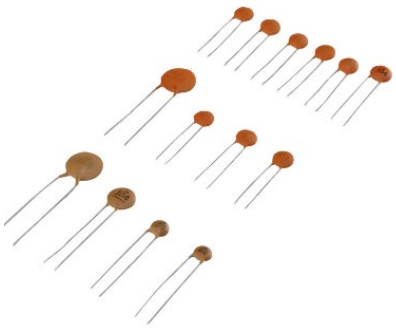
Data Sheet

224 pcs Assortment Ceramic Capacitor Set



21 pcs: 10 pF / 100 pF / 1 nF / 10 nF / 100 nF
14 pcs: 22 pF / 47 pF / 220 pF / 470 pF / 2.2 nF / 4.7 nF / 22 nF / 47 nF
7 pcs: 220 nF

Ceramic Capacitors (16 V – 500 VDC)

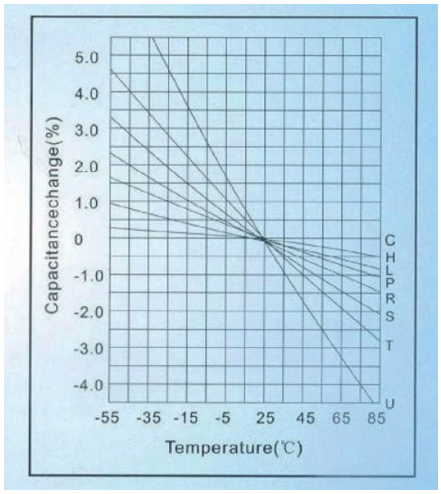
The ceramic is a dielectric whose main material is Titanium Oxide, Barium Titanate or Strontium. It becomes ceramic capacitor after a process called silver coating and in various kind of electronic equipment.

Classification

Basically, ceramic capacitor can be classified into 3 classes, according to distinct application features.

Class I: Temperature Compensation Type Capacitor (T.C.)

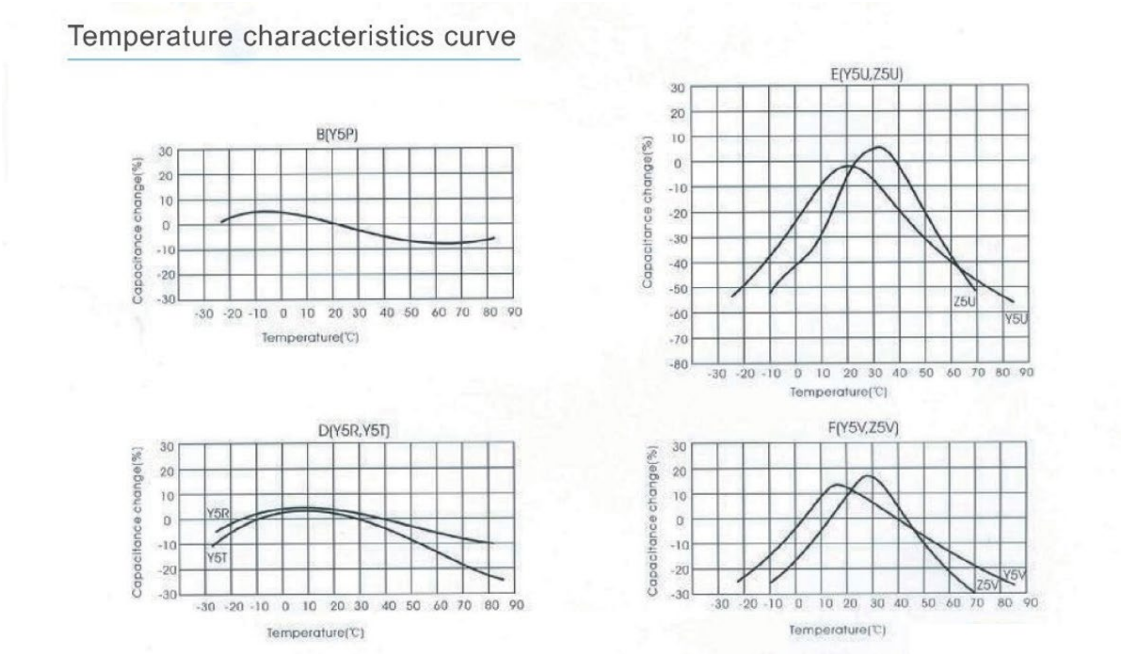
Temperature compensation capacitor mainly consist of Titanium. They have the characteristics of low constant, low losses (high quality factor), high stability and linear temperature relationship. All these features suited its capability for temperature compensating mainly use in resonant circuits or in other circuits for which high Q and high temperature-base stability of circuit constant are required.



