Ceramic Trimmer Capacitors

TZ03 Series

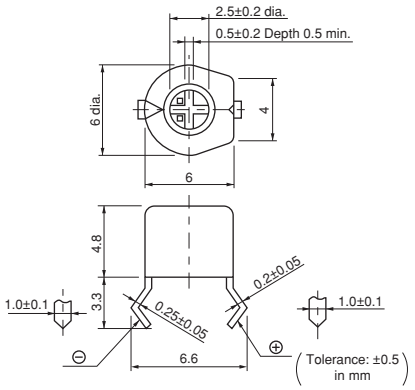
■ Features

1. Color coded case facilitates identification of capacitance range.
2. Sealed construction prevents the penetration of flux and dust.
3. Available in two adjustment styles: Top/Rear.
4. Cross-shaped (+) slot enables automatic adjustment.

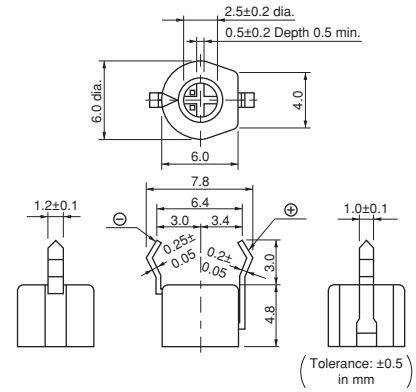
■ Applications

1. Car audio systems
2. Car clocks
3. Stereos
4. Radio cassette tape recorders
5. Cordless telephones
6. Video games
7. Compact radio equipment
8. Remote keyless entry systems
9. Burglarproof devices

F Type



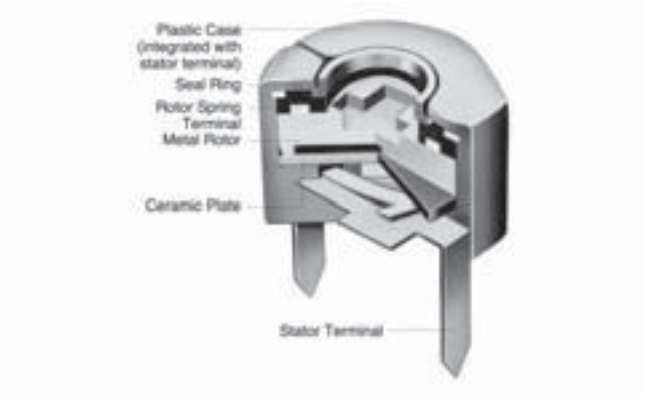
N Type



Part Number	C min. (max.) (pF)	C max. (pF)	TC	Q	Rated Voltage	Withstanding Voltage	Stator/Case Color
TZ03Z2R3□169	1.25	2.3 +50/-0%	NP0±200ppm/°C	300min. at 1MHz, Cmax.	100Vdc	220Vdc	Black
TZ03Z050□169	1.5	5.0 +50/-0%	NP0±200ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Blue
TZ03Z070□169	2.0	7.0 +50/-0%	NP0±200ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Blue
TZ03Z100□169	2.7	10.0 +50/-0%	NP0±200ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Blue
TZ03R200□169	4.2	20.0 +50/-0%	N750±300ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Red
TZ03R300□169	5.2	30.0 +50/-0%	N750±300ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Green
TZ03P450□169	6.8	45.0 +50/-0%	N1200±500ppm/°C	300min. at 1MHz, Cmax.	100Vdc	220Vdc	Yellow
TZ03P600□169	9.8	60.0 +50/-0%	N1200±500ppm/°C	300min. at 1MHz, Cmax.	100Vdc	220Vdc	Brown
TZ03Z500□169	6.0	50.0 +100/-0%	NP0±300ppm/°C	300min. at 1MHz, Cmax.	50Vdc	110Vdc	Orange
TZ03R900□169	9.0	90.0 +100/-0%	N750±300ppm/°C	300min. at 1MHz, Cmax.	50Vdc	110Vdc	Black+Dot
TZ03R121□169	10.0	120.0 +100/-0%	N750±300ppm/°C	300min. at 1MHz, Cmax.	50Vdc	110Vdc	Black

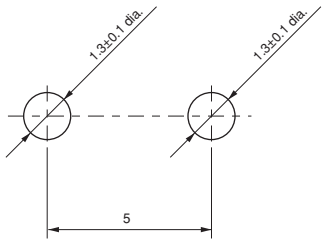
Insulation Resistance: 10000M ohm Torque: 2.0 to 14.7mNm Operating Temperature Range: -25 to +85°C
A blank column is filled with terminal type codes.

