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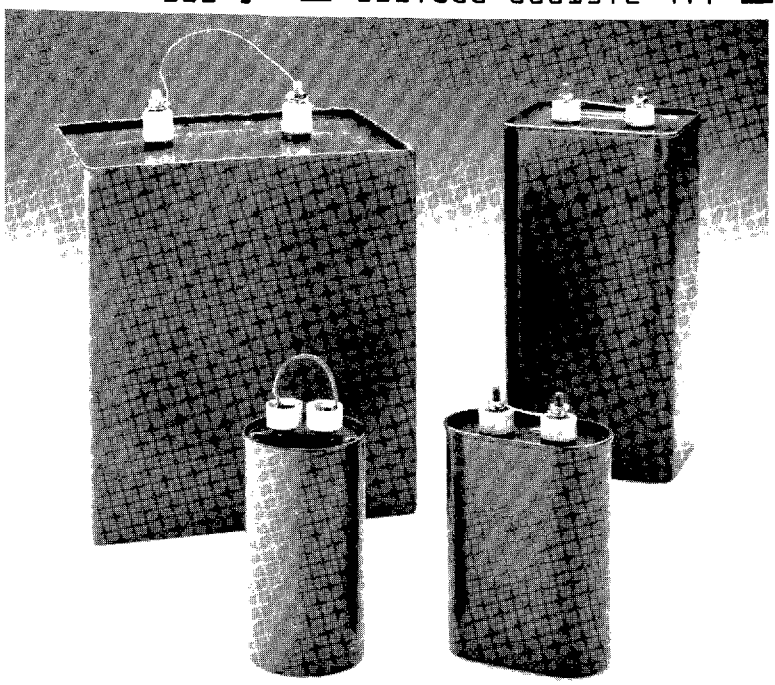
A-E5.27

PULSE CAPACITORS FOR FLASH LAMP APPLICATIONS

TECHNOLOGY ADVANCEMENT FOR THE 1990's

- Latest series in Aerovox's family of metallized electrode energy discharge (MetEDC) pulse capacitors
- 2.5 times the energy densities and half the size and weight of competitive products
- Increased Life Expectancy
- Maximum rating to 1600 uF and 10,000 Volts DC



PULSE CAPACITORS

Aerovox's new series of metallized electrode energy discharge (MetEDC) pulse capacitors provides a highly reliable cost-effective source of energy storage for a variety of applications such as airport tower and runway lights, flash lamps for copiers and numerous high intensity flashing industrial lights.

The new MetEDC pulse capacitor designs are half the size and weight of competitive designs yet they safely store up to five joules of energy per cubic inch. Ratings are available up to 1600 uF in two distinct voltage ranges: type Z from 500 to 2,000 Vdc, and type Y from 2,000 to 5,000 Vdc. Standard designs from 1,000 to 5,000 Vdc are tabulated in this catalog. Special designs are also available up to 10,000 Vdc. Capacitance tolerance is ±10% for type Y and ±6% for type Z.

The capacitors are constructed of wound, metallized electrode sections enclosed in a case of terneplate steel which is more resistant to dents than aluminum. The solid dielectric material is impregnated with a specifically designed, non-PCB fluid. Steel covers are roll-seamed to the cases, using a sealant to ensure leakproof enclosures.

Standard can heights range from 3⅞" to 9" and are available in round, oval and rectangular cases. The latter style includes 6" × 8" welded casements.

Terminals are either the male quick-connect QC pressure type or the threaded stud variety. Single or multiple lug QC terminals are used with cup type Valox bushings up to 600 Amps peak and 15 Amps RMS. Both short and tall post-type terminals with porcelain bushings and #10-32 or #1/4-20 threaded steel studs are also available for peak currents through 2,000 Amps peak/30 Amps RMS and 6,000 Amps peak/60 Amps RMS, respectively.

Both Y and Z type capacitors pass a rigorous series of tests to ensure consistently high levels of product quality. Units are heat tested to check fluid seal and then tested for terminal-to-case current leakage and terminal-to-terminal withstand voltage. Each capacitor is also tested for a uniformly repeatable charge and discharge wave shape ensuring virtually no loss in stored energy prior to firing.

A master form for specifying your company's MetEDC pulse capacitor applications is provided in this catalog. Individual product specifications may be called, mailed, or even faxed to your Aerovox product specialist. Capacitor designs will then be tailored, built and tested to your specific needs.

