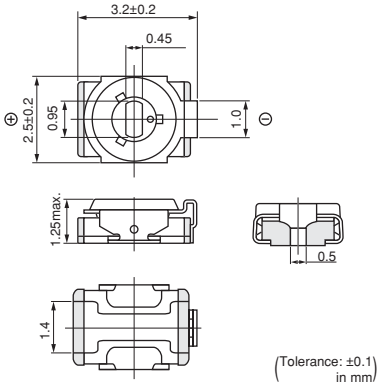
Ceramic Trimmer Capacitors

TZY2 Series

■ Features

1. Small and thin size with external dimensions of 2.5(W)x3.2(L)x1.25max.(H)mm.
2. New shape of cover can improve the flux invasion compared with current products.
3. Improvement of the adhesion between rotor and stator leads to superior stability.
4. Unique construction with no plastic material provides superior soldering heat resistance to maintain excellent characteristic performance after reflow soldering.
5. Suitable for high frequency circuit due to high self-resonant frequency (4.8GHz of TZY2Z010 at 1.0pF setting).



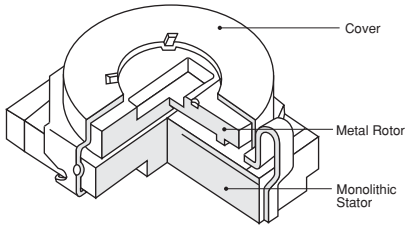
■ Applications

1. Crystal oscillators
2. Crystal filters
3. Pagers
4. Cordless telephones
5. PHS
6. Hand radios
7. Cellular telephones
8. Watches
9. Remote keyless entry systems
10. W-LAN
11. Radar detectors
12. Compact radios
13. DVD
14. Burglarproof devices
15. Headphone stereos

Part Number	C min. (max.) (pF)	C max. (pF)	TC	Q	Rated Voltage	Withstanding Voltage
TZY2Z010A001	0.5	1.0 +100/-0%	NP0±300ppm/°C	200min. at 200MHz, Cmax.	25Vdc	55Vdc
TZY2Z2R5A001	0.65	2.5 +100/-0%	NP0±300ppm/°C	200min. at 200MHz, Cmax.	25Vdc	55Vdc
TZY2Z030A001	1.5	3.0 +100/-0%	NP0±300ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2Z060A001	2.5	6.0 +100/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2Z100A001	3.0	10.0 +100/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2R200A001	4.5	20.0 +100/-0%	N750±500ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2R250A001	5.5	25.0 +100/-0%	N750±500ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2K450A001	8.0	45.0 +100/-0%	N1000±500ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc

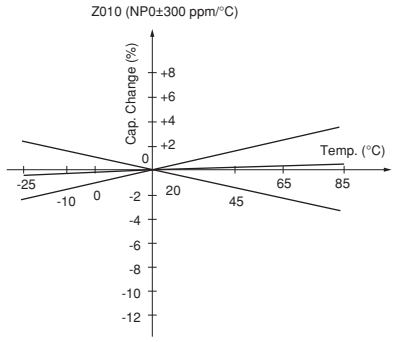
Insulation Resistance: 10000M ohm Torque: 0.5 to 5.0mNm Operating Temperature Range: -25 to +85°C

