

# AMERICAN CAPACITOR CORPORATION

TECHNICAL  
INFORMATION  
BROCHURE



# AMERICAN PART NUMBER DESCRIPTION

H L 3 G 205 K \* -5

## DIELECTRICS

A = High-Voltage Mylar  
 B = High-Voltage Metallized Mylar  
 C = Metallized Mylar & Polypropylene  
 D = Metallized Mylar  
 EP-M = Metallized Paper and/or Plastic Film  
 EP-W = Metallized Paper and/or Plastic Film  
 F = K F Film Polymer  
 G = Metallized K F Film Polymer  
 H = Metallized Polycarbonate  
 J = Polycarbonate & Foil  
 K = Kapton & Foil  
 M = Mylar & Foil  
 N = Metallized Polypropylene  
 P = Polypropylene & Foil  
 Q = Metallized Polysulfone  
 S = Polystyrene & Foil  
 T = Teflon & Foil  
 U = Metallized Teflon  
 V = SuperMetallized Polypropylene  
 Z = SuperMetallized Polypulse

Other Dielectrics or combinations of Dielectrics are available, please contact American's Engineering Department.

## STYLE

B = Bathtub Can  
 C = Can  
 E = Epoxy Case Axial  
 F = Epoxy Case Radial  
 G = Metal Tube Rectangular Floating Case  
 H = Metal Tube Rectangular Case Terminal  
 J = Metal Tube Rectangular Case Grounded  
 K = Metal Tube Round Case Grounded  
 L = Metal Tube Round Floating Case  
 M = Metal Tube Round Case Terminal  
 N = Metal Tube Rnd Feed-Thru(Threaded Neck)  
 P = Feed Through Round Wrap & Fill  
 Q = Feed Through Round Wrap No Fill  
 R = Round Wrap & Fill Axial  
 T = Round Epoxy Case Axial  
 U = Round Wrap & Fill Radial  
 V = Oval Wrap & Fill Radial  
 W = Oval Wrap & Fill Axial

Other Styles are readily available, please contact American's Engineering Department with your special requirements.

## VOLTAGES

A = 10V  
 B = 25V  
 C = 50V  
 D = 100V  
 E = 200V  
 F = 300V  
 G = 400V  
 H = 500V  
 J = 600V  
 K = 700V  
 L = 800V  
 M = 1000V  
 N = 1200V  
 P = 1500V  
 R = 2000V  
 S = 35V  
 T = 120V  
 U = 230V  
 V = 360V  
 W = 480V  
 X = Times 10  
 Y = Times 100  
 Z = AC Rated

Any 2 or more may be combined for other voltages. ie: ABZ = 35VAC

## SIZE / CONFIGURATION

0 = Special  
 1 = Ultra Miniature  
 2 = Miniature  
 3 = Regular  
 4 &  
 up = Other Non-Standard Sizes and Configurations.

Custom Sizes and configurations are available to meet customer requirements.

\* When the size code is a "0" then another sequenced number will follow the tolerance letter. (With no dash "-")

## TOLERANCE

A = ± 0.1% ♦  
 B = ± 0.25% ♦  
 D = ± 0.5% ♦  
 F = ± 1% ♦  
 G = ± 2% ♦  
 H = ± 3% ♦  
 J = ± 5%  
 K = ± 10%  
 M = ± 20%  
 N = ± 30%  
 P = GMV  
 S = -10% +30%  
 T = -10% +50%  
 V = -10% +20%  
 X = Special Tol.

♦ Temperature Stabilized

## CAPACITANCE

In Picofarads - The First two digits indicate the value; The third digit (or the last digit if more than three digits) is the multiplier.

Symbol	Multiplier
0	= 1
1	= 10
2	= 100
3	= 1,000
4	= 10,000
5	= 100,000
6	= 1,000,000
7	= 10,000,000

## ACCESSORIES

For use with metal tubes & Style "P" only. (With a dash "-")

- 1 = Tangential Bracket
- 2 = Threaded Neck Term.
- 3 = Flat Lug Terminal
- 4 = 90° Lug Terminal
- 5 = Insulating Sleeve
- 6 = Stud Mounting

# ACCESSORIES AND HARDWARE FOR HERMETICALLY SEALED METAL TUBES

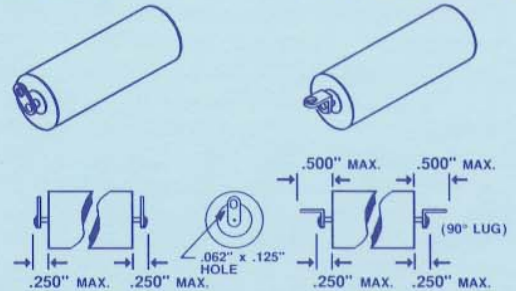
## CIRCUIT STYLES

HERMETICALLY SEALED STYLES

RECTANGULAR CASE STYLE	ROUND CASE STYLE	CIRCUIT SCHEMATIC	STYLE NOTES
G	L		CASE FLOATING
J	K		CASE GROUNDED (DEDUCT .062" FROM CASE LENGTH)
H	M		CASE TERMINAL (DEDUCT .062" FROM CASE LENGTH)
-	N		FEED THROUGH (THREADED NECK ONLY)

