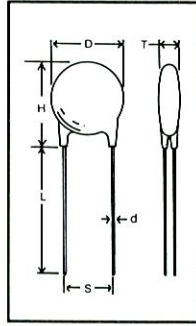


# CLASS I - Temperature Compensating Ceramic Capacitors

## General

Maida offers standard Class I temperature compensating ceramic disk capacitors in accordance with EIA RS-198-C. Temperature compensating capacitors are suited for resonant circuit application or other applications where high Q and predictable stability of capacitance characteristics are required. They have negligible dependence of capacitance and Q upon voltage, frequency, and time. These capacitors have temperature coefficients ranging from P100 to N750 (+100 PPM/degree C to -750 PPM/degree C) and utilize lower dielectric constant ceramics (K<150).



## Specifications

### Capacitance and Dissipation Factor (Q):

Capacitance and dissipation factor (Q) shall be measured at 25C with less than 2.0 volts A.C. applied. The frequency shall be 1 MHz for capacitance values below 1000 pF and 1 KHz for values of 1000 pF or higher. The dissipation factor for capacitance values greater than 30 pF shall be 0.1% maximum (Q=1000 minimum). For capacitance values of 30 pF and lower the Q shall be (400 + 20 × cap value) minimum.

### Standard Capacitance Tolerances Available:

Tolerance	Code Letter
± 5%	J
± 10%	K
± 20%	M

Tighter tolerances by special order only.

**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 mA.

### Dielectric Withstand Voltage:

After applying twice rated D.C. voltage for 5 ± 1 seconds, capacitors shall meet original requirements.

### Temperature Coefficients Available:

A 3-digit code per EIA RS-198-C is used. The first letter defines the significant figures of temperature coefficient. A number denotes a multiplier to be applied to the significant figures. The last letter is a tolerance code for the temperature coefficient in PPM/degree C.

1st Letter (Sign. Fig)	Number (Mult)	Last Letter (Tolerance)
C = 0.0	0 = -1	G = 30
M = 1.0	1 = -10	H = 60
P = 1.5	2 = -100	J = 120
R = 2.2	3 = -1000	K = 250
S = 3.3	4 = -10000	L = 500
T = 4.7	5 = +1	M = 1000
W = 5.6	6 = +10	N = 2500
U = 7.5	7 = 100	

### Temperature Ratings:

Class I capacitors operate over the temperature range of -55C to +85C, and may be stored from -55C to +125C without affecting performance.

### 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 D.F. shall be no more 0.2% (minimum Q=500); and the I.R. shall be 1000 megohms minimum.

### Humidity Resistance:

Capacitors exposed to a relative humidity of 95% for 100 hours at 40C shall have an I.R. of 1000 megohms minimum and a maximum D.F. of 0.2% (minimum Q=500).

## 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.

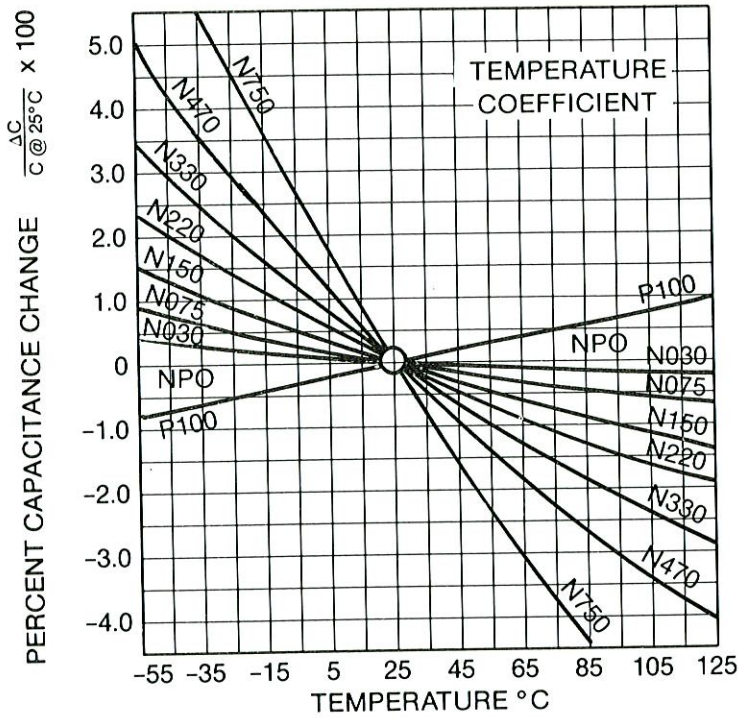
## How To Order

Standard disk capacitors from the tables should be ordered by complete style number according to the following format:

D62U2J Style	101 Capacitance Code	J Tolerance Code	4KV DC Voltage
size & temp. coeff. from first column of table	3 digits-2 are significant figures, last is a multiplier.	(Cap >10pF) F= 1% J= 5% G= 2% K=10% H= 3% M=20%	from table
Phenolic coating available for voltages 2KV and less.	multipliers	(Cap <=10pF) B=0.1pF C=0.25pF D=0.5pF F=1.0pF G=2.0pF	(omit for 500V ratings.)
Omit leading "D" in style number.	0 = × 1 1 = × 10 2 = × 100 3 = × 1000 9 = × 0.1		

# CLASS I - Temperature Compensating Ceramic Capacitors (Cont'd)

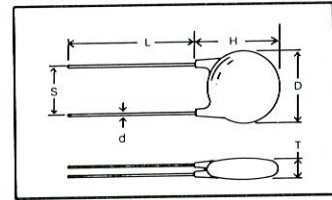
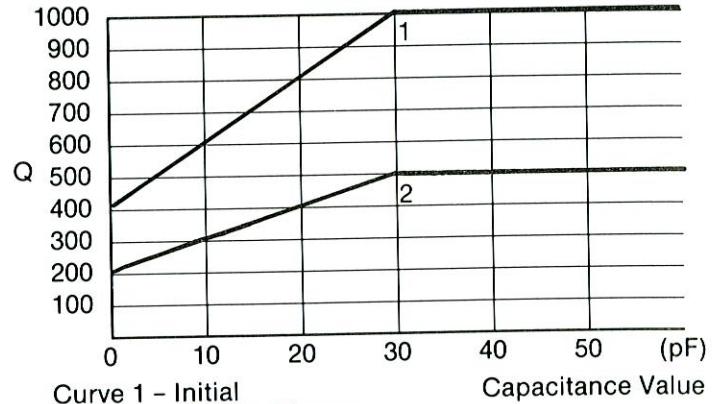
## Capacitance vs. Temperature Temperature Compensating Capacitors



## Quality Factor (Q) vs. Capacitance Value (Before and After Life Test) Temperature Compensating Capacitors

### Quality Factor (Q) - P100, NPO thru N750

For capacitance values 1000 pF or less at 1 MHz. When determined as specified in RS-198-C-1 shall not be less than the value shown.



## Maximum Capacitance Available (pF) - NPO 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	*	*	*
D59COG	.282	.200	13	9.1	6.8	4.7	3.6	2.7	2.2										
D58COG	.312	.200	20	13	10	6.8	5.1	4.3	3.3										
D60COG	.344	.250	27	18	15	10	7.5	6.2	4.7										
D73COG	.375	.250	36	24	18	13	10	8.2	6.8										
D68COG	.407	.250	43	30	24	16	13	10	8.2	6.8	6.2	5.6	4.7	3.6	3.0	2.7			
D61COG	.469	.300	68	47	36	24	20	15	13	10	9.1	8.2	6.8	5.6	4.3	3.9	3.6	3.0	2.0
D71COG	.532	.375	91	68	51	36	27	22	18	15	12	11	9.1	7.5	6.2	5.6	5.1	4.3	3.3
D62COG	.594	.375	130	91	68	47	36	30	24	18	16	15	12	10	8.2	7.5	6.8	5.6	4.7
D69COG	.656	.500	160	110	82	62	47	36	30	22	20	18	15	12	10	9.1	8.2	7.5	6.2
D64COG	.720	.500	200	150	110	75	56	43	36	27	24	22	18	15	12	11	10	9.1	7.5
D63COG	.782	.500	240	180	130	91	68	56	47	33	30	27	22	18	15	13	12	11	9.1
D67COG	.844	.500	300	200	150	110	82	62	56	39	36	33	27	22	18	16	15	13	11
D65COG	.906	.500	330	240	180	130	91	75	62	47	43	39	33	27	22	20	18	15	13
D76COG	.969	.500	390	270	220	150	110	91	75	56	47	43	36	30	24	22	20	18	15
D66COG	1.100	.500	→	360	270	200	150	110	100	75	62	56	47	39	33	30	27	22	20
D70COG	1.350	.500	→	560	430	300	220	180	150	110	100	91	75	62	51	43	39	36	30

\*Various encapsulation available, contact our Engineering Department.

