



MULTILAYER(MONO) CERAMIC CAPACITORS
MULTILAYER CERAMIC CAPACITOR - SMD
SAFETY STANDARD RECOGNIZED CAPACITOR - X1 / Y



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CERAMIC DISC CAPACITOR - TS15

- . Linear temperature coefficient of capacitance.
- . High stability of capacitance.
- . Low loss at wide range of frequency.

S P E C I F I C A T I O N S	
OPERATING TEMPERATURE RANGE	-40°C to +85°C
RATED VOLTAGE	DC 500V
CAPACITANCE AND DISSIPATION FACTOR TESTING CONDITION	SL/NPO: 25°C、1±0.1MHz、1.0Vrms Y5P/Y5U/Y5V: 25°C、1±0.1MHz、1.0Vrms
DISSIPATION FACTOR (tanδ)	SL/NPO:≤0.15% Y5P/Y5U/Y5V:≤2.5%
WITHSTAND VOLTAGE	1.5U _R +500V(DC)
INSULATION RESISTANCE (I.R.)	SL/NPO: IR≥10000MΩ Y5P/Y5U/Y5V: IR≥4000MΩ
TEMPERATURE CHARACTERISTIC	SL, NPO, Y5P, Y5U, Y5V



HIGH VOLTAGE CERAMIC CAPACITOR - TS16

- Use for coupling, and by-pass circuit there are a stable and high reliability products

S P E C I F I C A T I O N S	
OPERATING CONDITION RANGE	-25°C to +85°C
RATED WORKING VOLTAGE	1 KV – 15 KVDC
CAPACITANCE RANGE	100pF – 10,000pF
TEST VOLTAGE	U _R ≤500V, U=2.5U _R ; U _R >500V≤6KV, U=1.5U _R +500V; U _R >6KV≤15KV, U=1.5U _R
DISSIPATION FACTOR (tan δ)	SL/YL/NPO:≤0.5% max Y5P/Y5U/Y5V/Y5T:D.F.≤2.5% max Y5R:D.F.≤0.2% max
INSULATION RESISTANCE	YL/SL/NPO:≥10GΩ; Y5R/Y5P/Y5U/Y5V/Y5T: CR≤25nF,≥4000MΩ; CR>25nF, R _j •CR≥100s Note: "s" for the time constant, that is, insulation resistance times the capacitance, in units of seconds, also known as megohm micro method.



SAFETY STANDARD RECOGNIZED CAPACITOR - X1 / Y - TS22

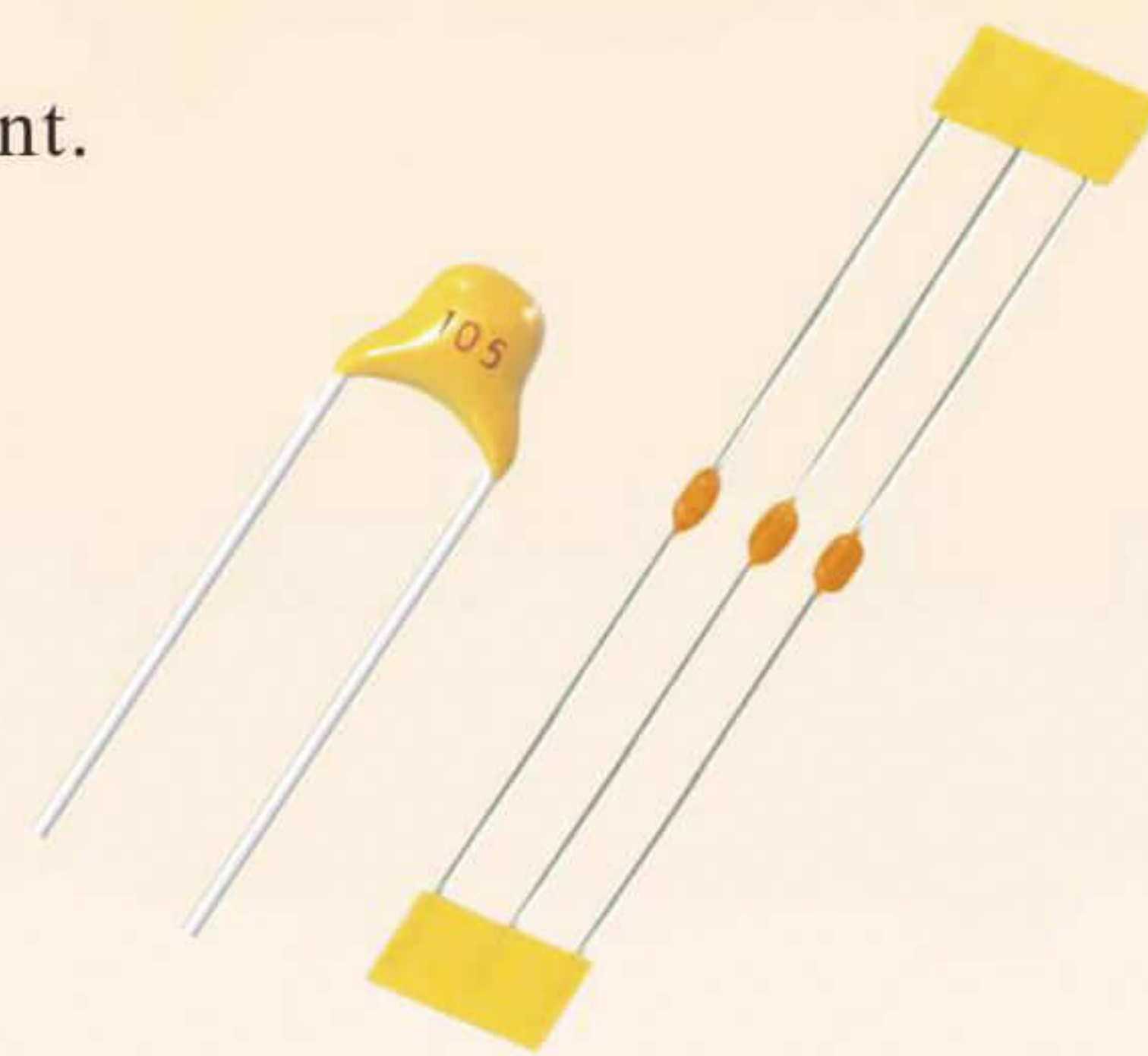
- Ideal for across the line applications.
- Compact size, Cost effective product.
- Safety standards recognized.

