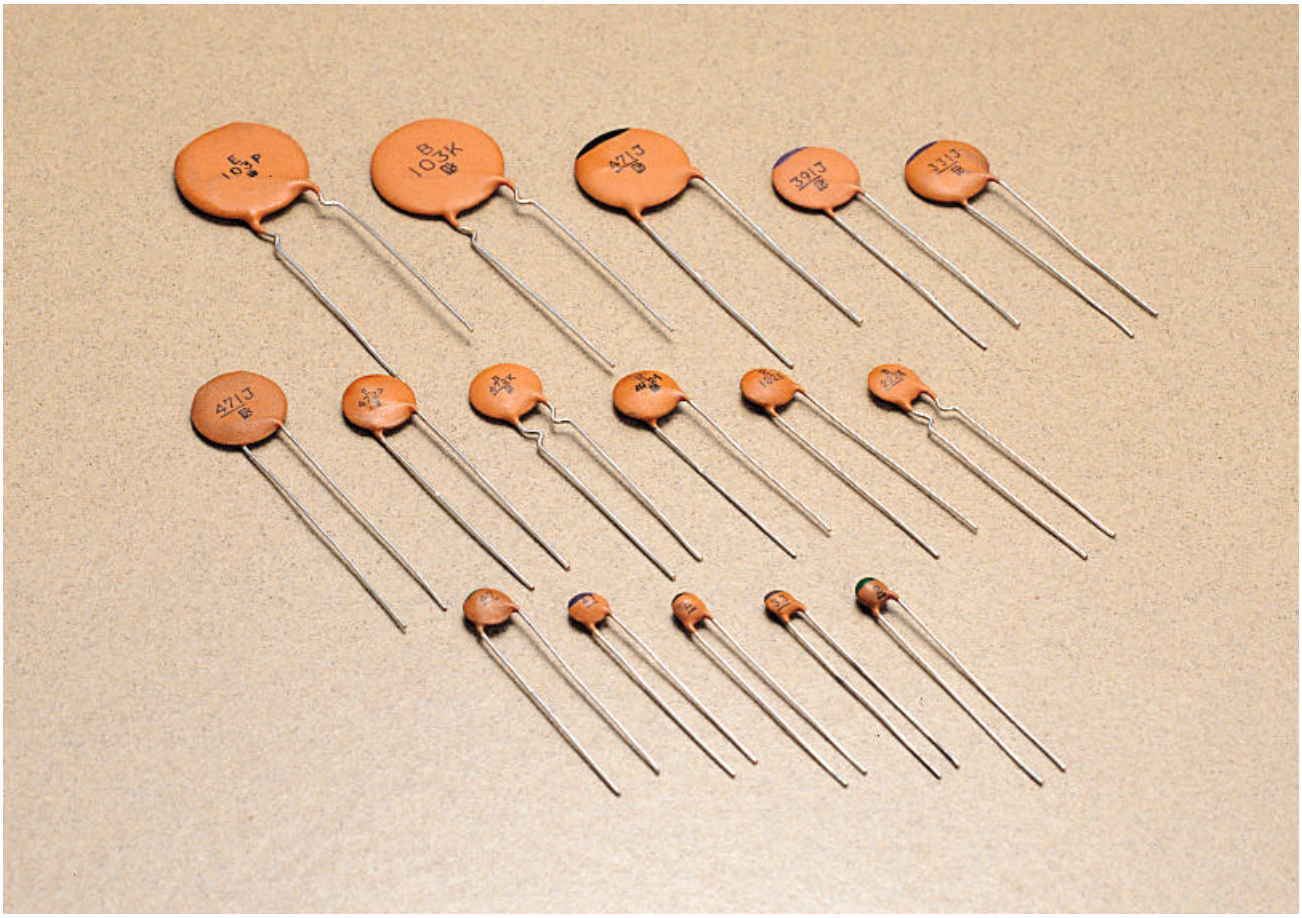
Radial Type Ceramic Capacitors



● FEATURES

Temperature Compensating

1. Capacitors of linear capacitance change against temperature and of various temperature coefficient are available.
2. Capacitors of precise with very little deviation and no aging are available.
3. Available are capacitors of very high Q from low to super high frequency.
4. With simplified electrode structure, very little inductance is seen and does its effective role even at high frequency.
5. Excellent heat-proof

   Ceramic bodies are baked under temperature of a thousand and some hundreds degrees of centigrade, and the silvered electrodes are also baked under around thousand degree of centigrade.

