Radial Leaded Aluminum Electrolytic Capacitors

REI Series



FEATURES

- High ripple current
- Ultra low impedance at high frequency range
- Endurance: 4000 - 8000 hours at 105°C
- RoHS Compliance and Halogen-free

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

APPLICATIONS

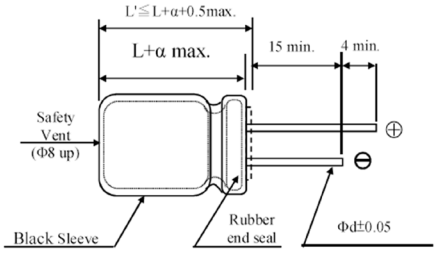
- Communications Equipment
- Industrial Equipment
- SSD, Data Servers

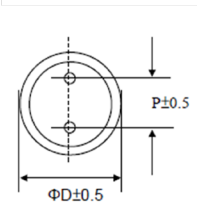
HOW TO ORDER

R	EI	0615	471	M	016	K	-
Product Type Radial Aluminum	**Series Type**	**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%	**Rated DC Voltage** 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc 063 = 63Vdc 100 = 100Vdc	**Packaging** K = Ammo Pack B = Bulk Pack	**Lead Type** " " empty = Standard long lead "C"= Lead cut only "D"= Lead cut and crimp "F"= Lead cut and form "H"= Lead cut, crimp and form "B"= Forming only "L"= Lead cut and bend (Left) "Z"= Lead cut and bend (Right)

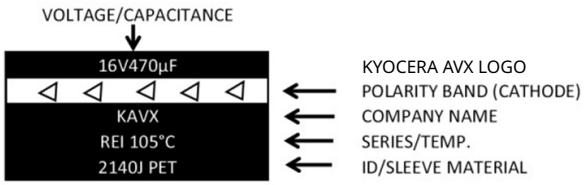
CASE DIMENSIONS millimeters (inches)

Code	D+0.50 (0.020)	L	d±0.05 (0.002)	P±0.50 (0.020)	α	Typical Weight (g)	Code	D+0.50 (0.020)	L	d±0.05 (0.002)	P±0.50 (0.020)	α	Typical Weight (g)
0511	5.00 (0.020)	11.00 (0.433)	0.50 (0.020)	2.00 (0.079)	1.00 (0.039)	0.43	1225	12.50 (0.492)	25.00 (0.984)	0.60 (0.024)	5.00 (0.020)	2.00 (0.079)	5.00
0611	6.30 (0.248)	11.00 (0.433)	0.50 (0.020)	2.50 (0.098)	1.00 (0.039)	0.60	1320	13.00 (0.512)	20.00 (0.787)	0.60 (0.024)	5.00 (0.020)	2.00 (0.079)	4.49
0615	6.30 (0.248)	15.00 (0.591)	0.50 (0.020)	2.50 (0.098)	1.00 (0.039)	0.80	1325	13.00 (0.512)	25.00 (0.984)	0.60 (0.024)	5.00 (0.020)	2.00 (0.079)	5.00
0812	8.00 (0.315)	12.00 (0.472)	0.50 (0.020)	3.50 (0.138)	1.00 (0.039)	0.98	1330	13.00 (0.512)	30.00 (1.181)	0.60 (0.024)	5.00 (0.020)	2.00 (0.079)	5.64
0814	8.00 (0.315)	14.00 (0.551)	0.50 (0.020)	3.50 (0.138)	1.00 (0.039)	1.15	1335	13.00 (0.512)	35.00 (1.378)	0.60 (0.024)	5.00 (0.020)	2.00 (0.079)	7.20
0816	8.00 (0.315)	16.00 (0.630)	0.50 (0.020)	3.50 (0.138)	2.00 (0.079)	1.33	1620	16.00 (0.630)	20.00 (0.787)	0.80 (0.315)	7.50 (0.295)	2.00 (0.079)	4.95
0820	8.00 (0.315)	20.00 (0.787)	0.50 (0.020)	3.50 (0.138)	2.00 (0.079)	1.66	1625	16.00 (0.630)	25.00 (0.984)	0.80 (0.315)	7.50 (0.295)	2.00 (0.079)	8.08
0835	8.00 (0.315)	35.00 (1.378)	0.60 (0.024)	3.50 (0.138)	2.00 (0.079)	2.85	1626	16.00 (0.630)	26.00 (1.024)	0.80 (0.315)	7.50 (0.295)	2.00 (0.079)	8.70
0840	8.00 (0.315)	40.00 (1.575)	0.60 (0.024)	3.50 (0.138)	2.00 (0.079)	3.30	1635	16.00 (0.630)	35.00 (1.378)	0.80 (0.315)	7.50 (0.295)	2.00 (0.079)	12.38
1016	10.00 (0.394)	16.00 (0.630)	0.60 (0.024)	5.00 (0.020)	2.00 (0.079)	1.80	1640	16.00 (0.630)	40.00 (1.575)	0.80 (0.315)	7.50 (0.295)	2.00 (0.079)	13.85
1020	10.00 (0.394)	20.00 (0.787)	0.60 (0.024)	5.00 (0.020)	2.00 (0.079)	2.71	1825	18.00 (0.709)	25.00 (0.984)	0.80 (0.315)	7.50 (0.295)	2.00 (0.079)	9.60
1030	10.00 (0.394)	30.00 (1.181)	0.60 (0.024)	5.00 (0.020)	2.00 (0.079)	4.04	1830	18.00 (0.709)	30.00 (1.181)	0.80 (0.315)	7.50 (0.295)	2.00 (0.079)	11.32
1220	12.50 (0.492)	20.00 (0.787)	0.60 (0.024)	5.00 (0.020)	2.00 (0.079)	4.59	1840	18.00 (0.709)	40.00 (1.575)	0.80 (0.315)	7.50 (0.295)	2.00 (0.079)	16.00





