

Radial Leaded Aluminum Electrolytic Capacitors

RET Series



FEATURES

- Small size
- Long life and high ripple current
- Endurance: 6,000 - 10,000 hours at 105°C
- RoHS Compliance and Halogen-free

APPLICATIONS

- Communications equipment
- Industrial equipment



HOW TO ORDER

R **ET** **0812** **220** **M** **035** **K** **-**

Product Type Aluminum

Series Type See table below

Case Size See table below

Capacitance Code µF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)

Tolerance M = ±20%

Lead Type
 " " empty = Standard long lead
 "C" = Lead cut only
 "F" = Lead cut and form
 "L" = Lead cut and bend (Left)
 "R" = Lead cut and bend (Right)

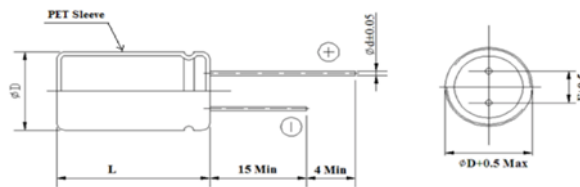
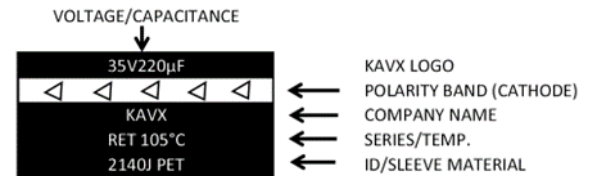
Packaging
 K = Ammo Pack
 B = Bulk Pack

Rated DC Voltage
 010 = 10Vdc
 016 = 16Vdc
 025 = 25Vdc
 035 = 35Vdc
 100 = 100Vdc

CASE DIMENSIONS millimeters (inches)

Code	D±0.50(0.020)	L+2.00(0.079)	d±0.05(0.002)	F±0.50(0.020)	Typical Weight (g)
0511	5.00 (0.020)	11.00 + 2.00 - 0.50 (0.433 + 0.079 - 0.020)	0.50 (0.020)	2.00 (0.079)	0.41
0611	6.30 (0.248)	11.00 (0.433)	0.50 (0.020)	2.50 (0.098)	0.68
0612	6.30 (0.248)	12.00 (0.472)	0.50 (0.020)	2.50 (0.098)	0.60
0812	8.00 (0.315)	12.00 (0.472)	0.50 (0.020)	3.50 (0.138)	0.70
0816	8.00 (0.315)	16.00 (0.629)	0.50 (0.020)	3.50 (0.138)	0.95
0820	8.00 (0.315)	20.00 (0.787)	0.50 (0.020)	3.50 (0.138)	1.05

MARKING



TECHNICAL SPECIFICATIONS

Category Temperature Range:	-40°C to +105°C	
Capacitance Range:	At 25°C, 120Hz	27µF - 1500µF
Capacitance Tolerance:	At 25°C, 120Hz	±20%
Dissipation Factor (%)	Measurement Frequency: 120Hz at 25°C	Please see the Ratings and Part Number Reference table below
Leakage Current	After 2 minutes at rated working voltage at 25°C	Is≤0.01CV or 3µA, whichever is greater

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CAPACITANCE AND RATED VOLTAGE RANGE (FIGURES DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V _R)				
μF	Code	10V	16V	25V	35V	100V
27	270					0812
47	470				0511	
100	101		0511		0612	
220	221			0611	0812	
390	391				0820	
470	471			0816		
1500	152	0820				

Released ratings

RATINGS & PART NUMBER REFERENCE

Part No.	Case Size	Capacitance (μF)	Rated Voltage (V)	DCL Max. (μA)	DF Max. (%)	Impedance @ 100kHz/20°C (Ω _{max})	100kHz RMS Current (mA) / 105°C	Endurance
10 Volt								
RET0820152M010*	0820	1500	10	150	19	0.029	1500	8,000
16 Volt								
RET0511101M016*	0511	100	16	16	16	0.220	345	6,000
25 Volt								
RET0611221M025*	0611	220	25	55	14	0.200	540	6,000
RET0816471M025*	0816	470	25	117.5	14	0.059	1,600	10,000
35 Volt								
RET0511470M035*	0511	47	35	16.45	12	0.400	450	8,000
RET0612101M035*	0612	100	35	35	12	0.094	540	6,000
RET0812221M035*	0812	220	35	77	12	0.062	945	8,000
RET0820391M035*	0620	390	35	136.5	12	0.039	1,500	8,000
100 Volt								
RET0812270M100*	0812	27	100	27	8	0.320	550	10,000

* Used to denote packing type: "K" for Ammo Pack or "B" for Bulk Pack.
All technical data relates to an ambient temperature of +25°C

FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

Capacitance	Frequency (Hz)			
	120	1K	10K	100K
Cap. < 47	0.40	0.70	0.90	1.00
47 ≤ Cap. < 220	0.42	0.73	0.92	1.00
220 ≤ Cap. < 1500	0.50	0.80	0.94	1.00
Cap. ≥ 1500	0.60	0.80	0.96	1.00

QUALIFICATION TABLE

Test	RET Series (Temperature Range -40°C to +105°C)		
	Condition	Characteristics	
Temperature Stability (Max. Impedance Ratio)	120Hz	Rated Voltage (V)	10 - 100
		Z(-25°C)/Z(+20°C)	3
Load Life	Application of the rated voltage and the rated ripple current for each specified endurance. Test temperature: 105 ± 2°C	ΔC/C	10V within ±30% of initial limit 16V - 100V within ±25% of initial limit
		DF	≤ 200% of the initial specified limit
		DCL	≤ the initial specified limit
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 +48/-0 hours 105±2°C without voltage applied.	ΔC/C	10V within ±30% of initial limit 16V - 100V within ±25% of initial limit
		DF	≤ 200% of the initial specified limit
		DCL	≤ 200% of the initial specified limit

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.