High Dielectric

1. With dielectric constant of the ceramic body as high as 500-20,000 capacitors of extremely small size and of very high capacitance are produced.
2. With its simplified electrode structure, very little inductance is seen and does its effective role even-at high frequency.
3. Very high insulation resistance.
4. Very little aging of Q, capacitance and insulation resistance.
5. Excellent heat proof

   Works efficiently in the hot interior space of appliances.

■ Temperature Compensating Ceramic Capacitors (Class I)

● TEMPERATURE CHARACTERISTIC

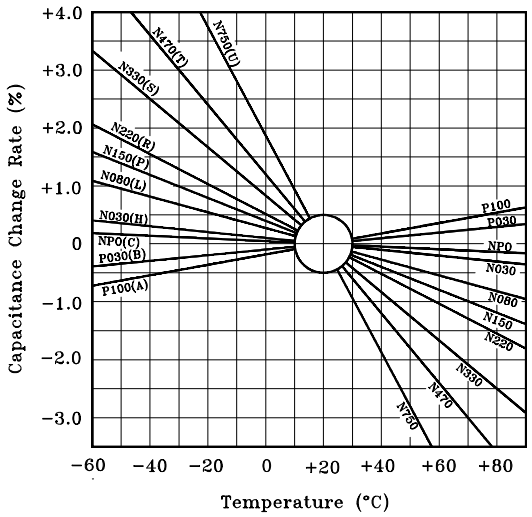
Capacitance temperature coefficient

Code	Nominal value $\times 10^{-6}/℃$	Code	Nominal value $\times 10^{-6}/℃$
C	±0	S	-330
L	-80	T	-470
P	-150	U	-750
R	-220	SL	+350～-1000

Capacitance temperature coefficient tolerance

Code	Tolerance $\times 10^{-6}/℃$	Code	Tolerance $\times 10^{-6}/℃$
H	±60	K	±250
J	±120		

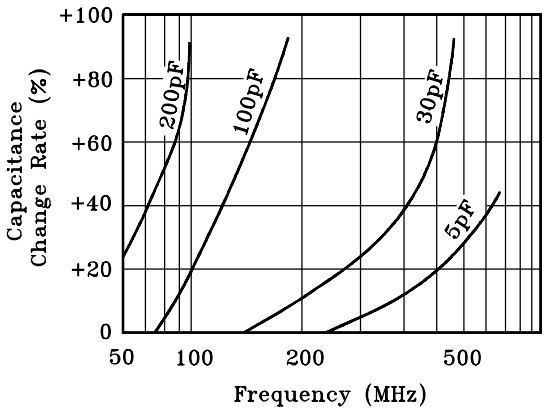
Temperature Characteristic Standard Change Curve

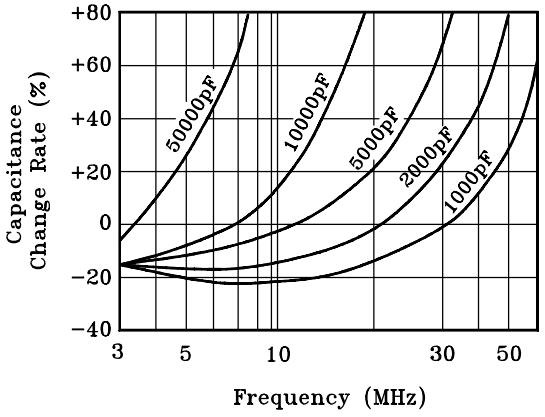


● TEMPERATURE COEFFICIENT OF CLASS I CAPACITOR/T.C TOLERANCE (ppm/℃)

T.C \ Temperature Coefficient Code. / Cap.		C△(NPO)	P△(N150)	R△(N220)	S△(N330)	T△(N470)	U△(N750)	SL
T.C Tol.	≦2pF	CK(±250)	PK(±250)	RK(±250)	SK(±250)	TK(±250)	UK(±250)	P350～N1000
	3pF	CJ(±120)	RJ(±120)	RJ(±120)	SJ(±120)	TJ(±120)	UJ(±120)	P350～N1000
	≧4pF	CH(±60)	PH(±60)	RH(±60)	SH(±60)	TH(±60)	UJ(±120)	P350～N1000