S P E C I F I C A T I O N S	
OPERATING TEMPERATURE RANGE	-25°C to +85°C
CAPACITANCE RANGE	10pF to 10000pF
CAPACITANCE TOLERANCE	±10%, ±20%, +80-20%
RATED VLOTAGE	AC 125V, 250V, 400V
SUBCLASS	CD: X1 400VAC Y1 400VAC CE: X1 400VAC Y2 250VAC
TEMPERATURE COFFICIENT	2B(Y5P)±10%、2E(Y5U)+22% ~ -56%、2F(Y5V)+22% ~ -82%
DISSIPATION FACTOR (tan δ)	2B: 2.5% max. at 25°C and 1 KHz, 1±0.2Vrms.
INSULATION RESISTANCE AT 20°C	2E/2F: 2.5% max. at 25°C and 1 KHz, 1±0.2Vrms.
DIELECTRIC STRENGTH	10000MΩat 500VDC for 1 minute. 1500 VAC for 60 seconds. (250VAC) 4000 VAC for 60 seconds. (400VAC)



MULTILAYER (MONO) CERAMIC CAPACITOR - TS17

- Miniature size, wide capacitance, tape and reel packaging available for auto-placement.
- Coating by epoxy resin, creates the excellent humidity resistance and prevents body from damaging during soldering and washing.
- Industry standard size and various load spacing available.
- Wide application in computer, data processor, telecommunication, Industrial control, and instrumentation equipments, etc.



S	P	E	C	I	F	I	C	A	T	I	O	N	S
T.C	NPO/COG		X7R(B)				Y5V(Y/F)		Z5U(E)				
Dielectric type	Stable Class I Dielectric		Stable Class II Dielectric										
Electrical properties	With negligible dependence of electrical properties on temperature, voltage, frequency and time		With predictable change of properties with temperature, voltage, frequency and time, this dielectric is ferroelectric and offers higher capacitance ranges than Class I.				With high twist dielectric constant and greater variation of properties with temperature and test conditions, very high capacitance per unit volume.						
Application	Use in circuits requiring stable performance		Use as blocking, coupling, By-passing discriminating element.				Suited for By-passing and coupling application such as store power and memory circuit						
Capacitance range	1pF ~ 10nF		100pF ~ 5uF				1nF ~ 14.7uF						
Operating temperature	0±30PPm/c -55°C ~ +125°C		±15% -55°C ~ +125°C				+30% ~ -80% -25°C ~ +85°C		+22% ~ -56% -10°C ~ +85°C				