■ Construction



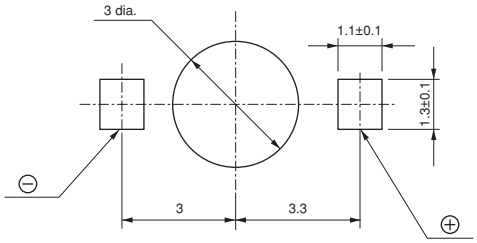
■ Mounting Holes

F Type



(Tolerance: ±0.5 in mm)

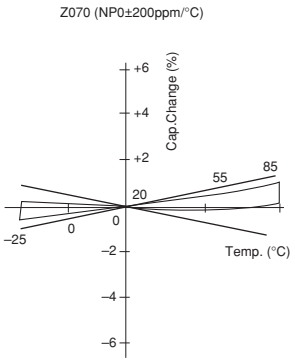
N Type



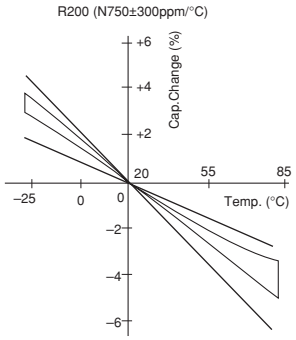
(Tolerance: ±0.5 in mm)

■ Temperature Characteristics

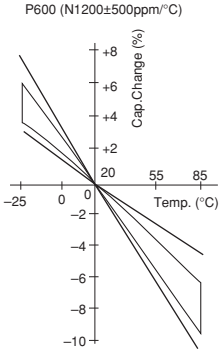
TZ03Z070



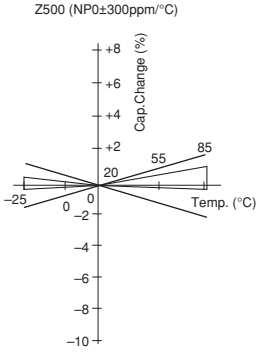
TZ03R200



TZ03P600



TZ03Z500



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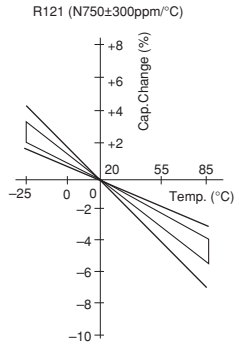
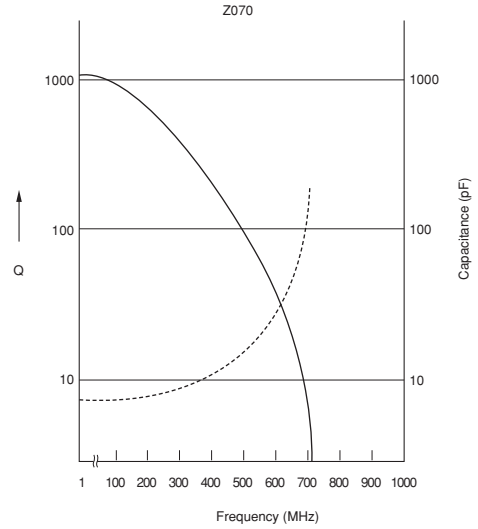
■ Temperature Characteristics