● FREQUENCY CHARACTERISTICS OF CERAMIC CAPACITORS





Radial Type Ceramic Capacitors

● TOLERANCE AND NOMINAL CAPACITANCE

Code	C	D	J	K
Tolerance	±0.25pF	±0.5pF	±5%	±10%
Application	Capacitance 5pF or Less	Capacitance 10pF or Less	Capacitance of more than 10pF	

Standard value of nominal capacitances and its tolerances are shown in the following table.

Nominal Capacitance	Capacitance Tolerance	Nominal Capacitance	Capacitance Tolerance	Nominal Capacitance	Capacitance Tolerance	Nominal Capacitance	Capacitance Tolerance
0.5	C	15	J.K	68	J.K	330	J.K
0.75	C.D	16	J	75	J	360	J
1	C.D	18	J.K	82	J.K	390	J.K
1.5	C.D	20	J	91	J	430	J
2	C.D	22	J.K	100	J.K	470	J.K
3	C.D	24	J	110	J	510	J
4	C.D	27	J.K	120	J.K	560	J.K
5	C.D	30	J	130	J	620	J
6	D	33	J.K	150	J.K	680	J.K
7	D	36	J	160	J	750	J
8	D	39	J.K	180	J.K	820	J.K
9	D	43	J	200	J	910	J
10	D	47	J.K	220	J.K	1000	J.K
11	J	51	J	240	J	-	-
12	J.K	56	J.K	270	J.K	-	-
13	J	62	J	300	J	-	-

● TEST ITEM

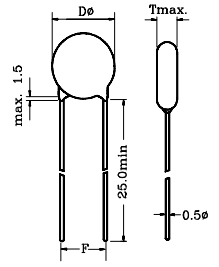
Item \ Class	Y	Item \ Class	Y
Temperature Range	-25 ~ +85℃	Temperature & Wet Cycle	○
Temperature Characteristic	○	Durability against Wet load	500hr.
Shock Proof	10 ~ 55c/s, 2hr.	Durability against Hot load	1000 hr.
Moisture Proof	500hr.		

Radial Type Ceramic Capacitors

TC Disc Type Ceramic Capacitors Rated Voltage 50V. D.C.

● MARKING

1. Characteristic : C-U colored, SL omitted
2. Nominal capacitance
3. Capacitance tolerance
   (Omitted for less than 10pF or 5±1mm in outer diameter)
4. Manufacturer
   (Omitted for less than 6.3±1mm in outer diameter)
   The above items are marked with figures
   and alphabets, and rated voltages horizontal bar.



Soldered copper wire
unit: mm

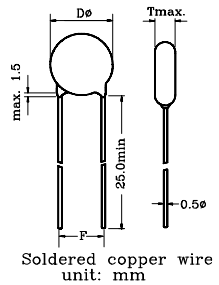
Series	Dimensions (mm)			Characteristics and Capacitance (pF)							
	D	* T	F	C (NP0)	L (N080)	P (N150)	R (N220)	S (N330)	T (N470)	U (N750)	SL
DD	3±1	3.0	2.5±1	0.5~24	1.5~11	1.5~16	1.5~20	1.5~20	1~27	2~33	0.5~68
DD	4±1	3.0	2.5±1	27~39	12~22	18~24	22~33	22~39	30~43	36~62	75~120
DD	5±1	3.0	2.5±1	43~56	24~33	27~36	36~47	43~56	47~62	68~91	130~180
DD	5±1	3.0	5±1.5	43~56	24~33	27~36	36~47	43~56	47~62	68~91	130~180
DD	6.3±1	3.0	5±1.5	62~82	36~51	39~56	51~68	62~82	68~100	100~150	200~270
DD	8±1	3.0	5±1.5	91~160	56~91	62~120	75~130	91~160	110~200	160~270	300~470
DD	10±1	3.0	5±1.5	180~220	100~150	130~180	150~220	180~240	220~300	300~390	510~750
DD	12.5±1.3	3.0	5±1.5	240~330	160~220	200~270	240~300	270~390	330~360	430~510	820~1000

Note) * : Less than 24pF with characteristic C~U, SL shall be 4.0 max.