## LUG TERMINAL ACCESSORY - 3

## 90° LUG TERMINAL ACCESSORY - 4



## TANGENTIAL BRACKET ACCESSORY - 1

TUBE DIA.	BRACKET DIMENSIONS				
D	A	B	C	E	F
.400" & .500"	.144"	.187"	.312"	.250"	.032"
≥ .562"	.156"	.250"	.437"	.500"	.048"

.400" & .500" Tubes have a 135° bracket wrap around.  
Other styles and sizes available on special order.

## THREADED NECK MOUNTING ACCESSORY - 2

Lead wire size No. 20 AWG. Lug terminal has a .062" x .125" hole.

**NOTES:**  
Threaded neck styles available in .400" case diameters and up only. Other threaded neck sizes and body lengths are available on special order. The Standard threaded neck has two flats. An internal tooth lock washer of plated phosphor bronze and a 5/16 - 24 UNF - B2 plated brass nut is supplied with each unit.

## INSULATING SLEEVE ACCESSORY - 5

D ADD .015" TO DIAMETER FOR SLEEVING

T AND W ADD .015" TO EACH DIMENSION FOR SLEEVING

## STUD MOUNTING ACCESSORY - 6

TUBE LENGTH	STUD CENTERS	STUD SIZE
L	S	H
.688" - .938"	.500"	4-40 x .437"
.875" - 1.125"	.625"	6-32 x .437"
1.250" - 1.500"	.750"	6-32 x .437"
1.625" - 2.062"	1.125"	6-32 x .437"
2.125" - 2.625"	1.375"	6-32 x .437"

TUBE LENGTH	STUD CENTERS	STUD SIZE
L	S	H
.688" - .938"	.500"	4-40 x .437"
1.000" - 1.125"	.625"	6-32 x .437"
1.188" - 1.500"	.750"	6-32 x .437"
1.562" - 2.000"	1.125"	6-32 x .437"
2.062" - & UP	1.375"	6-32 x .437"



# AMERICAN CAPACITOR CORPORATION

## **American Capacitor Corporation:**

American serves the Film Capacitor Market with both high volume catalog styles and special designs. Capacitors can be supplied in all dielectric systems and configurations, solving difficult size and voltage applications. The manufacturing facility located in Irwindale, California, utilizes the most modern equipment in a controlled atmosphere.

Class 100 flow hoods are utilized in the winding process which enables us to provide extremely high quality capacitors, including capacitors that previously have been impossible to obtain.

The manufacturing staff consists of specialists in each phase of production with a combined experience level of well over 100 years.

We are proud to supply the highest quality capacitors available with the best possible delivery.

## **Engineering:**

We have a complete engineering staff with over 40 years experience in capacitor design and development. Designs are handled quickly through the use of computer aided design, obtaining the optimum design.

If our company can't help you, FOR ANY REASON, we'll give you the name of someone who can.

We'll give you ALL the alternatives.

## **Quality Assurance:**

American is an approved Mil-I-45208 manufacturer, FSCM 59366. Each capacitor is 100% tested twice, first in section form, then in final form. Our quality is closely monitored by our Q.A. department throughout the manufacturing process with a final AQL inspection performed prior to every shipment. Our Q.A. manager has over 30 years experience in quality control and related fields.

## **AC Capacitors:**

AC rated metallized units with greater than 3 times the normal current capability, high corona start voltage and operation to 1 Megahertz are readily available.

## **High Voltage:**

High voltage capacitors are available in standard industrial sizes and voltages along with an ultra miniature series which is usually less than 50% of the standard size, in some cases 25% of the standard size.

Custom shapes and sizes with much shorter lengths are readily available.

## **Wrap & Fill:**

Capacitors are wrapped in a skin tight plastic tape and then filled with epoxy on the ends. The most economical of the packaging methods. Available in Axial Leaded, Oval (Style W); Axial Leaded, Round (Style R); Radial Leaded, Oval (Style V); and Radial Leaded, Round (Style U).

## **Epoxy Case:**

Capacitors are encased in a molded epoxy/plastic shell with epoxy fill. Available in Axial Leaded, Rectangular (Style E); Radial Leaded, Rectangular (Style F); and Axial Leaded, Round (Style T).