TZ03R121

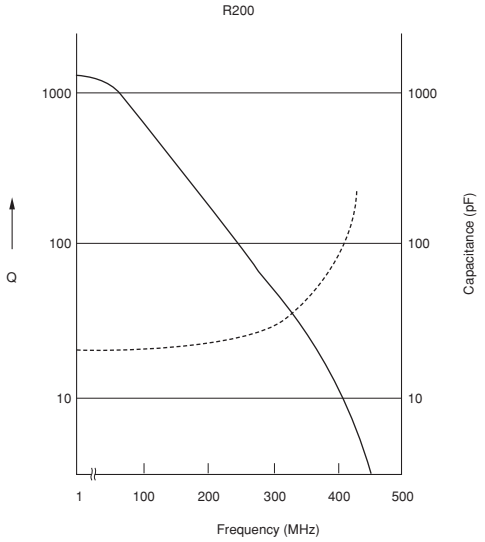


■ Frequency Characteristics

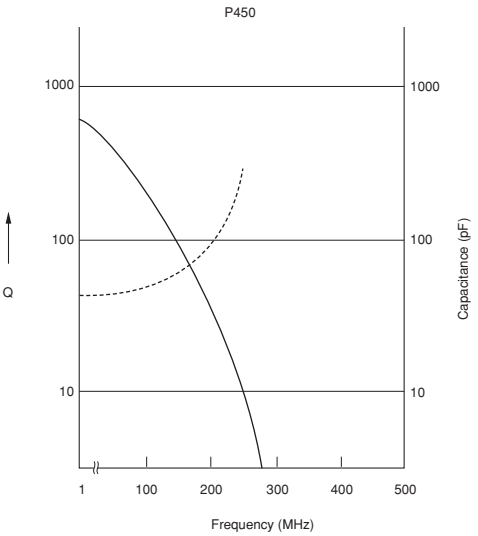
TZ03Z070



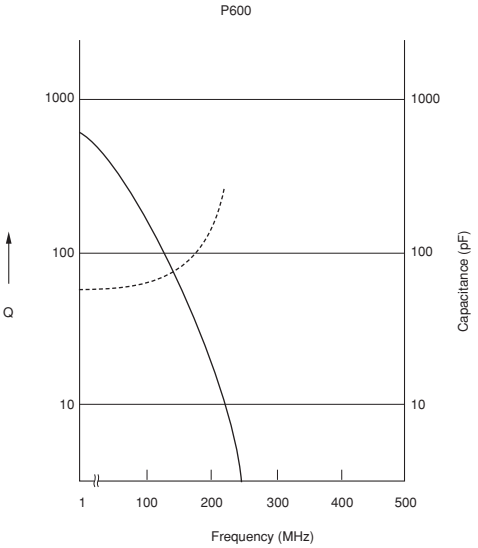
TZ03R200



TZ03P450



TZ03P600



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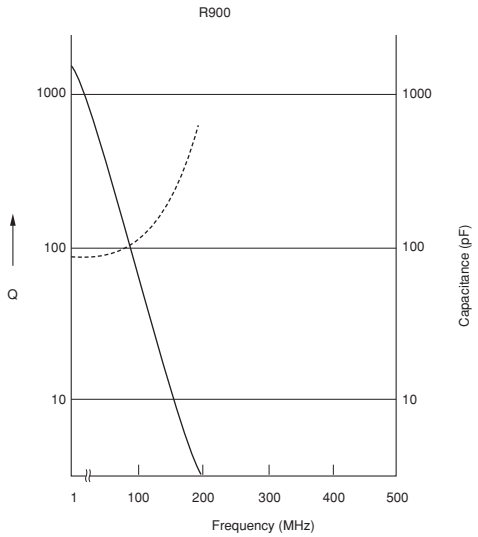
■ Frequency Characteristics

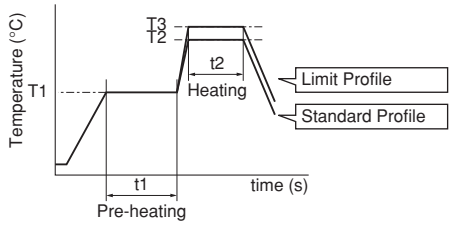
TZ03R900



■ Temperature Profile

● Flow Soldering Profile

Soldering profile for Lead-free solder (96.5Sn/3Ag/0.5Cu), Eutectic solder (63Sn/37Pb)



Standard Profile				
Pre-heating		Heating		Cycle of reflow
Temp. (T1)	Time (t1)	Temp. (T2)	Time (t2)	
150°C	60 to 120sec.	250°C	5sec. max.	1 time

Limit Profile				
Pre-heating		Heating		Cycle of reflow
Temp. (T1)	Time (t1)	Temp. (T3)	Time (t2)	
150°C	60 to 120sec.	265±3°C	5sec. max.	2 times

● Soldering Iron

Standard Profile			
Temperature of soldering iron tip	Soldering time	Soldering iron power output	Cycle of soldering iron
350±10°C	3sec. max.	30W max.	1 time