TC Disc Type Ceramic Capacitors Rated Voltage 500V. D.C.

● MARKING

1. Characteristic : C-U colored, SL omitted
2. Nominal capacitance
3. Capacitance tolerance
   (Omitted for less than 10pF or 5±1mm in outer diameter)
4. Manufacturer
   (Omitted for less than 6.3±1mm in outer diameter)
   The above items are marked with figures
   and alphabets, and rated voltages are omitted.



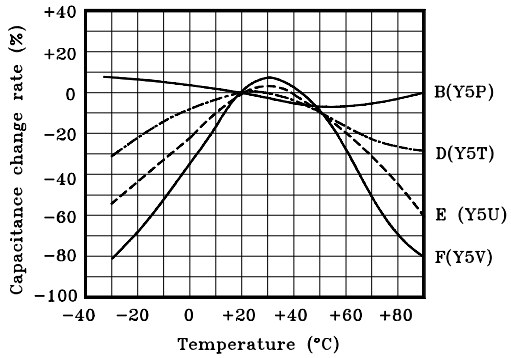
Soldered copper wire
unit: mm

Series	Dimensions (mm)			Characteristics and Capacitance (pF)							
	D	* T	F	C	L	P	R	S	T	U	SL
DD	5±1	4.0	5±1.5	1~22	2~12	2~13	2~16	2~20	3~18	3~33	1~56
DD	6.3±1	4.0	5±1.5	24~39	13~27	15~33	18~36	22~47	20~51	36~82	62~120
DD	8±1	4.0	5±1.5	43~82	30~47	36~56	39~56	51~82	56~91	91~130	130~200
DD	10±1	4.0	5±1.5	91~130	51~75	62~91	62~82	91~120	100~161	150~220	220~330
DD	12.5±1.3	4.0	5±1.5	150	82~91	100~110	91~130	130~160	180	240~270	360~430
DD	14±1.4	4.0	10±1.5	-	100~160	120~160	150~200	180~240	200~270	300~430	470~620

Note) * : Less than 24pF with characteristic C~U, SL shall be 5.0 max.

■ High Dielectric Ceramic Capacitors (Class II)

● TEMPERATURE CHARACTERISTIC



● CAPACITANCE TOLERANCE

MARK	K	M	Z	P
Tolerance	±10%	±20%	+80% -20%	+100% -0%

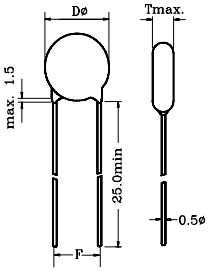
● TEST ITEM

Item \ Class	Y
Temperature Range	-25 ~ 85℃
Temperature Characteristic	○
Shock Proof	10 ~ 55c/s , 2hr.
Moisture Proof	500 hr.
Temperature & Water Cycle	○
Durability against Wet load	500 hr.
Durability against Hot load	1000 hr.

HIK Disc Type Ceramic Capacitors 50V. D.C.

● MARKING

1. Characteristic (Omitted for F)
2. Nominal capacitance
3. Capacitance tolerance
   (Omitted for less than 5±1mm in outer diameter)
4. Manufacturer
   (Omitted for less than 6.3±1mm in outer diameter).



Soldered copper wire
unit: mm

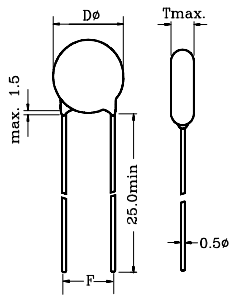
Series	Dimensions (mm)			Characteristics & Capacitance (pF)			
	D	* T	F	B(Y5P)	D(Y5T)	E(Y5U)	F(Y5V)
DD	3±1	3.0	2.5±1	100~ 680	-	1000	1000~ 2200
DD	4±1	3.0	2.5±1	820~ 1000	1000~ 1500	2200	3300~ 4700
DD	5±1	3.0	2.5±1	1200~ 1500	2200	3300	6800~ 10000
DD	5±1	3.0	5±1.5	1200~ 1500	2200	3300	6800~ 10000
DD	6.3±1	3.0	5±1.5	1800~ 2700	3300	4700	10000~ 15000
DD	8±1	3.0	5±1.5	3300~ 4700	4700~ 6800	6800~ 10000	22000
DD	10.0±1	3.0	5±1.5	5600~ 6800	10000	15000	33000
DD	12.5±1. 3	3.0	5±1.5	8200~ 10000	15000	22000	47000

Note) * : 4.0 in case of less than 470pF

HIK Disc Type Ceramic Capacitors 500V. D.C.