## **Feed Through:**

Round Feed Through capacitors, in a skin tight plastic wrap with solderable ends (Style Q). The hole in the center of the capacitor is either a Teflon Tube, Paper Tube or Phenolic Tube ranging in sizes from just a wire to a large threaded stud to fit through. The majority of Feed Throughs are custom made to exact customer requirements. They are very popular in filter applications.

## **Hermetic Seal:**

Hermetically sealed capacitors are supplied in both the standard Floating case Round Metal Tube (Style L); and the Floating case Rectangular Metal Tube (Style G); along with Case Grounded, Case Terminal, and Feed Through.

Also available are the standard Bath Tub Metal Cans along with Cans of any size or shape needed for special customer application.

## **Military Specifications**

American Capacitor manufac-

tures capacitors to meet several Mil-Specs including the following.

MIL-C-25 Fixed Paper Dielectric, DC, Hermetically Sealed in Metal Cases.

MIL-C-11693 Fixed Paper/Film Dielectric, Feed-Through, Hermetically Sealed in Metal Cases.

MIL-C-14157 Fixed Paper, Paper-Plastic or Plastic Dielectric, DC, Hermetically Sealed in Metal Cases.

MIL-C-18312 Fixed Metallized Paper, Paper-Plastic or Plastic Film Dielectric, DC, Hermetically Sealed in Metal Cases.

MIL-C-19978 Fixed Plastic or Paper-Plastic Dielectric, Hermetically Sealed in Metal, Ceramic or Glass Cases.

MIL-C-27287 Fixed Plastic Dielectric, DC, in Non-Metallic Cases.

MIL-C-39022 Fixed Metallized Paper-Plastic Film or Plastic Film Dielectric, DC and AC, Hermetically Sealed in Metal Cases.

MIL-C-55514 Fixed Plastic or Metallized Plastic Dielectric, DC, in Non-Metallic Cases.

MIL-C-83421 Fixed SuperMetallized Plastic Film Dielectric, DC, AC and AC-DC, Hermetically Sealed in Metal Cases.

MIL-C-83439 Fixed Feed-Through, EMI suppression, DC, AC and AC-DC, Hermetically Sealed in Metal Cases.

MIL-STD-202 Test methods for electronic and electrical component parts.

## **DIELECTRICS**

### **Mylar (Polyester):**

A good general purpose dielectric with relatively low cost and high volumetric efficiency. Still the most popular of the dielectrics. Available in both Metallized and Foil designs.

### **Combination Film:**

Combination Mylar and Polypropylene. Extremely low temperature coefficient in the 0°C to 85°C temperature range. Volumetric efficiency similar to polycarbonate.

# AMERICAN CAPACITOR CORPORATION

## **KF (Polymer):**

Extremely high volumetric efficiency with about 4 times the "K Factor" of mylar, making it about 1/4 the size. Higher DF and lower IR are its disadvantages along with cost.

## **Polycarbonate:**

Lower DF, higher IR, better temperature coefficient and better stability than mylar with a slightly lower volumetric efficiency. Second most popular Dielectric.

## **Kapton:**

Electrical properties similar to mylar with a much higher operating temperature going up to 250°C. A higher cost than mylar limits its use.

## **Polypropylene:**

Very good temperature coefficient high IR, and low DF make it good for AC operation. Usable to 105°C without derating. Has become increasingly popular for AC applications. Available in both Metallized and foil constructions.

## **Polysulfone:**

Electrical properties similar to polycarbonate with a very good temperature coefficient and higher operating temperature. Very limited availability in the last few years has limited its use.

## **Polystyrene:**

Very good electrical properties and excellent stability are its advantages. Its big disadvantage is its operation is limited to below 85°C and it is available in foil construction only.

## **SuperMetallized Polypropylene:**

A very high current design for very high frequencies up to 1 Megahertz. The ultimate in high current, significantly larger than SuperMetallized Polypulse. Very useful for the smaller capacitance values. Also popular in snubber applications.

## **SuperMetallized Polypulse:**

Developed by American Capacitor specifically for switching power supply type applications. They are used

for input filtering, high frequency transformer DC blocking and output filtering. They are dry-section non-polar metallized film dielectric with special high current end terminations resulting in very low ESR values and very high DV/DT ratings. They are significantly smaller than metallized polypropylene capacitors and have a 100% voltage rating from -55°C to +125°C. Capacitance change over temperature is 4 times better than with polypropylene.

## **Teflon:**

The best electrical properties of all the Dielectrics. Extremely high IR, low DF and operation to 250°C. Available in both metallized and foil constructions.