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PULSE CAPACITORS

PART NUMBER	CAPACI-TANCE IN uFD	VDC	CASE SIZE (INCHES) BASE (W x L)	x HEIGHT (H)	STORED ENERGY IN JOULES	ENERGY DENSITY J/CU. IN.	WEIGHT	TERMINAL OPTIONS (REFER TO FIGURE NOTES)	MAXIMUM PEAK CURRENT AT 2 CYCLES/SEC	LIFE IN MILLIONS OF CYCLE AT 45C
ZR102EW080P	80	1000	2.5 Round	x 3.88	40J	2.3	0.8 lbs.	5	500 amps	100
ZD102EW220P	220	1000	2.84x4.56 Rect.	x 5.88	110J	1.6	2.9 lbs.	3,4	1100 amps	70
ZD102EW540P	540	1000	3.75x4.56 Rect.	x 9	270J	1.9	5.7 lbs.	3,4	700 amps	45
ZM102EH160P	1600	1000	6x8 Welded Rect.	x 9	800J	2.0	19.0 lbs.	6	1000 amps	30
ZR152EW045P	45	1500	2.5 Round	x 3.88	51J	2.9	0.8 lbs.	5	400 amps	45
ZD152EW100P	100	1500	2.84x4.56 Rect.	x 5.88	112J	1.6	2.9 lbs.	3,4	750 amps	70
ZD152EW240P	240	1500	3.75x4.56 Rect.	x 9	270J	1.9	5.7 lbs.	3,4	1000 amps	45
ZM152EW700P	700	1500	6x8 Welded Rect.	x 9	788J	2.0	19.0 lbs.	6	1500 amps	30
YL202EW030R	30	2000	1¾ Oval	x 4.88	60J	3.2	1.1 lbs.	1,2	600 amps	50
YL202EW055R	55	2000	2 Oval	x 5.88	110J	3.4	1.8 lbs.	1,2	1500 amps	50
YD202EW110R	110	2000	2.84x4.56 Rect.	x 5.88	220J	3.2	3.6 lbs.	3,4	2000 amps	50
YD202EW235R	235	2000	3.75x4.56 Rect.	x 9	470J	3.3	7.2 lbs.	3,4	900 amps	50
YL352EW013R	13	3500	1¾ Oval	x 4.88	80J	4.3	1.1 lbs.	1,2	600 amps	7
YL352EW025R	25	3500	2 Oval	x 5.88	153J	4.8	1.8 lbs.	1,2	1300 amps	7
YD352EW050R	50	3500	2.84x4.56 Rect.	x 5.88	306J	4.4	3.6 lbs.	3,4	2000 amps	7
YD352EW120R	120	3500	3.75x4.56 Rect.	x 9	735J	5.1	7.1 lbs.	3,4	1000 amps	7
YL502EW006R	6	5000	1¾ Oval	x 4.88	75J	4.0	1.1 lbs.	1,2	600 amps	15
YL502EW012R	12	5000	2 Oval	x 5.88	150J	4.7	1.8 lbs.	1,2	900 amps	15
YD502EW024R	24	5000	2.84x4.56 Rec.	x 5.88	300J	4.3	3.5 lbs.	3,4	1800 amps	15
YD502EW056R	56	5000	3.75x4.56 Rect.	x 9	700J	4.9	7.0 lbs.	3,4	1500 amps	15

Dimensions are for standard sizes. Consult Aerovox for custom design.

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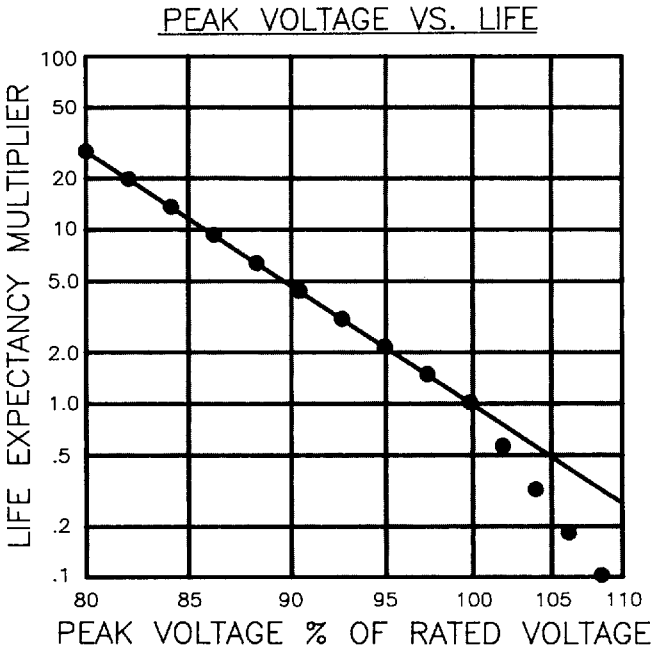
Derating Charts



Flash Lamp Capacitor Characteristics

Z and Y Type
Maximum d.f. = 0.15% at 60Hz
Operating temperature range: 0°C to 65°C

Z Type — 500 VDC to 2,000 VDC
Maximum capacitance:
1,600 uF at 1,000 VDC
400 uF at 2,000 VDC

Y Type — 2,000 VDC to 5,000 VDC
Maximum capacitance:
235 uF at 2,000 VDC
56 uF at 5,000 VDC

FIGURE 7

Life vs. Operating Stress

The life vs. operating stress relationship for the high energy density capacitors is shown in Figure 7. Life is based on a nominal shot cycle with a charge and hold time, and a discharge into a load with less than 10% reversal at the peak current shown. High reversals or long hold times will reduce the life of the capacitors.