MARKING



*If different rubber seal is needed, please contact your sales representative.
*For ammo packing lead shape please refer to "Lead forming taping specification for ammo pack".
*If different lead shape is needed, please refer to "Termination type".

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Radial Leaded Aluminum Electrolytic Capacitors
REI Series

TECHNICAL SPECIFICATIONS

Category Temperature Range:	-40°C to +105°C	
Capacitance Range	At 25°C, 120Hz	10µF – 6800µF
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*	I≤0.01CV or 3µA, whichever is greater

*Note: In the case of an anomalous reading, re-measure the leakage current after following voltage treatment:
Voltage treatment: DC rated voltage to be applied to the capacitors for 120 minutes at 105°C.

CAPACITANCE AND RATED VOLTAGE RANGE (FIGURES DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R)							
µF	**Code**	**6.3V**	**10V**	**16V**	**25V**	**35V**	**50V**	**63V**	**100V**
10	100							0511	0611
22	220						0511		
33	330								0812
47	470					0511	0611	0812	0814
56	560						0611		
68	680								0820
100	101	0511	0511	0511	0511	0611	0812	0816	1016
150	151							0820	
220	221			0611	0611	0812	1020		1320
270	271					0814			
330	331	0611				0816		1030	1330, 1625
470	471		0812	0615	0812	0820	1220		1635
560	561								1830
680	681		0615		0816				
820	821					0835		1825	
1000	102		0820		1020	0835, 0840, 1325			
1200	122	1016				0840			
1500	152	1020				1335	1635		
2200	222			1020	1225				
2700	272						1635		
3300	332		1325	1620	1626			1840	
5600	562			1635					
6800	682			1640					

