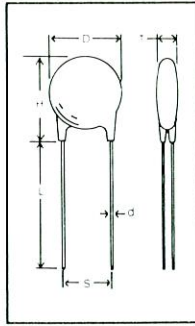


# CLASS III - General Purpose High-K Ceramic Disk Capacitors

## General

NOTE: Revisions of EIA RS-198 prior to Revision C combined semi-stable and higher-K general purpose ceramic capacitors under the Class II designation. Class II now refers only to semi-stable ceramic capacitors. Class III now refers specifically and only to high-K general purpose capacitors as defined below. Class IV has been created for reduced titanate or barrier layer type capacitors which were formerly identified as Class III.



Maida offers standard Class III general purpose capacitors per the designations of EIA RS-198-C. This classification is identical to that of Class II except that it is restricted to those capacitors having capacitance values which vary by more than 15% with changes in temperature over the rated temperature range. The dielectric constant is usually, but not necessarily, greater than 4000. Standard temperature characteristic codes available are Z5U and X5U. These capacitors find application in by-pass, coupling, and other uses wherein dielectric losses, high insulation resistance, and capacitance stability are not of major consideration.

## Specifications

### Capacitance and Dissipation Factor:

Capacitance and dissipation factor shall be measured at a frequency of 1 KHz at 25C with less than 2.0 volts A.C. applied. The maximum dissipation factor shall be 2.5%.

### Capacitance Tolerances Available:

Tolerance	Code Letter
±20%	M
+80%,-20%	Z
+100%,-0%(GMV)	P

### Voltage Ratings:

500 VDC - 30 KVDC (see tables)

### Insulation Resistance:

The insulation resistance shall not be less than 10,000 megohms at 25C when measured between terminals after a 2-minute charge at 100 volts D.C. with the charging current limited to 50 milliamps.

### Dielectric Withstand Voltage:

After applying twice rated D.C. voltage for  $5 \pm 1$  seconds, capacitors shall meet the original requirements.

### Temperature Characteristics Available:

A 3-digit code per EIA RS-198-C is used. The first letter denotes the lower temperature limit. A number then designates the upper temperature limit. A last letter defines the maximum variation of capacitance over this range using the +25C value as the reference.

1st Letter	Number	Last Letter
X = -55C	5 = +85C	S = ±22%
Y = -30C		T = +22%, -33%
Z = +10C		U = +22%, -56%

### Temperature Ratings:

Class III capacitors are designed to operate within the temperature limits indicated by the EIA code. Storage temperatures may vary from -55C to +125C without affecting ratings.

### Life Test:

Capacitors shall withstand a potential of 1.5 times the rated D.C. voltage for a period of 1000 hours at 85C. When tested 24 hours after the completion of the test, the capacitance change shall be no more than 10%; the maximum D.F. shall be 5.0%; and the minimum I.R. shall be 1000 megohms.

### Humidity Resistance:

After exposure to a relative humidity of 95% for 100 hours at 40C, capacitors shall have a minimum I.R. of 1000 megohms and a D.F. of 5.0% maximum.

## Construction

### Coating Materials:

Maida's standard disk capacitors are conformally coated either with a dry-process fluid-bed epoxy or with a baked-on phenolic coating applied by a wet-dip method. Diameter and thickness dimensions shown in the tables are for the epoxy-coated units. These sizes are typically 1/32 inch (.031) larger in diameter than for phenolic-coated capacitors of identical values. Each coating is flame retardant.

### Coating Control on Leads:

Straight leads - the coating will not extend more than 1/8" onto the leads as measured from a tangent line drawn to the bottom of the disk.

Formed leads - the coating will not extend below that kink which defines the "seating plane" of the capacitor.

### Lead Wires:

Material - Standard leads are tin-plated copper, either 22 AWG or 20 AWG. All capacitors which are both smaller than 1/2" maximum diameter and rated below 8 KVDC use 22 AWG. All others have 20 AWG.

Configuration - Standard leads are straight and long (1" minimum). Cut and/or formed leads are available. See page 25 for some of the many lead forms available.

Lead Spacing - On standard capacitors, nominal lead spacing is determined primarily by disk diameter. See capacitance tables. Other lead spacings are available on request.

## Marking

Laser marking and ink-stamp marking methods are used. All units shall be marked with "MDC", rated capacitance, capacitance tolerance, temperature characteristic code, and rated voltage. 500-volt capacitors shall have no voltage marking. On smaller units where space is limited the "MDC" may be omitted. Date coding is available.