## TECHNICAL TERMS

### **Capacitance:**

A measure of the energy storage ability of a capacitor, given as  $C = K A/D$ , where  $A$  is the area of the electrodes,  $D$  is their separation, and  $K$  is a function of the dielectric between the electrodes. The formula yields a result in farads ( $F$ ), but a farad is so large that the most commonly used values are expressed in microfarads ( $\mu f = 10^{-6}F$ ) or picofarads ( $pf = 10^{-12}F$ ).

### **Working voltage (WVDC, WVAC):**

The maximum continuous voltage that should be applied to a capacitor. Rated voltages for DC and AC operation are usually not the same.

### **Temperature Coefficient (TC):**

The change in capacitance with temperature expressed linearly as parts per million per degree centigrade (PPM/°C), or as a percent change over a specified temperature range. Most film capacitors are not linear and TC is expressed in percent.

### **Dissipation Factor (DF):**

A measure of the power factor (or losses) of a capacitor, given as  $DF = 2 \pi fRC \times 100\%$ , where  $R$  is the equivalent series resistance of the

capacitor,  $f$  is the frequency, and  $C$  is capacitance. Dissipation factor varies with frequency and temperature.

### **Equivalent Series Resistance (ESR):**

A measure of the total lossiness of a capacitor which includes the leads, electrodes, dielectric losses, leakage (IR) and most important, the end spray connecting the leads to the metallized film. The lower the ESR the higher the current carrying ability the capacitor will have.

### **Insulation Resistance (IR):**

A measure of the resistance to a DC current flow through the capacitor under steady state conditions. Values for film and ceramic capacitors are usually expressed in megohm-microfarads for a given design and dielectric. The actual resistance of the capacitor is obtained by dividing the megohm-microfarads by the capacitance.

### **Dielectric Absorption (DA):**

An apparent "recovery voltage" measured after the capacitor is discharged and expressed as a percent of the initial charge voltage. DA is due largely to the dipole moment of the dielectric and to lesser degree the migration of free electrons to the surface of the dielectric.

### **Volumetric efficiency:**

Energy density in  $\mu f$ -volts per cubic inch, from: (capacitance) X (working voltage) ÷ (volume).

Longer capacitors are more efficient than shorter units, because of volume used by encapsulation and unused dielectric at the capacitor ends (The margins). Cylindrical units have a smaller volume than rectangular units, although rectangular units can be stacked more compactly.

### **Corona:**

Any electrically detectable, field intensified ionization that does not result immediately in complete breakdown of the insulation and electrode system in which it occurs. Its incidence can be reduced or avoided through special designs.