Released ratings

Radial Leaded Aluminum Electrolytic Capacitors

REI Series

RATINGS & PART NUMBER REFERENCE

Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	DCL Max. (µA)	DF Max. (%)	100KHz RMS Current (mA) / 105°C	Lifetime (h)	MSL
6.3 Volt								
REI0511101M006*	0511	100	6.3	6.3	22	150	4000	1
REI0611331M006*	0611	330	6.3	20	22	295	4000	1
REI1016122M006*	1016	1200	6.3	75	22	1250	6000	1
REI1020152M006*	1020	1500	6.3	94	22	1420	6000	1
10 Volt								
REI0511101M010*	0511	100	10	10	19	170	4000	1
REI0812471M010*	0812	470	10	47	19	650	5000	1
REI0615681M010*	0615	680	10	68	19	480	4000	1
REI0820102M010*	0820	1000	10	100	19	1010	5000	1
REI1325332M010*	1325	3300	10	330	23	1960	7000	1
16 Volt								
REI0511101M016*	0511	100	16	16	16	175	4000	1
REI0611221M016*	0611	220	16	35	16	295	4000	1
REI0615471M016*	0615	470	16	75	16	420	4000	1
REI1020222M016*	1020	2200	16	352	18	1450	6000	1
REI1620332M016B	1620	3300	16	528	20	2220	8000	1
REI1635562M016B	1635	5600	16	896	24	3160	8000	1
REI1640682M016B	1640	6800	16	1088	26	3720	8000	1
25 Volt								
REI0511101M025*	0511	100	25	25	14	180	4000	1
REI0611221M025*	0611	220	25	55	14	295	4000	1
REI0812471M025*	0812	470	25	117	14	685	5000	1
REI0816681M025*	0816	680	25	170	14	780	5000	1
REI1020102M025*	1020	1000	25	250	14	1500	6000	1
REI1225222M025*	1225	2200	25	550	16	2150	7000	1
REI1626332M025B	1626	3300	25	825	18	2630	8000	1
35 Volt								
REI0511470M035*	0511	47	35	16	12	234	4000	1
REI0611101M035*	0611	100	35	35	12	386	4000	1
REI0812221M035*	0812	220	35	77	12	680	5000	1
REI0814271M035*	0814	270	35	94	12	740	5000	1
REI0816331M035*	0816	330	35	115	12	820	5000	1
REI0820471M035*	0820	470	35	164	12	820	5000	1
REI0835821M035B	0835	820	35	287	12	1050	5000	1
REI1325102M035*	1325	1000	35	350	12	1960	7000	1
REI0835102M035B	0835	1000	35	350	12	1050	5000	1
REI0840102M035B	0840	1000	35	350	12	1050	5000	1
REI0840122M035B	0840	1200	35	420	12	1050	5000	1
REI1335152M035*	1335	1500	35	525	12	2520	7000	1
50 Volt								
REI0511220M050*	0511	22	50	11	10	165	4000	1
REI0611470M050*	0611	47	50	23	10	270	4000	1
REI0611560M050*	0611	56	50	28	10	295	4000	1
REI0812101M050*	0812	100	50	50	10	490	5000	1
REI1020221M050*	1020	220	50	110	10	1060	6000	1
REI1220471M050*	1220	470	50	235	10	1630	7000	1
REI1635152M050B	1635	1500	50	750	10	2810	8000	1
REI1635272M050B	1635	2700	50	1350	12	3050	8000	1
63 Volt								
REI0511100M063*	0511	10	63	6.3	9	145	4000	1
REI0812470M063*	0812	47	63	29	9	380	5000	1
REI0816101M063*	0816	100	63	63	9	540	5000	1
REI0820151M063*	0820	150	63	94	9	690	5000	1
REI1030331M063*	1030	330	63	207	9	1310	6000	1
REI1825821M063B	1825	820	63	516	9	2690	8000	1
REI1840332M063B	1840	3300	63	2079	13	3420	8000	1
100 Volt								
REI0611100M100*	0611	10	100	10	8	108	4000	1
REI0812330M100*	0812	33	100	33	8	250	5000	1
REI0814470M100*	0814	47	100	47	8	350	5000	1
REI0820680M100*	0820	68	100	68	8	530	5000	1
REI1016101M100*	1016	100	100	100	8	480	6000	1

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REI Series

Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	DCL Max. (µA)	DF Max. (%)	100KHz RMS Current (mA) / 105°C	Lifetime (h)	MSL
REI1320221M100*	1320	220	100	220	8	950	7000	1
REI1330331M100*	1330	330	100	330	8	1365	7000	1
REI1625331M100*	1625	330	100	330	8	1400	8000	1
REI1635471M100B	1635	470	100	470	8	1950	8000	1
REI1830561M100B	1830	560	100	560	8	1800	8000	1

* Used to denote packing type: "K" for Ammo Pack or "B" for Bulk Pack.
DF = When nominal capacitance exceeds 1000µF, add 0.02 to the value above for each 1000µF increase.
All technical data relates to an ambient temperature of +25C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2 volts. DCL is measured at rated voltage after 3 minutes.

FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

Capacitance (µF)	Frequency (Hz)			
	120	1K	10K	100K
10 - 180	0.40	0.75	0.90	1.00
220 - 560	0.50	0.85	0.94	1.00
680 - 1800	0.60	0.87	0.95	1.00
2200 - 3900	0.75	0.90	0.95	1.00
4700 - 6800	0.85	0.95	0.98	1.00

QUALIFICATION TABLE

Test	REI series (Temperature range -40°C to +105°C)					
	Condition	Characteristics				
Temperature Stability (Max. Impedance Ratio)	120Hz	Rated Voltage (V)	6.3	10	16	25-100
		Z(-25°C) / Z(20°C)	4	3	2	2
		Z(-40°C) / Z(20°C)	8	6	4	3
Load Life	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 8000 hours (D ≤ 6: 4000 hours; D=8: 5000 hours; D=10: 6000 hours, D=12.5-13: 7000 hours, D=16-18: 8000 hours) at 105°C.	ΔC/C	within ±20% of initial limit			
		DF	200% or less of initial specified limit			
		DCL	Initial specified limit or less			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hours 105°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to them 4.1 of JIS C5101-4.	ΔC/C	within ±20% of initial limit			
		DF	200% or less of initial specified limit			
		DCL	Initial specified limit or less			
Standard	JIS C 5101-4-1 (IEC 60384)					

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.

STORAGE

1. It is recommended to keep capacitors between the ambient temperatures of 5°C to 35°C (if between 35°C to 85°C, it should be less than three months) and the relative humidity of 75% or below.
2. Confirm that the environment does not have any of the following conditions:
   - Damp conditions such as water, saltwater spray, oil spray or fumes. High humidity or humidity condensation situations.
   - In an atmosphere filled with toxic gasses (such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, etc.).
   - Being exposed to direct sunlight, ozone, ultraviolet ray, or radiation.
   - Being exposed to acidic or alkaline solutions.
   - Under severe conditions where vibration and / or mechanical shock exceed the applicable ranges of the specification.
3. Shelf life

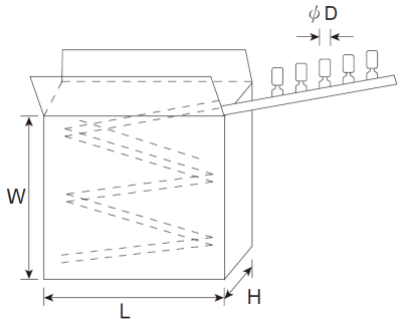
Years		
0-1	1-2	>2
Ok	Ok	Performance check

- Years from manufacturing date code.
- KYOCERA AVX does not guarantee or assume responsibility for product behavior after 3 years of storage.
- Ageing procedure should be performed as follows:
  - Connect the capacitor in series to a 1kΩ resistor, and apply half rated voltage for 2 hours.
  - After half rated voltage for 2 hours applied, increase and apply rated voltage for another 2 hours.

PACKAGE TAPE DIMENSIONS

AMMO PACKING

Ammo Pack						
Size Code	W±5 (mm)	L±5 (mm)	H±5 (mm)	Qty. (pcs)	G.W. kg/box	Box /Carton
0511	235	327	54	2000	0.99	10
0611	235	327	54	1500	1.12	10
0615	235	327	54	1500	1.12	10
0812	265	327	51	1000	1.48	10
0814	265	327	51	1000	1.48	10
0816	265	327	51	1000	1.48	10
0820	265	327	51	1000	1.48	8
1016	235	330	57	600	1.29	5
1020	235	330	57	600	1.48	5
1030	235	330	57	600	1.48	5
1220	280	315	65	400	1.73	6
1225	280	315	65	400	1.73	6
1320	280	315	65	400	1.95	6
1325	280	315	65	400	2.35	6
1330	280	315	65	400	2.35	6
1335	280	315	65	400	2.35	6