Data Sheet

Class II: High-Dielectric Constant Type Capacitor (HI-K)

High-dielectric are mainly consist of Barium Titanate, It is known as HI-K because of its high power factor. These capacitors which have the characteristics of high capacitance value, small internal impedance and excellent power factors are widely used in electronic circuits such as coupling, and by pass purposes.



Class III: Semi-Conductive Type Capacitor (S.C.)

These disc type semi conductive capacitors are reformed smaller size with larger capacitance than usual HI-K type ceramic capacitors. These capacitors are widely used in electronics circuits such as constant determination, coupling and by-pass purposes.

Data Sheet

Ceramic Capacitors (ROHS)
(16V-500VDC)

Main specification of ceramic capacitor

TYPE OF CERAMIC CAPACITOR	TEMPERATURE CHARACTERISTICS	CAPACITANCE RANGE (PF)	TOLERANCE	RATED VOLTAGE (VDC)	Q or DF	INSULATION RESISTANCE
CLASS I:(T.C.) TEMPERATURE COMPENSATING TYPE	PPM/°C NPO (CH:0+/-60) N150 (PH:-150+/-60) N220 (RH:-220+/-60) N330 (SH:-330+/-60) N470 (TH:-470+/-60) N750 (UJ:-750+/-120) SL (SL:+350~-1000)	 1~470 4~220 4~240 4~270 5~300 5~390 1~820	1) 1~5PF ±0.25PF ±0.5PF 2) 1~9PF ±0.5PF 3) 10PF or more ±5% ±10%	50-500V 50V 50V 50V 50V 50V 50-500V	1)more than 30PF Q ≥ 1,000 2)30PF or less 30PF Q≥400±20C	≥10,000MΩ
CLASS II: (Hi-k) HIGH DIELECTRIC CONSTANT TYPE	Capacitance Change(%) B:Y5P(+/-10%) E:Z5U(+22%/-56%) F:Z5V(+22%/-82%)	 100~10000 1000~22000 1000~50000	±10% ±20% +80% -20%	50~2kv 50~2kv 50~2kv	1)B.E CHARACTERISTIC B.E DF≤2.5% 2)F CHARACTERISTIC F DF≤5.0%	1)0.02uF ≥10000MΩ 2)0.02uF<C <0.1uF ≥7500MΩ
CLASS III: (S.C.) SEMICONDUCTIVE TYPE	Capacitance Change(%) B:Y5P(+/-10%) Y5R(+/-15%) E:Y5U(+22%/-56%) F:Y5V(+22%/-82%)	 1000~100000 10000~220000 20000~220000	±10% ±20% +80% - 20%	16~50v 16~50v 16~50v	1)16V:DF<7% 2)25V,50V: DF<5.0%	1)16V: >100MΩ 2)25V, 50V: >1000MΩ

Note 1 Testing condition: Capacitance Testing Temperature is 25℃ ±2℃
Note 2 Operating Temperature Range: Yclass: -25℃~+85℃
Z class:+10℃~+85℃

Data Sheet

SPECIFICATION AND TEST METHOD

Temperature Compensation

Operating temperature range	-30～+85°C
Capacitance	Satisfied within specified capacitance toleronce when Measured at 25±2°C with 1±0.1MHz and 3 Vrms max.
Test voltage	1、Working voltage----50V 3 Times of working voltage(50mA and under)for 1 to 5 seconds with no failure. 2、Working voltage --- 500V 2.5 Times of working voltage(50mA and under)for 1 to 5 seconds with no failure.
Insulation resistance	10000MΩmin AT the rated voltage ± 3% within 60 ± 5 sec of charging.
5 Q value	Fulfil the specification stated on page 4 with the same condition test on capacitance.