# CROSS REFERENCE CHART

CASE TYPE	DIELECTRIC	SIZE	AMERICAN CAPACITOR CORPORATION	ASC (AMERICAN SHIZUKI) • TRW • GOOD-ALL	AMERICAN RADIONIC COMPANY	BISHOP ELECTRONIC CORP.	COMPONENT RESEARCH COMPANY	ELECTRO-CUBE	ELECTRON PRODUCTS • TRW • WK • ITT JENN. • MARSHAL IND.	ELECTRONIC CONCEPTS INC.
WRAP & FILL OVAL, AXIAL	METALLIZED MYLAR (POLYESTER)	MINIATURE	DW2	*	*	A11	*	230B	DM	*
		REGULAR	DW3	X663F	2MFW	*	*	210B	D	ME22
	METALLIZED POLYCARBONATE	MINIATURE	HW2	*	*	C11	*	650B	HM	*
		REGULAR	HW3	*	MPFW	*	*	625B	H	MC22
	METALLIZED POLYPROPYLENE	MINIATURE	NW2	*	*	H11	*	910B	NM	*
		REGULAR	NW3	*	*	*	*	*	N	MP22
	SUPERMETALLIZED POLYPULSE	MINIATURE	ZW2	*	*	*	*	*	ZM	*
		REGULAR	ZW3	*	*	*	*	*	Z	*
	MYLAR (POLYESTER) & FOIL	MINIATURE	MW2	*	*	B11	*	250B	EM	*
		REGULAR	MW3	663F	*	*	*	*	E	ET22
	POLYPROPYLENE & FOIL	MINIATURE	PW2	*	*	F11	*	950B	PM	*
		REGULAR	PW3	*	*	*	*	*	P	PT22
WRAP & FILL ROUND, AXIAL	METALLIZED MYLAR (POLYESTER)	MINIATURE	DR2	*	*	A21	*	230D	DMC	*
		REGULAR	DR3	*	*	*	*	210D	DC	ME12
	METALLIZED POLYCARBONATE	MINIATURE	HR2	*	*	C21	*	650D	HMC	*
		REGULAR	HR3	X463UW	MPW	*	*	625D	HC	MC12
	METALLIZED POLYPROPYLENE	MINIATURE	NR2	*	*	H21	*	910D	NMC	*
		REGULAR	NR3	X363UW	*	*	*	*	NC	MP12
	SUPERMETALLIZED POLYPULSE	MINIATURE	ZR2	*	*	*	*	*	ZMC	*
		REGULAR	ZR3	*	*	*	*	*	ZC	*
	MYLAR (POLYESTER) & FOIL	MINIATURE	MR2	*	*	B21	*	250D	EMC	*
		REGULAR	MR3	663UW	*	*	*	*	EC	ET12
	POLYPROPYLENE & FOIL	MINIATURE	PR2	*	*	F21	*	950D	PMC	*
		REGULAR	PR3	*	*	*	*	*	PC	PT12
EPOXY CASE RECTANGULAR, AXIAL	METALLIZED MYLAR (POLYESTER)	MINIATURE	DE2	*	*	A31	*	231A	DME	*
		REGULAR	DE3	*	2MABPC	*	*	*	DE	ME42
	METALLIZED POLYCARBONATE	MINIATURE	HE2	*	MPABPC	C31	*	653A	HME	*
		REGULAR	HE3	*	XMPABPC	*	*	*	HE	MC42
	METALLIZED POLYPROPYLENE	MINIATURE	NE2	*	*	H31	*	911A	NME	*
		REGULAR	NE3	*	*	*	*	*	NE	MP42
	SUPERMETALLIZED POLYPULSE	MINIATURE	ZE2	*	*	*	*	*	ZME	*
		REGULAR	ZE3	*	*	*	*	*	ZE	*
	MYLAR (POLYESTER) & FOIL	MINIATURE	ME2	*	*	B31	*	*	EME	*
		REGULAR	ME3	*	*	*	*	*	EE	ET42
	POLYPROPYLENE & FOIL	MINIATURE	PE2	*	*	F31	*	951A	PME	*
		REGULAR	PE3	*	*	*	*	*	PE	PT42
EPOXY CASE RECTANGULAR, RADIAL	METALLIZED MYLAR (POLYESTER)	MINIATURE	DF2	*	*	A32	*	232A	DM2E	*
		REGULAR	DF3	*	2MBPC	*	*	*	D2E	ME43
	METALLIZED POLYCARBONATE	MINIATURE	HF2	*	MPBPC	C32	*	652A	HM2E	*
		REGULAR	HF3	X428	XMPBPC	*	*	*	H2E	MC43
	METALLIZED POLYPROPYLENE	MINIATURE	NF2	*	*	H32	*	912A	NM2E	*
		REGULAR	NF3	*	*	*	*	*	N2E	MP43
	SUPERMETALLIZED POLYPULSE	MINIATURE	ZF2	*	*	*	*	*	ZM2E	*
		REGULAR	ZF3	*	*	*	*	*	Z2E	*
	MYLAR (POLYESTER) & FOIL	MINIATURE	MF2	*	*	B32	*	*	EM2E	*
		REGULAR	MF3	*	*	*	*	*	E2E	ET43
	POLYPROPYLENE & FOIL	MINIATURE	PF2	*	*	F32	*	952A	PM2E	*
		REGULAR	PF3	*	*	*	*	*	P2E	PT43
METAL TUBE RECTANGULAR, AXIAL HERMETICALLY SEALED	METALLIZED MYLAR (POLYESTER)	REGULAR	DG3	*	*	*	*	234A	DG	ME72
	METALLIZED POLYCARBONATE	REGULAR	HG3	*	*	*	*	654A	HG	MC72
	METALLIZED POLYPROPYLENE	REGULAR	NG3	*	*	*	*	*	NG	MP72
	SUPERMETALLIZED POLYPULSE	REGULAR	ZG3	*	*	*	*	*	ZG	*
	MYLAR (POLYESTER) & FOIL	REGULAR	MG3	*	*	*	*	*	EG	ET72
	POLYPROPYLENE & FOIL	REGULAR	PG3	*	*	*	*	*	PG	PT72
METAL TUBE ROUND, AXIAL HERMETICALLY SEALED	METALLIZED MYLAR (POLYESTER)	REGULAR	DL3	X683	*	*	MA, MM, MX	233D	DL	ME62
	METALLIZED POLYCARBONATE	REGULAR	HL3	X483	*	*	A,B,G,K,P 12	651D	HL	MC62
	METALLIZED POLYPROPYLENE	REGULAR	NL3	*	*	*	B15, C15	*	NL	MP62
	SUPERMETALLIZED POLYPULSE	REGULAR	ZL3	*	*	*	*	*	ZL	*
	MYLAR (POLYESTER) & FOIL	REGULAR	ML3	617G	*	*	*	*	EL	ET62
	POLYPROPYLENE & FOIL	REGULAR	PL3	*	*	*	B55	*	PL	PT62

\* = NO cross available

Some Part Numbers may not be an exact cross, if in doubt consult the factory.