LEAD FORMING TAPING SPECIFICATIONS FOR AMMO PACK

Case Diameter	5mm	6.3mm	8mm	10mm	12.5mm	13mm
Figure #	Fig. 1	Fig. 1	Fig. 1	Fig. 2	Fig. 3	Fig. 3

(Unit:mm)

Fig. 1 (Φ5-Φ8)

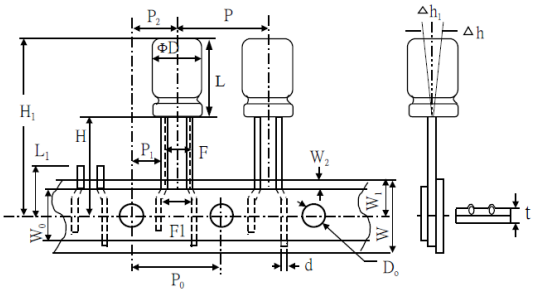
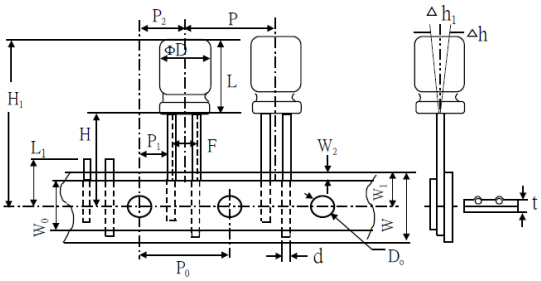


Fig. 2 (Φ10)



Items	Symbol	Case Size									Tolerance	Remark
		0511	0611	0615	0812	0814	0816	0820	1016	1020	1030		
Lead Wire Diameter	d	0.50/0.60							0.60			±0.05	
Body Height	L	13.00		16.00	13.00	15.00	18.00	22.00	18.00	22.00	32.00	max	
Intervals of Bodies	P	12.70										±1.00	
Intervals of Punched Holes	P_0	12.70										±0.20	
Distance between Holes and Lead Wire	P_1	3.85											Fig.1
		5.10	5.10									±0.70	Fig.2
		5.35											
Distance between Holes and Body Center	P_2	6.35										±1.00	
Distance between Lead and Lead	F	5.00										+0.80 -0.20	Fig.1
		2.50	2.50		3.50				5.00				Fig.2
		2.00											
Distance between Lead and Lead	F_1	5.00											Fig.2
Base Tape Width	W	18.00										±0.50	
Adhesive Tape Width	W_0	10.00			12.00							min	
Deviation between Holes and Base Tape	W_1	9.00										±0.50	
Deviation between Adhesive and Base Tape	W_2	1.50										max	
Deviation between Body Bottom and Tape Center	H	18.50										±0.75	Fig.1, Fig.2
Lead Wire Clinched Height	H_0	16.00										±0.50	
Distance between Body Top and Tape Center	H_1	32.00		35.00	33.00	35.00	38.00	42.00	38.00	42.00	52.00	max	
Punched Hole Diameter	D_0	4.00										±0.30	
Length of not Good Lead Slit	L_1	11.00										max	
Base and Adhesive Tape Thickness	t	0.70										±0.20	
Deviation of Body Alignment	Δh	0										±2.00	
Deviation of Body Alignment	$Δh_1$	0										±2.00	

*All dimensions in mm

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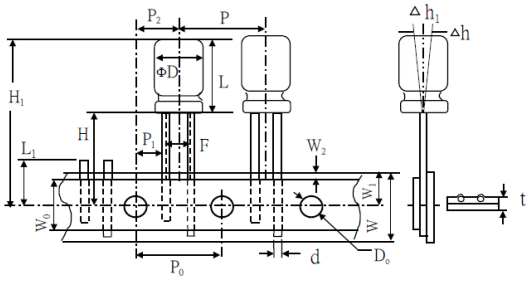
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REI Series