## CLASS I - Temperature Compensating Ceramic Disk Capacitors

### Maximum Capacitance Available (pF) - N075 Temperature Coefficient (PPM/°C)

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	*	*	*
D59U1G	.282	.200	13	9.1	6.8	4.7	3.6	2.7	2.2										
D58U1G	.312	.200	20	13	10	6.8	5.1	4.3	3.3										
D60U1G	.344	.250	27	18	15	10	7.5	6.2	4.7										
D73U1G	.375	.250	36	24	18	13	10	8.2	6.8										
D68U1G	.407	.250	43	30	24	16	13	10	8.2	6.8	6.2	5.6	4.7	3.6	3.0	2.7			
D61U1G	.469	.300	68	47	36	24	20	15	13	10	9.1	8.2	6.8	5.6	4.3	3.9	3.6	3.0	2.0
D71U1G	.532	.375	91	68	51	36	27	22	18	15	12	11	9.1	7.5	6.2	5.6	5.1	4.3	3.3
D62U1G	.594	.375	130	91	68	47	36	30	24	18	16	15	12	10	8.2	7.5	6.8	5.6	4.7
D69U1G	.656	.500	160	110	82	62	47	36	30	22	20	18	15	12	10	9.1	8.2	7.5	6.2
D64U1G	.720	.500	200	150	110	75	56	43	36	27	24	22	18	15	12	11	10	9.1	7.5
D63U1G	.782	.500	240	180	130	91	68	56	47	33	30	27	22	18	15	13	12	11	9.1
D67U1G	.844	.500	300	200	150	110	82	62	56	39	36	33	27	22	18	16	15	13	11
D65U1G	.906	.500	330	240	180	130	91	75	62	47	43	39	33	27	22	20	18	15	13
D76U1G	.969	.500	390	270	220	150	110	91	75	56	47	43	36	30	24	22	20	18	15
D66U1G	1.100	.500	→	360	270	200	150	110	100	75	62	56	47	39	33	30	27	22	20
D70U1G	1.350	.500	→	560	430	300	220	180	150	110	100	91	75	62	51	43	39	36	30

\*Various encapsulation available, contact our Engineering Department.

### Maximum Capacitance Available (pF) - N150 Temperature Coefficient (PPM/°C)

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	*	*	*
D59P2G	.282	.200	13	9.1	6.8	4.7	3.6	2.7	2.2										
D58P2G	.312	.200	20	13	10	6.8	5.1	4.3	3.3										
D60P2G	.344	.250	27	18	15	10	7.5	6.2	4.7										
D73P2G	.375	.250	36	24	18	13	10	8.2	6.8										
D68P2G	.407	.250	43	30	24	16	13	10	8.2	6.8	6.2	5.6	4.7	3.6	3	2.7			
D61P2G	.469	.300	68	47	36	24	20	15	13	10	9.1	8.2	6.8	5.6	4.3	3.9	3.6	3	2
D71P2G	.532	.375	91	68	51	36	27	22	18	15	12	11	9.1	7.5	6.2	5.6	5.1	4.3	3.3
D62P2G	.594	.375	130	91	68	47	36	30	24	18	16	15	12	10	8.2	7.5	6.8	5.6	4.7
D69P2G	.656	.500	160	110	82	62	47	36	30	22	20	18	15	12	10	9.1	8.2	7.5	6.2
D64P2G	.720	.500	200	150	110	75	56	43	36	27	24	22	18	15	12	11	10	9.1	7.5
D63P2G	.782	.500	240	180	130	91	68	56	47	33	30	27	22	18	15	13	12	11	9.1
D67P2G	.844	.500	300	200	150	110	82	62	56	39	36	33	27	22	18	16	15	13	11
D65P2G	.906	.500	330	240	180	130	91	75	62	47	43	39	33	27	22	20	18	15	13
D76P2G	.969	.500	390	270	220	150	110	91	75	56	47	43	36	30	24	22	20	18	15
D66P2G	1.100	.500	→	360	270	200	150	110	100	75	62	56	47	39	33	30	27	22	20
D70P2G	1.350	.500	→	560	430	300	200	180	150	110	100	91	75	62	51	43	39	36	30

\*Various encapsulation available, contact our Engineering Department.