Size code	shape	Dimensions(mm)				Voltage	Capacitance(PF)		
		P(±0.5)	Lmax	Wmax	Tmax		COG(NPO)	X7R	Y5V(Z5U)
0805	b	2.54	4.2	3.8	3.0	25V	OR5~103	101~105	103~475
	C1	5.08	4.2	3.8	3.0	50V	OR5~103	101~474	103~105
	C3	5.08	4.2	5.0	3.0	100V	OR5~103	101~104	103~104
1206	a	2.54	5.0	4.5	3.5	25V	OR5~104	101~225	103~106
	b	3.5	5.0	4.5	3.5	50V	OR5~473	101~225	103~106
	C1	5.08	5.0	4.5	3.5	100V	OR5~473	101~105	103~155
1210	a	2.54	5.0	4.5	3.5	25V	OR5~104	101~106	103~106
	b	3.5	5.0	4.5	3.5	50V	OR5~473	101~475	103~106
	C1	5.08	5.0	4.5	3.5	100V	OR5~473	101~105	103~155
1812	b	5.08	7.0	6.0	4.0	25V	OR5~104	101~106	103~106
						50V	OR5~104	101~106	103~106
						100V	OR5~473	101~105	103~155
2225	b	5.5	10	9	4.5	25V	OR5~104	101~106	103~106
						50V	OR5~104	101~106	103~106
						100V	OR5~473	101~105	103~155
3035	b	7.5	12	10	4.5	25V	OR5~104	101~106	103~106
						50V	OR5~104	101~106	103~106
						100V	OR5~473	101~105	103~155

MULTILAYER CERAMIC CAPACITOR - SMD - TS18

SPECIFICATIONS	
DIELECTRIC & VALUES	NPO X7R X5R X7T X7S X6S Y5V consult product pages of catalog for cap ranges and voltage rating
TERMINATIONS	Tin / Nickel
VOLTAGE	4, 6, 6.3, 10, 25, 50 VDC
PACKING	tape and reel (0402, 0603, 0805, 1206, 1210)
CAPACITANCE	0.1pF ~ 100uF
TOLERANCE	±0.1pF ~ +80-20%
OPERATING TEMPERATURE RANGE	NPO, X7R, X7T, X7S: -55°C ~ +125°C; X6S: -55°C ~ +105°C; X5R: -55°C ~ +85°C; Y5V: -30°C ~ +85°C;
TYPES OF CAPACITOR AND DIELECTRIC MATERIAL	NPO: The capacitor of this kind dielectric material is considered as Class I capacitor, including general capacitor and high frequency NPO capacitor. The electrical properties of NPO capacitor are the most stable one and have little change with temperature, voltage and time. They are suited for applications where low losses and high stability are required, such as filters, oscillators, and timing circuits.
	X7R, X5R, X6S, X7T, X7S: material is a kind of material has high dielectric constant. The capacitor made of this kind material is considered as Class II capacitor whose capacitance is higher than that of class I. These capacitors are classified as having a semi stable temperature characteristic and used over a wide temperature range, such in these kinds of circuits, DC blocking, decoupling, bypassing, frequency discriminating etc.
	Y5V: The capacitor made of this kind of material is the highest dielectric constant of all ceramic capacitors. They are used over a moderate temperature range in application where high capacitance is required because of its unstable temperature coefficient, but where moderate losses and capacitance changes can be tolerated. Its capacitance and dissipation factors are sensible to measuring conditions, such as temperature and voltage, etc.



HIGH VOLTAGE MULTILAYER CERAMIC CAPACITORS - SMD - TS18H

SPECIFICATIONS	
DIELECTRIC & VALUES	NPO X7R X5R X7T X7S X6S Y5V consult product pages of catalog for cap ranges and voltage rating
TERMINATIONS	Tin / Nickel
VOLTAGE	100, 200, 250, 500, 630, 1000, 2000 VDC
PACKING	tape and reel (0603, 0805, 1206, 1210)
CAPACITANCE	0.2pF ~ 4.7uF
TOLERANCE	±0.1pF ~ +80-20%
OPERATING TEMPERATURE RANGE	NPO, X7R, X7T, X7S: -55°C ~ +125°C; X6S: -55°C ~ +105°C; X5R: -55°C ~ +85°C; Y5V: -30°C ~ +85°C



HIGH Q LOW ESR RF MULTILAYER CERAMIC CAPACITORS - MLCC SMD - TS18Q

PERFORMANCE	
TEMPERATURE COEFFICIENT	COG: 0±30ppm/°C
CAPACITANCE DRIFT	No more than ±0.2% or ±0.05pF, whichever is larger
QUALITY FACTOR (Q VALUE)	Over 2000 at 1MHz/1KHz
INSULATION RESISTANCE	At 20°C C: ≥10000MΩ
WORKING TEMPERATURE	-55°C ~ +125°C