● MARKING

1. Characteristic
2. Nominal capacitance
3. Capacitance tolerance
4. Manufacturer
   (Omitted for less than 6.3±1mm in outer diameter).



Soldered copper wire
unit: mm

Series	Dimensions (mm)			Characteristics & Capacitance (pF)			
	D	* T	F	B(Y5P)	D(Y5T)	E(Y5U)	F(Y5V)
DD	5±1	4.0	5±1.5	100~ 820	100~ 820	1000~ 1200	1000
DD	6.3±1	4.0	5±1.5	1000~ 1200	1000~ 1500	1500~ 2200	2200~ 4700
DD	8±1	4.0	5±1.5	1500~ 2200	1800~ 2200	3300~ 4700	10000
DD	10±1	4.0	5±1.5	2700~ 3300	2700~ 3300	6800	-
DD	12.5±1. 3	4.0	5±1.5	3900~ 5600	4700~ 5600	-	-
DD	14±1.4	4.0	10±2	6800	6800	10000	-
DD	16±1.6	4.0	10±2	8200~ 10000	8200~ 15000	-	-

Note) * : 5.0 in case of less than 390pF

■ Semiconductor Type Ceramic Capacitors (Class III)

● SPECIFICATIONS

Item	Specifications
1. Temperature Characteristic	Y5 : -30~+85℃ of 25℃ R : ±15%, V :-82%~+22%
2. Capacitance	Not exceed capacitance tolerance at 1kHz. 0.1Vrms and 25℃ only R 1Vrms
3. Dissipation Factor	When it was measured according to the same way as spec. below (test item), it shall be R : 1.5% max., V :7.0% max.
4. Insulation Resistance	12V : 1MΩ min, 25V : 30MΩ min (R : 1000MΩ min), 50V : 100MΩ min at working voltage 1 minute
5. Withstand Voltage	At 2.5 times of working voltage for 1~5sec. 12V is 2 times

● TEST TIME

Class / Item	Y5	Class / Item	Y5
Temperature Range	-30 ~ +85℃	Temperature & Water Cycle	○
Temperature Characteristic	○	Durability against Wet load	500 hr
Shock Proof	10 ~ 55c/s, 2hr.	Durability against Hot load	1000 hr
Moisture Poof	500 hr		

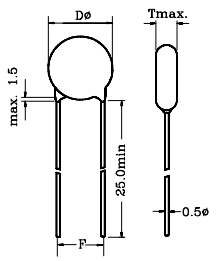
● CAPACITANCE TOLERANCE

Temperature Characteristic	Y5R	Y5V
Mark	M	Z
Tolerance	±20%	+80%~-20%

Series	Dimensions (mm)			EIA Y5R	EIA Y5V, (JIS F)		
	D	T	F	25V	12V	25V	50V
DS	5.0	4.0	5±1.5	1000 ~ 4700	10000	10000	-
DS	5.5	4.0	5±1.5	5600 ~ 15000	22000 ~ 47000	22000 ~ 47000	22000
DS	6.3	4.0	5±1.5	18000	-	-	47000
DS	7.5	4.0	5±1.5	22000	100000	100000	-
DS	8.5	4.0	5±1.5	27000 ~ 39000	-	-	100000
DS	10.5	4.0	5±1.5	47000	220000	220000	-
DS	12.0	4.0	5±1.5	68000 ~ 100000	-	-	-
DS	15.0	4.0	10±1.5	-	-	470000	-

● MARKING

1. Characteristic (Omitted for Y5V)
2. Nominal capacitance
3. Capacitance tolerance (Omitted for Y5V)
4. Working Voltage
   (50V DC : Voltage indicated by marked "_" under capacitance, Omitted for Y5R, 25V)
5. Manufacturer
   (Omitted for less than 6.3±1mm in outer diameter.)



Soldered copper wire
unit: mm