High Dielectric Constant

Operating temperature range	Y: -30～+85°C Z: +10～+85°C
Capacitance	Satisfied within specified capacitance toleronce when Measured at 25±2°C with 1±0.1MHz and 3 Vrms max.
Test voltage	1、Working voltage----50V-500V 2.5 Times of working voltage(50mA and under)for 1 to 5 seconds with no failure. 2、Working voltage----1KV-2KV 2 Times of working voltage(50mA and under)for 1 to 5 seconds with no failure.
Insulation resistance	1、 For capacitance < 0.02uF: 10000MΩmin at the rated voltage ± 3% within 60 ± 5 sec. Of charging. 2、 For 0.02uF: < capacitance < 0.1uF: 7500MΩmin at the rated voltage ± 3% within 60 ± 5 sec. of charging.
Dissipation factor(D.F.)	Fulfil the specification stated on page 4 with the same condition test on capacitance.

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Semi Conductive

Operating temperature range	Y: -30~+85°C
Capacitance	Satisfied within specified capacitance toleronce when Measured at 25±2°C with 1±0.1MHz and 0.1 Vrms max.
Test voltage	1.5 Times of working voltage(10mA and under)for 1 to 5 seconds with no failure.
Insulation resistance	For W.v. = 16V: 100MΩ min at rated voltage within 1 min. For W.v. = 25V, 50V: 1000MΩ min at rated voltage within 1 min.
Dissipation factor(D.F.)	Fulfil the specification stated on page 4 with the same condition test on capacitance.

MAX.BODY DIAMETER

Temperature compensating Type

CAPACITANCE (PF)	T.C. / W.V. / BODY CODE	CH		PH	TH	UJ	SL	
		50V	500V	50V	500V	50V	50V	500V
	Ø5	1~51	1~31	4~33	5~51	5~50	1~180	1~180
	Ø6	56~82	33~50	36~56	56~82	51~82	200~270	200~270
	Ø7	100~120	56~82			83~120	300~330	
	Ø8	150~180	100~120	62~100	91~120	130~160	390~470	300~330
	Ø9	200~220		110~160	130~220	180~200	500~560	300~330
	Ø10	250~270				220~270	680~820	390~470
	Ø11	300~330		180~220	240~300	300~390		500~560
	Ø12	390~470						680~820
	Ø14	360~390						
	Ø16	470						

Data Sheet

MAX.BODY DIAMETER

High Dielectric Constant Type

(PF) CAPACITANCE	B characteristic				E characteristic				F characteristic			
W.V. / BODY CODE	50V	500V	1KV	2KV	50V	500V	1KV	2KV	50V	500V	1KV	2KV
Ø5	100 2200	100 680	100 680	100 220	1000 4700	1000 2200	1000		1000 10000	1000 1800	1000	
Ø6	2700 3300	680 1200	680 1200	220 390	5600 1000	2700 3300	1000 2200	1000	15000 22000	2000 4700	1500 2200	1000 1800
Ø7	3900 4700	1500 1800	1500 1800	470 820		3900 4700				5600 6800	2000 4700	2200 2700
Ø8	5600 6800	2000 2700	2000 2900	1000	1500	5600 6800	3300 4700	2000 2200	27000 30000	8200 10000	5600 6800	3000 4700
Ø9	8200 1000	3300 3900	3000 3900	1500	22000			3300	33000 40000	15000	8200 10000	5600 6800
Ø10		4700 5600	4700	1800 2200		10000	5600 6800	4700	47000 50000	22000		8200 10000
Ø11		5600 6800	5600 6800	2700 3000		15000		6800				
Ø12		8200 10000	8200 10000	3300 4700		20000 22000	20000 22000	1000			15000	
Ø14				5600 6800							22000	
Ø20				8200 10000				20000 22000				

Semi Conductive

(PF) CAPACITANCE	B characteristic				E characteristic				F characteristic			
W.V. / BODY CODE	16V	25V	50V		16V	25V	50V		16V	25V	50V	
Ø5	1000~ 12000	1000~ 12000	1000~ 10000		10000	10000	10000		20000	20000	20000	
Ø6	15000~ 22000	15000~ 22000	12000~ 15000		15000~ 47000	15000~ 33000	15000~ 47000		33000~ 47000	33000~ 47000	33000~ 47000	
Ø7	27000~ 47000	27000~ 33000	18000~ 22000		56000~ 68000	47000	56000~ 68000		50000~ 100000	50000~ 100000	50000~ 100000	
Ø8	56000~ 68000	39000~ 47000	27000~ 33000		100000	56000~ 68000	100000					
Ø9	68000~ 82000	56000~ 68000				100000			220000	220000	220000	
Ø11	82000~ 100000	82000~ 100000	39000~ 47000		220000		220000					
Ø12			56000~ 68000			220000						
Ø14			82000~ 100000									