## How To Order

Standard disk capacitors from the following tables should be ordered by Maida Style Number according to the following format:

D64Z5U Style	222 Capacitance Code	M Tolerance Code	10KV DC Voltage
from first column of table	3 digits-2 are significant figures, last is a multiplier.	M = ±20% Z = +80%,-20% P = +100%,-0% (GMV)	from table
Phenolic coating available for voltages 2KV and less.	multipliers	(omit for 500V ratings.)	
Omit leading "D" in style number.	0 = × 1 1 = × 10 2 = × 100 3 = × 1000 9 = × 0.1		

## CLASS III - General Purpose High-K Ceramic Disk Capacitors

### Maximum Capacitance Available (pF) - Z5U Temperature Coefficient

STYLE	D MAX	L.S.	500V	1KV	2KV	3KV	4KV	5KV	6KV	8KV	9KV	10KV	12KV	15KV	18KV	20KV	22KV	25KV	30KV
MAX. THICKNESS			.160	.170	.200	.220	.240	.260	.280	.320	.340	.360	.400	.460	.520	.560	*	*	*
D59Z5U	.282	.200	1500	1000	750	510	360	300	240										
D58Z5U	.312	.200	2000	1500	1100	750	560	470	360										
D60Z5U	.344	.250	3000	2000	1500	1000	820	620	510										
D73Z5U	.375	.250	3900	2700	2000	1500	1100	820	680										
D68Z5U	.407	.250	4700	3300	2700	1800	1300	1100	910	750	680	620	510	390	330	300			
D61Z5U	.469	.300	7500	5100	3300	2700	2000	1600	1500	1100	1000	910	750	560	470	430	390	330	220
D71Z5U	.532	.375	10000	6800	5100	3600	3000	2400	2000	1500	1300	1200	1000	820	680	620	560	470	360
D62Z5U	.594	.375	15000	9100	6800	5100	3900	3000	2700	2000	1800	1500	1300	1000	820	750	680	620	510
D69Z5U	.656	.500	18000	12000	9100	6200	4700	3900	3300	2400	2200	2000	1600	1300	1100	1000	910	750	680
D64Z5U	.720	.500	22000	15000	11000	8200	6200	4700	3900	3000	2700	2400	2000	1600	1300	1200	1100	1000	820
D63Z5U	.782	.500	27000	18000	15000	10000	7500	5600	4700	3600	3300	3000	2400	2000	1600	1500	1300	1200	1000
D67Z5U	.844	.500	33000	22000	18000	12000	9100	6800	5600	4300	3900	3600	3000	2400	2000	1800	1600	1300	1200
D65Z5U	.906	.500	36000	27000	20000	13000	10000	8200	6800	5100	4700	3900	3300	2700	2200	2000	1800	1600	1300
D76Z5U	.969	.500	39000	30000	24000	16000	12000	9100	8200	6200	5100	4700	3900	3300	2700	2400	2200	2000	1600
D66Z5U	1.100	.500	→	39000	30000	20000	15000	12000	10000	7500	6800	6200	5100	4300	3300	3000	2700	2400	2000
D70Z5U	1.350	.500	→	62000	47000	33000	24000	20000	16000	12000	11000	10000	8200	6200	5600	4700	4300	3900	3300

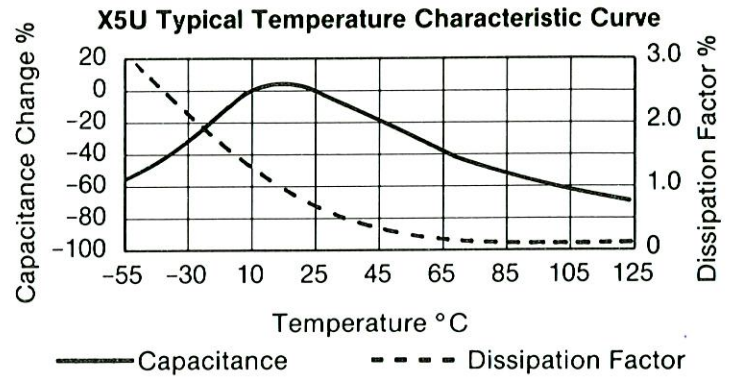
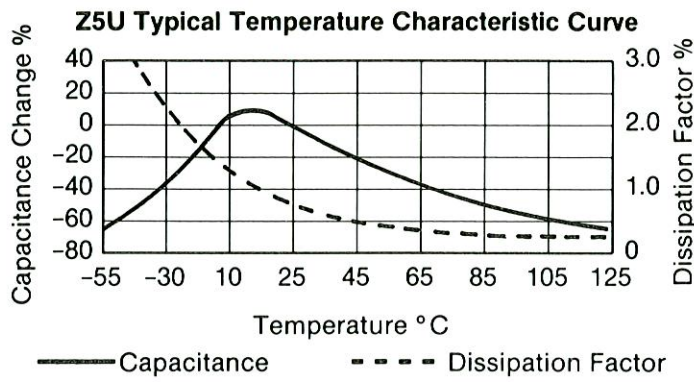
\*Various encapsulation available, contact our Engineering Department.