■ Construction

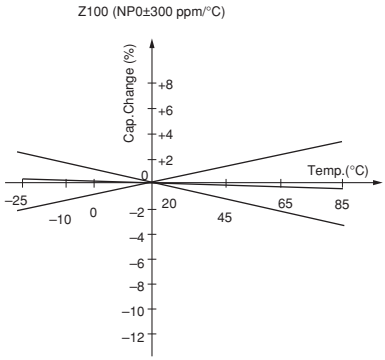


■ Temperature Characteristics

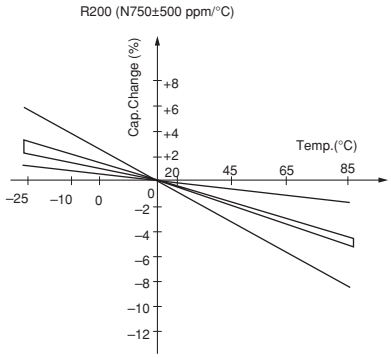
TZY2Z010



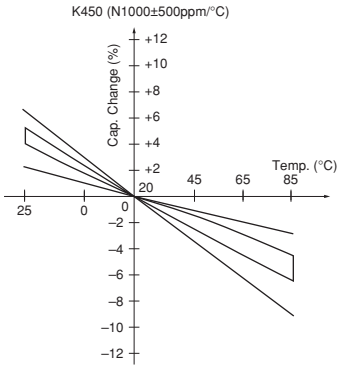
TZY2Z100



TZY2R200

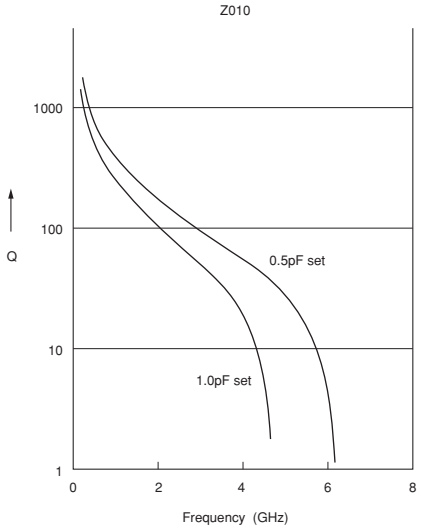


TZY2K450

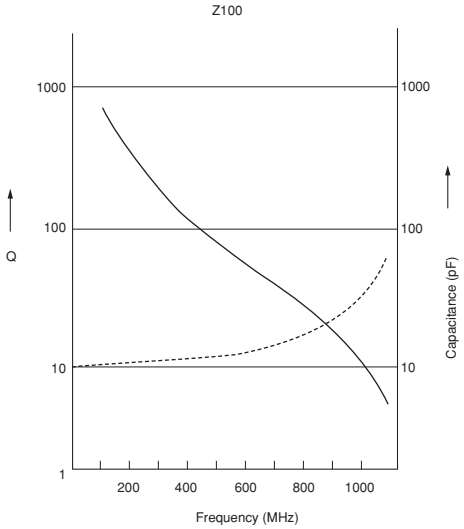


■ Frequency Characteristics

TZY2Z010



TZY2Z100



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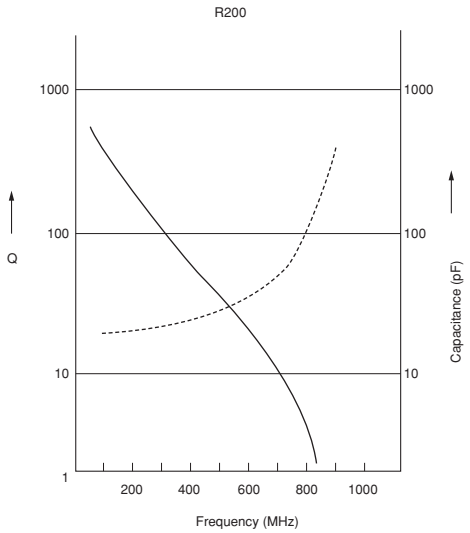
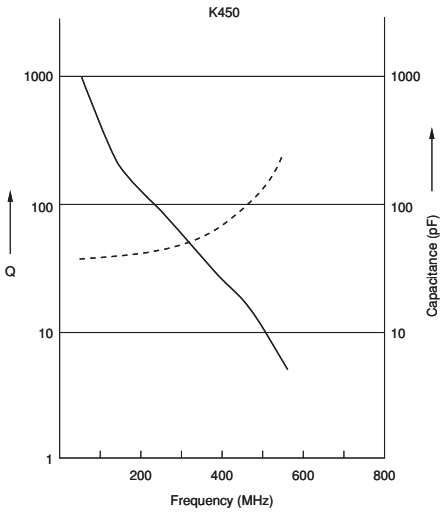
■ Frequency Characteristics

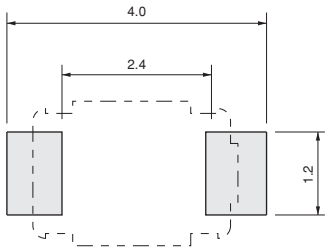
TZY2R200



TZY2K450



■ Land Pattern

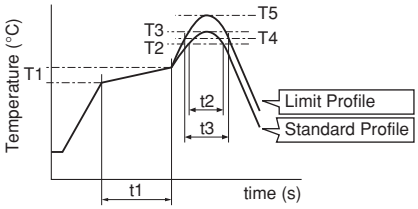


(Tolerance: ±0.1 in mm)

■ Temperature Profile

● Reflow Soldering Profile

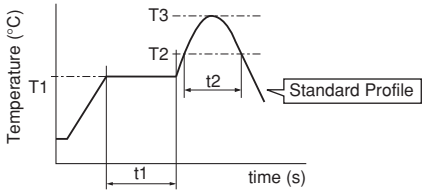
①Soldering profile for Lead-free solder (96.5Sn/3Ag/0.5Cu)



Standard Profile					
Pre-heating		Heating		Peak temperature (T3)	Cycle of reflow
Temp. (T1)	Time (t1)	Temp. (T2)	Time (t2)		
150 to 180°C	60 to 120sec.	220°C	30 to 60sec.	245±3°C	2 times

Limit Profile					
Pre-heating		Heating		Peak temperature (T5)	Cycle of reflow
Temp. (T1)	Time (t1)	Temp. (T4)	Time (t3)		
150 to 180°C	60 to 120sec.	230°C	30 to 50sec.	260 +5/-0°C	2 times

②Soldering profile for Eutectic solder (63Sn/37Pb)
(Limit profile: refer to ①)



Standard Profile					
Pre-heating		Heating		Peak temperature (T3)	Cycle of reflow
Temp. (T1)	Time (t1)	Temp. (T2)	Time (t2)		
150°C	60 to 120sec.	183°C	30sec.	230 +5/-0°C	1 time

● 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. Do not store under direct sunlight.
6. 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) TZY2 series can be soldered by reflow soldering method and soldering iron. Do not use flow soldering method (dipping).
   (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 amount of solder is critical.
   (4) The thickness of solder paste should be printed from 120 micro m to 170 micro m and the dimension of land pattern should be Murata's standard land pattern used at reflow soldering.
   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.
   (5) When using soldering iron, the diameter of the string solder shall be less than 0.5mm. 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 metal rotor or 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 monolithic stator of the trimmer capacitor. If such contact does occur, the trimmer capacitor may be damaged.
   (6) Our recommended chlorine content of solder is as follows.
   (a) Solder paste: 0.2wt% max.
   (b) String solder: 0.5wt% max.
   (7) 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) Do not warp and/or bend PCB to protect trimmer capacitor from breakage.
   (3) Use a pick-up nozzle of a suitable dimension. (1.8mm external diameter and 1.3mm bore diameter.)
3. Cleaning
   This product cannot be cleaned because of open construction.
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
   ENGINEER INC.: DA-89
   (Murata P/N is KMDR060)
   (2) Recommended screwdriver bit for automatic adjustment
   MURATA: KMBT060
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.