# CROSS REFERENCE CHART

ELPAC COMPONENTS	F-DYNE • SOUTHERN ELECTRONIC • CIRCLE ELECTRONIC	GUDEMAN CORP.	IMB ELECTRONIC • ELECTRO-CAP • MINI-COR	RELIABLE CAPACITOR • REL-CAP • HI-REL • ALISSA	S & E I MFG	SPRAGUE ELECTRIC • DEARBORN ELECTRIC	AMERICAN CAPACITOR CORPORATION	SIZE	DIELECTRIC	CASE TYPE
Z-A	MPE23	*	XA2, JA2	EFX, E2F	*	439P	<b>DW2</b>	MINIATURE	METALLIZED MYLAR (POLYESTER)	WRAP & FILL OVAL, AXIAL
ZD-A	MPE21	363	YA2, ZA2	VMF	*	149P, MPX	<b>DW3</b>	REGULAR	METALLIZED MYLAR (POLYESTER)	
C-A	MPC23	397	DA2, RA2	PMF	*	*	<b>HW2</b>	MINIATURE	METALLIZED POLYCARBONATE	
B-A, HS-A	MPC21	*	BA2	PCMF	22W	LP77	<b>HW3</b>	REGULAR	METALLIZED POLYCARBONATE	
*	MPP23	*	*	*	*	*	<b>NW2</b>	MINIATURE	METALLIZED POLYPROPYLENE	
P--A	MPP21	*	GA2	PPMF	*	*	<b>NW3</b>	REGULAR	METALLIZED POLYPROPYLENE	
*	*	*	*	*	*	*	<b>ZW2</b>	MINIATURE	SUPERMETALLIZED POLYPULSE	
*	*	*	*	*	*	*	<b>ZW3</b>	REGULAR	SUPERMETALLIZED POLYPULSE	
*	PE23	338	NA2	*	*	*	<b>MW2</b>	MINIATURE	MYLAR (POLYESTER) & FOIL	
MD-A	PE21	*	MA2	VF	*	148P	<b>MW3</b>	REGULAR	MYLAR (POLYESTER) & FOIL	
*	PP23	*	*	*	*	*	<b>PW2</b>	MINIATURE	POLYPROPYLENE & FOIL	
*	PP21	*	LA2	PPF	*	*	<b>PW3</b>	REGULAR	POLYPROPYLENE & FOIL	
Z-B	MPE13	*	XA1, JA1	ETX, E2T	*	430P, 431P	<b>DR2</b>	MINIATURE	METALLIZED MYLAR (POLYESTER)	WRAP & FILL ROUND, AXIAL
ZD-B	MPE11	364	YA1, ZA1	VMT	*	416P	<b>DR3</b>	REGULAR	METALLIZED MYLAR (POLYESTER)	
C-B	MPC13	396	DA1, RA1	PMT	*	LP88	<b>HR2</b>	MINIATURE	METALLIZED POLYCARBONATE	
B-B, HS-B	MPC11	*	BA1	PCMT	22R	LP66	<b>HR3</b>	REGULAR	METALLIZED POLYCARBONATE	
*	MPP13	*	*	*	*	*	<b>NR2</b>	MINIATURE	METALLIZED POLYPROPYLENE	
P--B	MPP11	*	GA1	PPMT	*	730P, 735P	<b>NR3</b>	REGULAR	METALLIZED POLYPROPYLENE	
*	*	*	*	*	*	*	<b>ZR2</b>	MINIATURE	SUPERMETALLIZED POLYPULSE	
*	*	*	*	*	*	*	<b>ZR3</b>	REGULAR	SUPERMETALLIZED POLYPULSE	
*	PE13	355	NA1	*	*	*	<b>MR2</b>	MINIATURE	MYLAR (POLYESTER) & FOIL	
MD-B	PE11	*	MA1	VT	*	*	<b>MR3</b>	REGULAR	MYLAR (POLYESTER) & FOIL	
*	PP13	*	*	*	*	*	<b>PR2</b>	MINIATURE	POLYPROPYLENE & FOIL	
*	PP11	*	LA1	PPT	*	*	<b>PR3</b>	REGULAR	POLYPROPYLENE & FOIL	
Z-X	MPE43	*	XV2, JV2	*	*	*	<b>DE2</b>	MINIATURE	METALLIZED MYLAR (POLYESTER)	EPOXY CASE RECTANGULAR, AXIAL
ZD-X	MPE41	323	YV2, ZV2	VMFE	*	450P, LM7A	<b>DE3</b>	REGULAR	METALLIZED MYLAR (POLYESTER)	
C-X	MPC43	*	DV2, RV2	*	*	*	<b>HE2</b>	MINIATURE	METALLIZED POLYCARBONATE	
B-X, HS-X	MPC41	317	BV2	PCMFE	22B	*	<b>HE3</b>	REGULAR	METALLIZED POLYCARBONATE	