——— = Y TYPE

● ● ● = Z TYPE

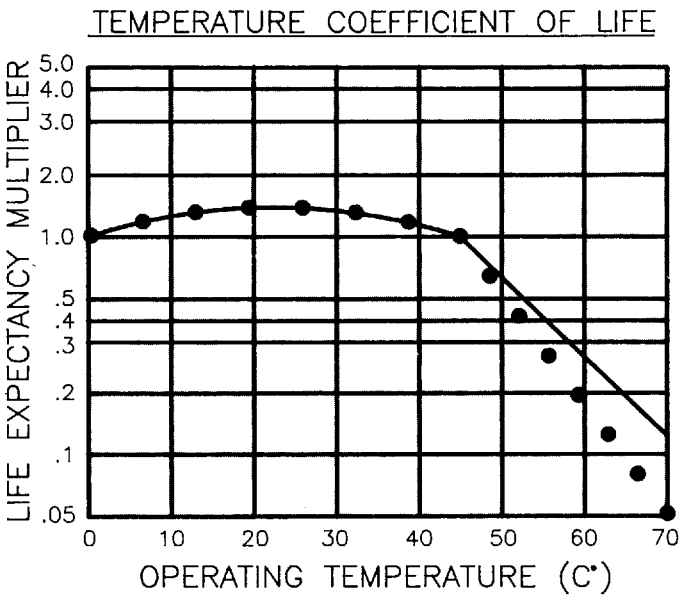


FIGURE 8

Life vs. Temperature

Figure 8 shows the relationship between life and temperature. The life of the capacitors is reduced by increased operating temperatures.

——— = Y TYPE

● ● ● = Z TYPE

To: EDC Marketing AEROVOX INC

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63E D

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Title

Company

Address

Zip

Phone

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Date

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PULSE CAPACITOR INQUIRY FORM FOR FLASH LAMP APPLICATIONS

Data Required:

To determine the MetEDC pulse capacitor that will best meet requirements for your company's flash lamp application, please provide the following data:

Application _____

Purpose: Production _____ Development _____ Budgetary _____

Quantities: Annual _____ One Time _____ Projected _____

Customer Spec _____

Competition: Mfgr _____ P/N _____ Price _____

Capacitance _____ Tolerance _____ Energy _____

Voltage: Rated _____ Test _____ Oper _____ Peak _____ RMS _____

Voltage Reversal: Normal _____%, Fault _____%, No. of Faults _____

Discharge Current: Rated _____ Test _____ Oper _____ Peak _____ RMS _____

Duty Cycle _____ Rep Rate _____ Time On Charge _____

Ripple Current: Peak _____ RMS _____ Freq _____

Ambient Temp: Normal Operating _____ Max. Oper _____ Storage _____

Life Expt _____ Size Limits _____

Max Inductance _____ Bushings _____

Operating Environment: _____

_____

_____

for FLASH APPLICATIONS

OVAL/RECTANGULAR CASE

FIG. 1

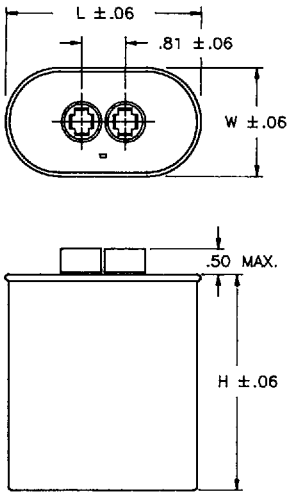


FIG. 2

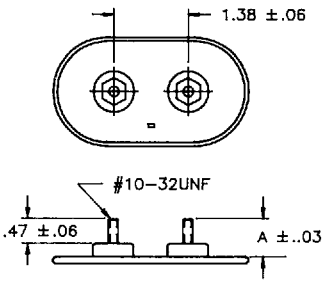


FIG. 3

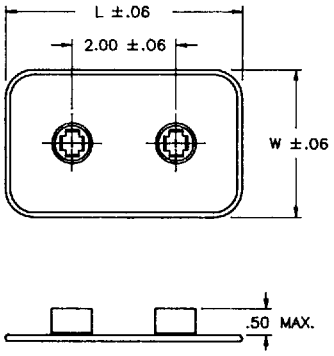
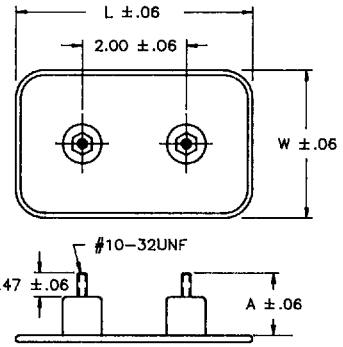


