50VBR33M4X7LL	4 × 7	502.273	3.5
	0.47	KMA50VBR47M4X7LL	4 × 7	352.66	5.0
	0.68	KMA50VBR68M4X7LL	4 × 7	243.75	7.1
50 Volts	1.0	KMA50VB1R0M4X7LL	4 × 7	165.75	10
63 Volts Surge	1.5	KMA50VB1R5M4X7LL	4 × 7	110.5	12
•	2.2	KMA50VB2R2M4X7LL	4 × 7	75.341	15
	3.3	KMA50VB3R3M4X7LL	4 × 7	50.227	18
	4.7	KMA50VB4R7M5X7LL	5 × 7	35.266	23
	6.8	KMA50VB6R8M6X7LL	6.3 × 7	24.375	28
	10	KMA50VB10RM6X7LL	6.3 × 7	16.575	34
	22	KMA50VB22RM6X7LL	6.3 × 7	7.534	57
	0.1	KMA63VBR10M4X7LL	4 × 7	1,326.0	1.3
	0.15	KMA63VBR15M4X7LL	4 × 7	884.0	1.9
	0.22	KMA63VBR22M4X7LL	4 × 7	602.727	2.9
	0.33	KMA63VBR33M4X7LL	4 × 7	401.818	4.4
	0.47	KMA63VBR47M4X7LL	4 × 7	282.128	7.9
63 Volts	0.68	KMA63VBR68M4X7LL	4 × 7	195.0	9.2
79 Volts Surge	1.0	KMA63VB1R0M4X7LL	4 × 7	132.6	11
l i	1.5	KMA63VB1R5M4X7LL	4 × 7	88.4	13
	2.2	KMA63VB2R2M4X7LL	4 × 7	60.273	17
	3.3	KMA63VB3R3M5X7LL	5 × 7	40.182	21
	4.7	KMA63VB4R7M6X7LL	6.3 × 7	28.213	26
	10	KMA63VB10RM6X7LL	6.3 × 7	13.26	43

*The case sizes in table are with no sleeve, refer to diagram for case sizes with sleeve.