# CLASS I - Temperature Compensating Ceramic Disk Capacitors

## Maximum Capacitance Available (pF) - N220 Temperature Coefficient (PPM/°C)

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	*	*	*
D59R2H	.282	.200	15	10	7.5	5.1	3.6	3	2.4										
D58R2H	.312	.200	20	15	11	7.5	5.6	4.7	3.6										
D60R2H	.344	.250	30	20	15	10	8.2	6.2	5.1										
D73R2H	.375	.250	39	27	20	15	11	8.2	6.8										
D68R2H	.407	.250	47	33	27	18	13	11	9.1	7.5	6.8	6.2	5.1	3.9	3.3	3			
D61R2H	.469	.300	75	51	39	27	20	16	15	11	10	9.1	7.5	5.6	4.7	4.3	3.9	3.3	2.2
D71R2H	.532	.375	100	68	56	36	30	24	20	15	13	12	10	8.2	6.8	6.2	5.6	4.7	3.6
D62R2H	.594	.375	150	91	75	51	39	30	27	20	18	15	13	10	8.2	7.5	6.8	6.2	5.1
D69R2H	.656	.500	180	120	91	62	47	39	33	24	22	20	16	13	11	10	9.1	7.5	6.8
D64R2H	.720	.500	220	150	110	82	62	47	39	30	27	24	20	16	13	12	11	10	8.2
D63R2H	.782	.500	270	180	150	100	75	56	47	36	33	30	24	20	16	15	13	12	10
D67R2H	.844	.500	330	220	180	120	91	68	56	43	39	36	30	24	20	18	16	15	12
D65R2H	.906	.500	360	270	200	130	100	82	68	51	47	39	33	27	22	20	18	16	13
D76R2H	.969	.500	390	330	240	160	120	91	82	62	51	47	39	33	27	24	22	20	16
D66R2H	1.100	.500	→	390	300	200	150	120	100	75	68	62	51	43	33	30	27	24	20
D70R2H	1.350	.500	→	620	470	330	240	200	160	120	110	100	82	62	56	47	43	39	33

\*Various encapsulation available, contact our Engineering Department.

## Maximum Capacitance Available (pF) - N330 Temperature Coefficient (PPM/°C)

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	*	*	*
D59S2H	.282	.200	16	11	8.2	5.6	4.3	3.3	2.7										
D58S2H	.312	.200	24	16	12	9.1	6.2	5.1	4.3										
D60S2H	.344	.250	33	22	18	12	9.1	7.5	6.2										
D73S2H	.375	.250	43	30	22	16	12	10	8.2										
D68S2H	.407	.250	56	39	30	20	15	12	10	9.1	7.5	6.8	5.6	4.7	3.9	3.3			
D61S2H	.469	.300	82	56	43	30	24	20	16	12	11	10	8.2	6.8	5.6	5.1	4.7	3.6	2.4
D71S2H	.532	.375	120	82	62	43	33	27	22	18	15	13	11	9.1	7.5	6.8	6.2	5.6	4.3
D62S2H	.594	.375	150	110	82	56	43	36	30	22	20	18	15	12	10	9.1	8.2	6.8	6.2
D69S2H	.656	.500	200	150	110	75	56	43	36	27	24	22	18	15	12	11	10	9.1	7.5
D64S2H	.720	.500	270	180	130	91	68	56	47	33	30	27	22	18	15	15	12	11	9.1
D63S2H	.782	.500	300	220	160	110	82	68	56	43	36	33	27	22	18	16	15	13	11
D67S2H	.844	.500	360	270	200	130	100	82	68	51	43	39	33	27	22	20	18	16	13
D65S2H	.906	.500	390	300	220	150	120	91	75	56	51	47	39	30	27	24	22	18	15
D76S2H	.969	.500	470	360	270	180	130	110	91	68	62	56	43	36	30	27	24	22	18
D66S2H	1.100	.500	→	470	360	240	180	150	120	91	75	68	62	47	39	36	33	27	24
D70S2H	1.350	.500	→	750	560	360	270	220	180	150	120	110	91	75	62	56	51	43	36

\*Various encapsulation available, contact our Engineering Department.