*	MPP43	*	*	*	*	*	<b>NE2</b>	MINIATURE	METALLIZED POLYPROPYLENE	
P--X	MPP41	*	GV2	PPMFE	*	*	<b>NE3</b>	REGULAR	METALLIZED POLYPROPYLENE	
*	*	*	*	*	*	*	<b>ZE2</b>	MINIATURE	SUPERMETALLIZED POLYPULSE	
*	*	*	*	*	*	*	<b>ZE3</b>	REGULAR	SUPERMETALLIZED POLYPULSE	
*	PE43	*	NV2	*	*	*	<b>ME2</b>	MINIATURE	MYLAR (POLYESTER) & FOIL	
MD-X	PE41	*	MV2	VFE	*	*	<b>ME3</b>	REGULAR	MYLAR (POLYESTER) & FOIL	
*	PP43	*	*	*	*	*	<b>PE2</b>	MINIATURE	POLYPROPYLENE & FOIL	
*	PP41	*	LV2	PPFE	*	*	<b>PE3</b>	REGULAR	POLYPROPYLENE & FOIL	
Z-R	MPE53	*	XP2, JP2	*	*	*	<b>DF2</b>	MINIATURE	METALLIZED MYLAR (POLYESTER)	EPOXY CASE RECTANGULAR, RADIAL
ZD-R	MPE51	322	YP2, ZP2	VMH	*	LM7R	<b>DF3</b>	REGULAR	METALLIZED MYLAR (POLYESTER)	
C-R	MPC53	*	DP2, RP2	*	*	*	<b>HF2</b>	MINIATURE	METALLIZED POLYCARBONATE	
B-R, HS-R	MPC51	318	BP2	PCMH	22N	*	<b>HF3</b>	REGULAR	METALLIZED POLYCARBONATE	
*	MPP53	*	*	*	*	*	<b>NF2</b>	MINIATURE	METALLIZED POLYPROPYLENE	
P--R	MPP51	*	GP2	PPMH	*	*	<b>NF3</b>	REGULAR	METALLIZED POLYPROPYLENE	
*	*	*	*	*	*	*	<b>ZF2</b>	MINIATURE	SUPERMETALLIZED POLYPULSE	
*	*	*	*	*	*	*	<b>ZF3</b>	REGULAR	SUPERMETALLIZED POLYPULSE	
*	PE53	*	NP2	*	*	*	<b>MF2</b>	MINIATURE	MYLAR (POLYESTER) & FOIL	
MD-R	PE51	*	MP2	VH	*	*	<b>MF3</b>	REGULAR	MYLAR (POLYESTER) & FOIL	
*	PP53	*	*	*	*	*	<b>PF2</b>	MINIATURE	POLYPROPYLENE & FOIL	
*	PP51	*	LP2	PPH	*	*	<b>PF3</b>	REGULAR	POLYPROPYLENE & FOIL	
*	MPE7G	412	XG,JG,YG,ZG	*	*	*	<b>DG3</b>	REGULAR	METALLIZED MYLAR (POLYESTER)	METAL TUBE RECTANGULAR, AXIAL
*	MPC7G	*	DG, RG, BG	*	*	*	<b>HG3</b>	REGULAR	METALLIZED POLYCARBONATE	
*	MPP7G	*	GG	*	*	*	<b>NG3</b>	REGULAR	METALLIZED POLYPROPYLENE	
*	*	*	*	*	*	*	<b>ZG3</b>	REGULAR	SUPERMETALLIZED POLYPULSE	
*	PE7G	*	NG, MG	*	*	*	<b>MG3</b>	REGULAR	MYLAR (POLYESTER) & FOIL	
*	PP7G	*	LG	*	*	*	<b>PG3</b>	REGULAR	POLYPROPYLENE & FOIL	
ZL, ZDL	MPE61	68	XL,JL,YL,ZL	*	*	218P, MPF	<b>DL3</b>	REGULAR	METALLIZED MYLAR (POLYESTER)	METAL TUBE ROUND, AXIAL
CL, BL, HSL	MPC61	410	DL, RL, BL	*	22E	260P,628P,LP8	<b>HL3</b>	REGULAR	METALLIZED POLYCARBONATE	
P--L	MPP61	*	GL	*	*	*	<b>NL3</b>	REGULAR	METALLIZED POLYPROPYLENE	
*	*	*	*	*	*	*	<b>ZL3</b>	REGULAR	SUPERMETALLIZED POLYPULSE	
MDL	PE61	383	NL1, ML1	*	*	127P, XF	<b>ML3</b>	REGULAR	MYLAR (POLYESTER) & FOIL	
*	PP61	*	LL	*	*	*	<b>PL3</b>	REGULAR	POLYPROPYLENE & FOIL	

\* = NO cross available

Some Part Numbers may not be an exact cross, if in doubt consult the factory.