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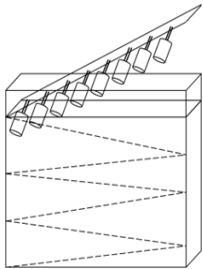
STORAGE

1. It is recommended to keep capacitors between the ambient temperatures of 5°C to 35°C and a relative humidity of 75% or below.
2. Confirm that the environment does not have any of the following conditions:
 - a. Damp conditions such as water, saltwater spray, or oil spray or fumes. High humidity or humidity condensation situations.
 - b. In an atmosphere filled with toxic gasses (such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, etc.).
 - c. Being exposed to direct sunlight, ozone, ultraviolet ray, or radiation.
 - d. exposed to acidic or alkaline solutions.
 - e. Under severe conditions where vibration and / or mechanical shock exceed the applicable ranges of the specification.
3. Storage life: 2yrs

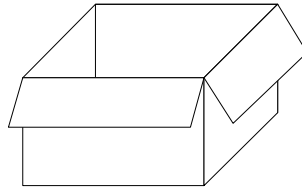
PACKING

Size Code	Bulk Pack					Ammo Pack				
	Bags	Inner Box (LxWxH) 290*216*158		Carton (LxWxH) 455*310*350		Quantity	Inner Box Size (LxWxH)	Inner Box Quantity	Carton Size (LxWxH)	Whole Pieces
		Quantity	Bags Number	Quantity / pcs	Inner Box Number					
	0511	1000	12	12,000	4	48,000	2000	320x230x50	10	485x345x275
0611	1000	8	8000	4	32,000	2000	340x290x48	10	600x354x265	20,000
0612	500	10	5000	4	20,000	2000	340x290x48	10	600x354x265	20,000
0812	500	10	5000	4	20,000	950	320x230x50	6	485x345x275	5700
0816	300	10	3000	4	12,000	950	320x230x55	6	485x345x300	5700
0820	300	10	3000	4	12,000	950	320x230x55	6	485x345x300	5700

AMMO PACKING



BULK PACKING

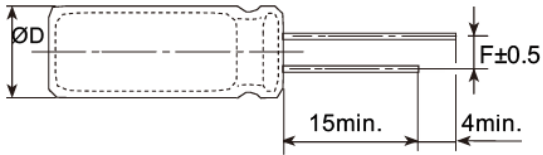


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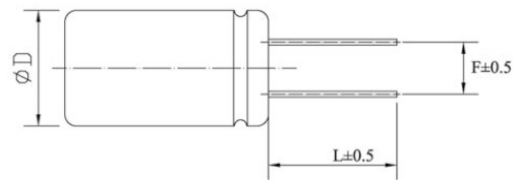
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TERMINATION TYPE

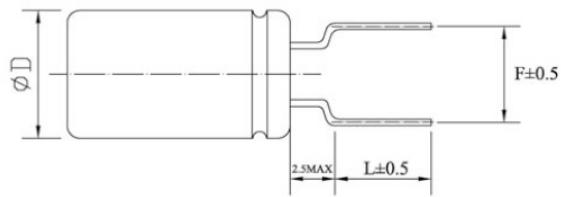
Letter "": Empty = Standard Long lead.



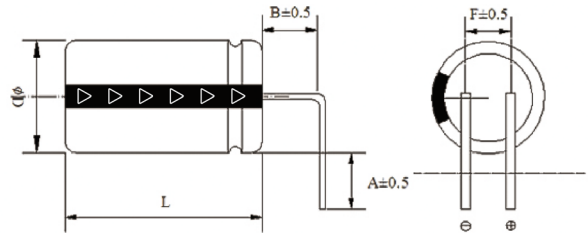
Letter "C": Lead cut only.



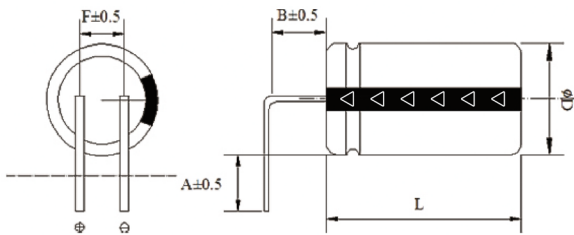
Letter "F": Lead cut and form.



Letter "R": Lead cut and bend (Right).



Letter "L": Lead cut and bend (Left).



Letter	Termination Type	Dø	4ø	5ø	6.3ø	8ø	10ø	12.5ø	13ø	16ø	18ø
	Standard long lead	F	1.50	2.00	2.50	3.50	5.00	5.00	5.00	7.50	7.50
C	Lead cut only	F	1.50	2.00	2.50	3.50	5.00	5.00	5.00	7.50	7.50
		L	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
F	Lead cut and form	F	5.00	5.00	5.00	5.00					
		L	3.50	3.50	3.50	3.50					
R / L	Lead cut and bend	F					5.00	5.00	5.00	7.50	7.50
		A					3.50	3.50	3.50	3.50	3.50
		B					2.50	2.50	2.50	2.50	2.50

*All dimensions in mm.