### Maximum Capacitance Available (pF) - X5U Temperature Coefficient

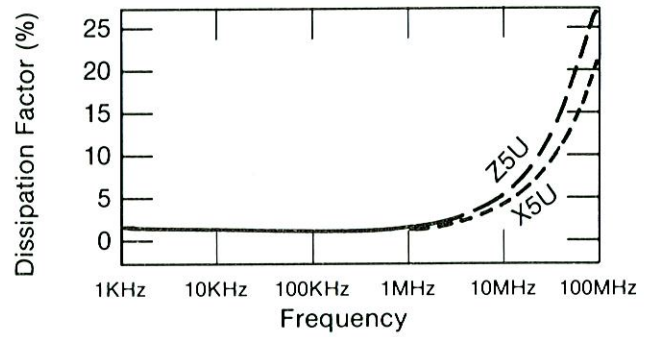
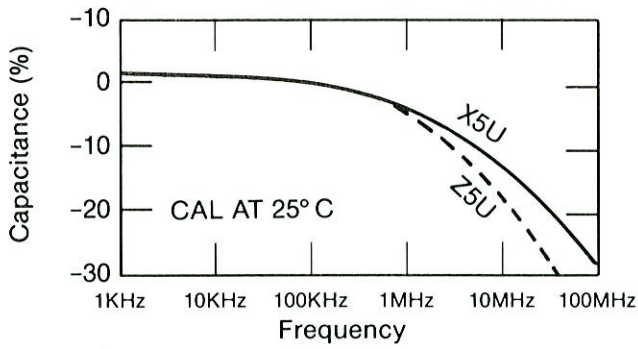
STYLE	D MAX	L.S.	500V	1KV	2KV	3KV	4KV	5KV	6KV	8KV	9KV	10KV	12KV	15KV	18KV	20KV	22KV	25KV	30KV
MAX. THICKNESS			.170	.190	.220	.250	.280	.310	.340	.400	.430	.460	.520	.610	.710	.770	*	*	*
D59X5U	.282	.200	820	560	300	180	130	100	68										
D58X5U	.312	.200	1200	820	430	300	200	160	120										
D60X5U	.344	.250	1600	1100	620	390	300	240	180										
D73X5U	.375	.250	2200	1500	750	560	390	330	270										
D68X5U	.407	.250	2700	2000	1000	680	510	430	330	300	270	220	200	130	82	51			
D61X5U	.469	.300	4300	3000	1500	1000	820	620	510	430	360	330	270	220	150	120	91	51	
D71X5U	.532	.375	5600	3900	2200	1500	1100	910	750	560	510	430	360	300	240	200	160	110	47
D62X5U	.594	.375	7500	5600	2700	2000	1500	1200	1000	750	620	560	470	390	330	300	240	200	110
D69X5U	.656	.500	10000	6800	3600	2400	1800	1500	1200	910	820	750	620	470	430	360	330	270	180
D64X5U	.720	.500	13000	9100	4300	3000	2200	1800	1500	1100	1000	910	750	620	510	470	430	360	270
D63X5U	.782	.500	15000	11000	5600	3600	2700	2200	1800	1500	1200	1100	910	750	620	560	510	430	360
D67X5U	.844	.500	18000	13000	6800	4300	3300	2700	2200	1600	1500	1300	1100	910	750	680	620	510	430
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D66X5U	1.100	.500	→	22000	12000	7500	5600	4700	3900	3000	2700	2400	2000	1500	1300	1200	1100	910	750
D70X5U	1.350	.500	→	36000	18000	12000	9100	7500	6200	4700	3900	3600	3000	2400	2000	1800	1600	1500	1200

\*Various encapsulation available, contact our Engineering Department.

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## Typical Frequency Characteristics



## Typical Voltage Characteristic Curves - X5U/Z5U