# AMERICAN CAPACITOR CORPORATION

## DIELECTRIC SELECTION GUIDE

AMERICAN DIELECTRIC CODE	A	C	D	F/G	H	K	M	N	P	S	T	U	V	Z
Typical Characteristics of Capacitors	High Voltage Paper & Mylar	Combination Metallized Mylar & Polypropylene	Metallized Mylar	KF Polymer F = Foil G = Metallized	Metallized Polycarbonate	Kapton & Foil	Mylar & Foil	Metallized Polypropylene	Polypropylene & Foil	Polystyrene & Foil	Teflon & Foil	Metallized Teflon	Super Metallized Polypropylene	Super Metallized Polypropylene
Capacitance Range in MFD	.001-1.0	.001-50.0	.001-100.0	.10-100.0	.001-100.0	.001-10.0	.001-10.0	.001-100.0	.001-5.0	.001-10.0	.001-5.0	.001-10.0	.001-100.0	.10-50.0
Standard Tolerance Ranges	5% - 20%	1% - 20%	1% - 20%	10% - 20%	1% - 20%	5% - 20%	1% - 20%	1% - 20%	1% - 20%	1% - 20%	1% - 20%	1% - 20%	1% - 20%	1% - 20%
DC Voltages	1000V - 40,000V	100V - 600V	25V - 40,000V	200V - 1000V	25V - 4000V	100V - 600V	10V - 600V	100V - 4000V	50V - 1000V	50V - 1000V	25V - 1000V	25V - 1000V	200V - 2000V	50V - 1000V
AC Voltages	400VAC - 1200VAC	50VAC - 250VAC	10VAC - 2000VAC	N/A	10VAC - 2000VAC	50VAC - 1200VAC	10VAC - 600VAC	25VAC - 2000VAC	10VAC - 600VAC	50VAC - 350VAC	10VAC - 350VAC	10VAC - 350VAC	25VAC - 2000VAC	25VAC - 2000VAC
Dissipation Factor % at 60 HZ	.10	.10	.10	5.0	.05	.25	.15	.03	.03	.03	.03	.03	.03	.03
Dissipation Factor % at 1000 HZ	.40	.40	.40	1.8	.15	.40	.25	.10	.03	.03	.03	.03	.10	.10
Insulation Resistance, megohm-MFD at 25°C	30K	50K	30K	1K	300K	50K	50K	500K	500K	1,000K	10,000K	10,000K	200K	200K
Dielectric Absorption at 25°C	.20	.20	.20	N/A	.08	N/A	.20	.03	.03	.02	.02	.02	.03	.08
Operating Range °C	-55° +125°	-55° +125°	-55° +125°	-35° +180°	-55° +125°	-55° +250°	-55° +125°	-55° +105°	-55° +105°	-55° +85°	-55° +250°	-55° +250°	-55° +105°	-55° +125°
Capacitance Change with Temperature <i>Cold</i> <i>Hot</i>	-8% +12%	-3% +6%	-6% +15%	-50% +40%	-2% +2%	N/A	-6% +15%	+2% -4%	+2% -4%	+1% -1%	+1% -1%	+1% -1%	+2% -4%	-2% +2%
Best Characteristics	High Voltage	Low T/C	Low Cost	Small Size	Good Electrical Properties	High Temperature	Low Cost	Low DF	Low DF	High Stability	Excellent Electrical Properties	Excellent Electrical Properties	Very High Current	Very High Current
Relative Cost	Higher	Moderate	Lowest	Highest	Moderate	Higher	Low	Moderate	Moderate	Higher	Highest	Highest	Moderate	Higher

This Dielectric selection guide is intended to give the engineer a quick reference of the electrical characteristics for many different dielectrics. Values shown are typical for each dielectric. If you're not sure which dielectric is best for your specific application, please contact the American Capacitor sales staff, we have knowledgeable sales

engineers that will be glad to help find exactly the right capacitor for your application. For specific Acceptance Criteria, Parametric Trend Curves, Environmental Data and Size information for all Case Styles refer to the Engineering Data Sheets available on the Dielectric you need.