Items	Symbol	Case Size				Tolerance
		1220 1320	1225 1325	1330	1335	
Lead Wire Diameter	d	0.60				±0.05
Body Height	L	22.00	27.00	32.00	37.00	max
Intervals of Bodies	P	15.00				±1.00
Intervals of Punched Holes	P_0	15.00				±0.20
Distance between Holes and Lead Wire	P_1	5.00				±0.70
Distance between Holes and Bodies	P_2	7.50				±1.00
Distance between Lead and Lead	F	5.00				+0.80 -0.20
Base Tape Width	W	18.00				±0.50
Adhesive Tape Width	W_0	12.00				min
Deviation between Holes and Base Tape	W_1	9.00				±0.50
Deviation between Adhesive and Base Tape	W_2	1.50				max
Deviation between Body Bottom	H	18.50				±0.75
Distance between Body Top and Tape Center	H_1	42.00	47.00	52.00	57.00	max
Punched Hole Diameter	D_0	4.00				±0.30
Length of not Good Lead Slit	L_1	11.00				max
Base and Adhesive Tape Thickness	t	0.70				±0.20
Deviation of Body Alignment	Δh	0				±2.00
Deviation of Body Alignment	$Δh_1$	0				±2.00

*All dimensions in mm

Fig. 3 (Φ12~13)



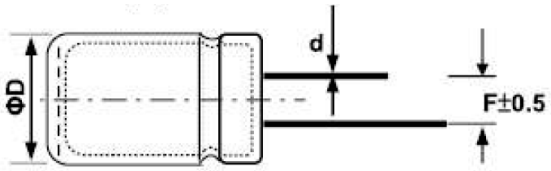
BULK PACKING

Size Code	Bulk			Ammo Taping	
	Bag / Box		Carton	Box	Carton
0511	Bag	1000	20,000	2000	20,000
0611	Bag	1000	16,000	1500	15,000
0615	Bag	1000	10,000	1500	15,000
0812	Bag	500	9000	1000	10,000
0814	Bag	500	8000	1000	10,000
0816	Bag	500	8000	1000	10,000
0820	Bag	500	6000	1000	8000
0835	Bag	500	5000	-	-
0840	Bag	1276	5104	-	-
1016	Bag	200	3600	600	3000
1020	Bag	200	3600	600	3000
1030	Bag	150	2700	600	3000
1220	Bag	150	2100	400	2400
1225	Bag	150	2100	400	2400
1320	Bag	150	2100	400	2400
1325	Bag	150	1800	400	2400
1330	Bag	100	1400	400	2400
1335	Bag	100	1400	400	2400
1620	Box	390	1560	-	-
1625	Box	390	1560	-	-
1626	Box	390	1560	-	-
1635	Box	390	1560	-	-
1640	Box	390	1560	-	-
1825	Box	286	1144	-	-
1830	Box	286	1144	-	-
1840	Box	286	1144	-	-

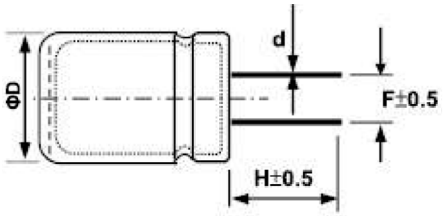
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TERMINATION TYPE

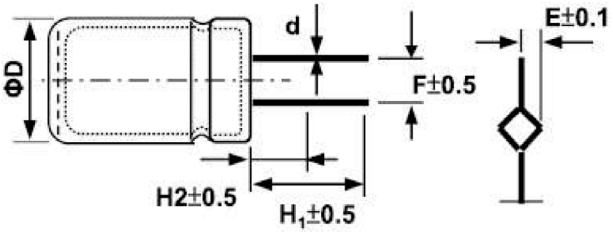
Letter " ": Empty = Standard Long lead.



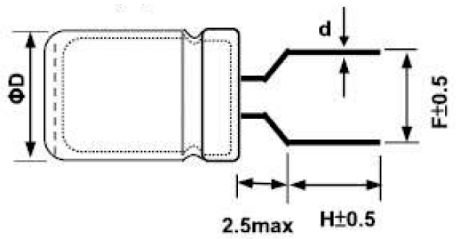
Letter "C": Lead cut only.