FIG. 4



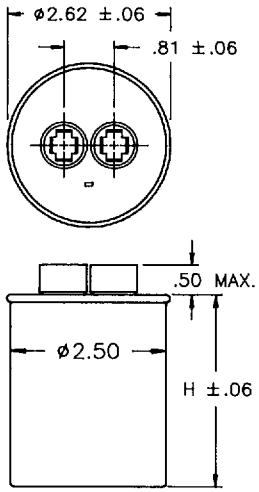
CASE SIZE	DIMENSIONS L	W	H
1 3/4 OVAL	2.91	1.91	4.88 5.88 6.88
2" OVAL	3.66	1.97	4.88 5.88 6.88 7.25 9.00
SMALL RECTANGLE	4.56	2.84	4.88 5.88 6.84 7.25 9.00
LARGE RECTANGLE	4.56	3.75	7.22 9.00

OVERALL HEIGHT OF STUDDED TERMINAL DIMENSION (A) FIGURES 2,4 & 6

SHORT	.81
TALL	1.19

ROUND CASE

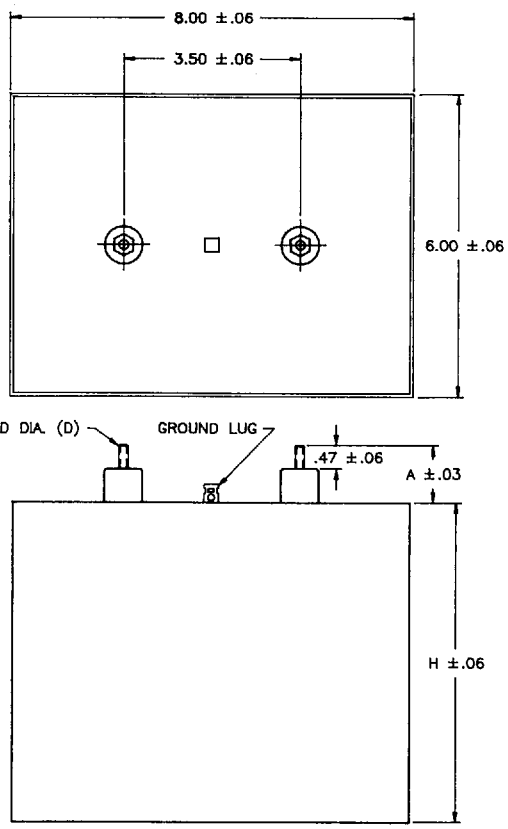
FIG. 5



STANDARD CAN HEIGHT DIMENSION (H)
3.88
4.75
4.88
5.88
6.88

WELDED CASEMENTS

FIG. 6



DIMENSION (D)
#10–32 OR 1/4–20

DIMENSION (H)
MULTIPLE HEIGHTS AVAILABLE

Dimensions are for standard sizes. Consult Aerovox for custom design.

Case Size and Terminal Selection

The case sizes shown in this catalog represent the most common drawn cans offered by Aerovox as well as a typical welded casement. As the largest manufacturer of oil filled capacitors in the U.S., Aerovox can accommodate most shape requirements for large volume items.

Terminal selection is based on the current carrying requirements of the application.

Application Evaluation

For an application evaluation, please fill in the Inquiry Form provided in this catalog and forward it to Aerovox, attention EDC Product Manager.

Crowbar Discharge

The metallized electrode that makes it possible for Aerovox to offer capacitor designs that feature reliable high energy densities with no infantile failure mode imposes a limit on the maximum current that such a capacitor can deliver. Consequently, metallized electrode capacitors cannot survive "crowbar" discharges from rated voltage through very low impedance loads since the resultant current causes the electrode to fracture. In an effort to supply adequate application and performance information to the user, Aerovox offers the following caution:

> The MetEDC pulse capacitors described in this catalog are constructed with thin electrodes that may be destroyed in a single low impedance discharge. Exceeding the peak current limits may cause permanent damage to the capacitor.

Handling Procedures

Shorting wires should be connected between the terminals of any capacitor when it is not in use. Shock may result from contact with the terminals of a unit that has not been fully discharged.

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