# CLASS I – Temperature Compensating Ceramic Disk Capacitors

## Maximum Capacitance Available (pF) - N470 Temperature Coefficient (PPM/°C)

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	*	*	*
D59T2J	.282	.200	22	15	12	8.2	6.2	4.7	3.6										
D58T2J	.312	.200	33	22	18	12	9.1	6.8	5.6										
D60T2J	.344	.250	43	30	24	16	12	10	8.2										
D73T2J	.375	.250	62	43	33	22	16	13	11										
D68T2J	.407	.250	75	51	39	27	22	18	15	12	11	9.1	8.2	6.2	5.1	4.7			
D61T2J	.469	.300	110	82	62	43	33	27	22	18	15	15	11	9.1	7.5	6.8	6.2	5.1	3.3
D71T2J	.532	.375	160	110	82	56	43	36	30	24	20	18	15	12	10	9.1	8.2	7.5	5.6
D62T2J	.594	.375	220	150	110	75	62	47	39	30	27	24	20	16	13	12	11	10	8.2
D69T2J	.656	.500	270	200	150	100	75	62	51	39	33	30	27	20	18	15	15	12	10
D64T2J	.720	.500	360	240	180	120	91	75	62	47	43	39	33	27	22	20	18	15	13
D63T2J	.782	.500	430	300	220	150	110	91	75	56	51	47	39	30	27	22	20	18	15
D67T2J	.844	.500	510	360	270	180	150	110	91	68	62	56	47	36	30	27	24	22	18
D65T2J	.906	.500	560	390	300	220	160	130	110	82	68	62	51	43	36	33	30	27	22
D76T2J	.969	.500	620	470	360	240	180	150	120	91	82	75	62	51	43	36	33	30	24
D66T2J	1.100	.500	→	620	470	330	240	200	160	120	110	100	82	62	56	47	43	39	33
D70T2J	1.350	.500	→	1000	750	510	390	300	270	200	180	150	130	100	82	75	68	62	51

\*Various encapsulation available, contact our Engineering Department.

## Maximum Capacitance Available (pF) - N750 Temperature Coefficient (PPM/°C)

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	*	*	*
D59U2J	.282	.200	24	18	13	9.1	6.8	5.1	4.3										
D58U2J	.312	.200	36	27	20	13	10	8.2	6.8										
D60U2J	.344	.250	51	36	27	18	15	11	9.1										
D73U2J	.375	.250	68	47	36	24	20	15	13										
D68U2J	.407	.250	91	62	47	33	24	20	16	13	12	11	9.1	7.5	6.2	5.1			
D61U2J	.469	.300	130	91	68	47	36	30	24	20	18	15	13	10	9.1	7.5	6.8	5.6	3.9
D71U2J	.532	.375	180	120	100	68	51	43	36	27	24	22	18	15	12	11	10	8.2	6.2
D62U2J	.594	.375	240	160	130	91	68	56	47	33	30	27	22	18	15	15	12	11	9.1
D69U2J	.656	.500	330	220	160	110	91	68	56	43	39	36	30	24	20	18	16	15	12
D64U2J	.720	.500	390	270	200	150	110	91	75	56	47	43	36	30	24	22	20	18	15
D63U2J	.782	.500	470	330	240	180	130	100	91	68	56	51	43	36	30	27	24	20	18
D67U2J	.844	.500	560	390	300	200	150	120	100	75	68	62	51	43	33	30	27	24	20
D65U2J	.906	.500	620	470	360	240	180	150	120	91	82	75	62	47	39	36	33	30	24
D76U2J	.969	.500	750	560	430	270	220	180	150	110	91	82	68	56	47	43	39	33	27
D66U2J	1.100	.500	→	680	560	360	270	220	180	150	120	110	91	75	62	56	51	43	36
D70U2J	1.350	.500	→	1100	820	560	430	330	300	220	200	180	150	110	100	91	75	68	56

\*Various encapsulation available, contact our Engineering Department.