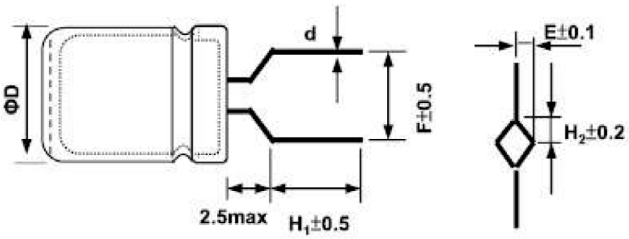
Letter "D": Lead cut and crimp.



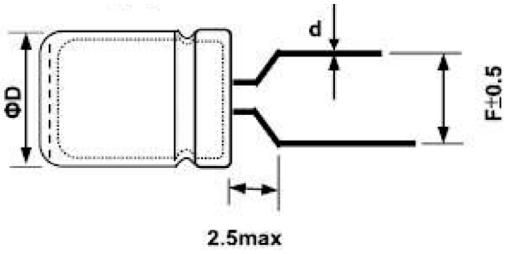
Letter "F": Lead cut and form.



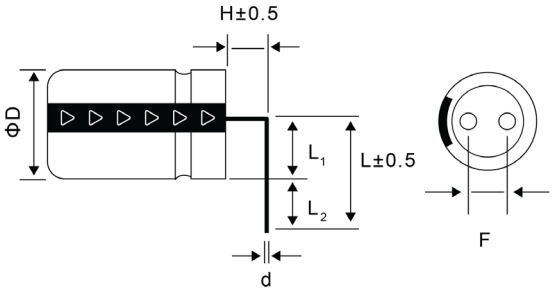
Letter "H": Lead cut, crimp, and form.



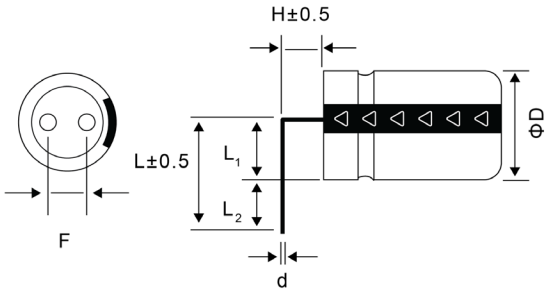
Letter "B": Forming only.



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



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



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TERMINATION TYPE

Letter	Termination Type	Dø	5ø	6.3ø	8ø	10ø	12.5ø	13ø	16ø	18ø
	Standard long lead	F	2.00	2.50	3.50	5.00	5.00	5.00	7.50	7.50
		d	0.50	0.50	0.50	0.60	0.60	0.60	0.80	0.80
C	Lead cut only	F	2.00	2.50	3.50	5.00	5.00	5.00	7.50	7.50
		H	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
		d	0.50	0.50	0.50	0.60	0.60	0.60	0.80	0.80
D	Lead cut and crimp	E	1.12	1.12	1.32	1.32	1.32	1.32	1.32	1.32
		F				5.00	5.00	5.00	7.70	7.50
		H_1				5.00	5.00	5.00	5.00	5.00
		H_2				1.80	1.80	1.80	1.80	1.80
		d				0.60	0.60	0.60	0.80	0.80
F	Lead cut and form	F	5.00	5.00	5.00					
		H	5.00	5.00	5.00					
		d	0.50	0.50	0.50					
H	Lead, cut, crimp, and form	E	1.12	1.12	1.32	1.32	1.32	1.32	1.32	1.32
		F	5.00	5.00	5.00					
		H_1	5.00	5.00	5.00					
		H_2	1.80	1.80	1.80					
		d	0.50	0.50	0.50					
B	Forming only	F	5.00	5.00	5.00					
		d	0.50	0.50	0.50					
L/Z	Lead cut and bend	F	2.00	2.50	3.50	5.00	5.00	5.00	7.50	7.50
		H	2.00	2.00	2.50	2.50	2.50	2.50	2.50	2.50
		L_1	2.70	3.40	4.50	5.30	6.60	6.80	8.40	9.40
		L_2	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
		d	0.50	0.50	0.50	0.60	0.60	0.60	0.80	0.80

*All dimensions in mm.

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