■ Notice (Storage and Operating Conditions)

1. Do not use the trimmer capacitor under atmosphere of RTV silicone rubber (Room Temperature Vulcanizing Silicone Rubber) except Acetone liberating silicone sealant.
2. Before using trimmer capacitors, please store under the conditions of -10 to +40°C and 30 to 85%RH.
3. Do not store in or near corrosive gasses.
4. Use within 6 months of delivery.
5. Open the package just before using.
6. Prior to storing previously opened packages, the packaging should be heat-sealed. Avoid using rubber bands for repackaging.
7. Do not store under direct sunlight.
8. Do not use the trimmer capacitor under the conditions listed below.
   (1) Corrosive gasses atmosphere (ex. Chlorine gas, Hydrogen sulfide gas, Ammonia gas, Sulfuric acid gas, Nitric oxide gas, etc.)
   (2) In liquid (ex. water, oil, medical liquid, organic solvent, etc.)
   (3) Dusty / dirty atmosphere
   (4) Direct sunlight
   (5) Static voltage or electric/magnetic fields
   (6) Direct sea breeze
   (7) Other variations of the above

■ Notice (Soldering and Mounting)

1. Soldering
 (1) TZ03 series can be soldered by flow soldering method and soldering iron. Do not use reflow soldering method.
 (2) Soldering conditions
 Refer to the temperature profile.
 If the soldering conditions are not suitable, e.g., excessive time and/or excessive temperature, the trimmer capacitor may deviate from the specified characteristics.
 (3) The dimension of mounting hole should be Murata's standard mounting hole used at flow soldering. The amount of solder is critical. Insufficient amounts of solder can lead to insufficient soldering strength on PCB. Excessive amounts of solder may cause bridging between the terminals or contact failure due to flux wicking up.
 (4) When using soldering iron, the string solder shall be applied to the lower part of the terminal only. Do not apply flux except to the terminals. Excessive amounts of solder and/or applying solder to the upper part of the terminal may cause fixed rotor or the contact failure due to flux invasion into the movable part and/or the contact point. The soldering iron should not come in contact with the plastic case of the trimmer capacitor. If such contact does occur, the trimmer capacitor may be damaged.
 (5) Our recommended chlorine content of string solder is 0.5wt% max.
 (6) Do not use water-soluble flux (for water cleaning). To prevent the deterioration of trimmer capacitor characteristics, apply flux only to terminals.

2. Mounting
 (1) Do not apply excessive force (preferably 5.0 N [Ref: 500gf] max.), when the trimmer capacitor is mounted on the PCB.
 (2) Use the suitable PCB holes that are the same pitch as the terminal of the trimmer capacitor. If it does not fit the terminal, excessive stress may be applied to the terminal and the trimmer capacitor may deviate from the specified characteristics.
 (3) Do not apply bending stress more than 10.0N (Ref: 1kgf) after the trimmer capacitor has been mounted on the PCB.
 (4) Mount trimmer capacitor in contact with PCB.
 (5) When bending the terminals, do not apply excessive force to the body of the product to protect the terminal fixing part from damage.
3. Cleaning
 Isopropyl alcohol and ethyl alcohol are available material for cleaning. If you use any other type of solvents, please evaluate performance in your application. Moreover, please confirm that no damage has occurred to the trimmer capacitor after cleaning in your conditions.
4. Other
 Note the polarity of the trimmer capacitor to minimize influence by stray capacitance. (Refer to the dimensions concerning the polarity.)

■ Notice (Handling)

1. Use suitable screwdrivers that fit comfortably in driver slot.
 (1) Recommended screwdriver for manual adjustment
 MURATA: KMDR010
 (2) Recommended screwdriver bit for automatic adjustment
 MURATA: KMBT010
2. When adjusting with a screwdriver, do not apply excessive force (preferably 1.0 N [Ref: 100gf] max.) to minimize capacitance drift. Excessive force applied to the screwdriver slot may cause deformation of the products.
3. Do not apply adhesive, lock paints, or any other substances to the trimmer capacitor to secure the rotor position. They may cause corrosion or electrical contact problems.

■ Notice (Other)

Before using trimmer capacitors, please test after assembly in your particular mass production system.