Ceramic Trimmer Capacitors

TZB4 Series

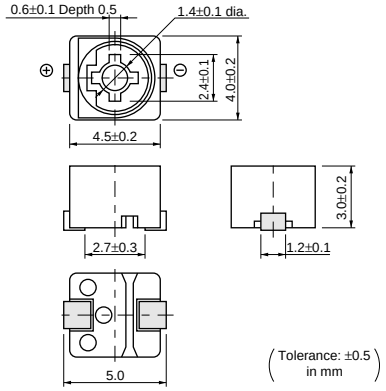
■ Features

1. Miniature rectangular shape: 4.0(W)x4.5(L)x3.0(H)mm
2. Color coded case facilitates identification of capacitance range.
3. Designed for automatic placement in surface mount applications.
4. Designed to withstand flux baths and solder baths (with cover film type)
5. Can be temporarily attached to PCB with adhesives (Terminal style A and B)
6. Can be reflow and flow (with cover film type) soldering method
7. Stable characteristics over a wide frequency range (Resonant frequency: 1000MHz min. / 6pF)

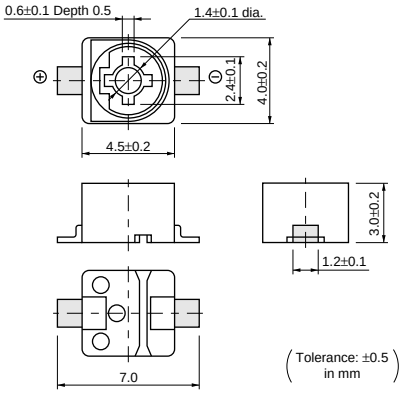
■ Applications

1. Car audio systems
2. Cordless telephones
3. Hybrid ICs
4. Pagers
5. Remote keyless entry systems
6. Tuner packs
7. Surveillance cameras
8. DVD
9. Burglarproof devices

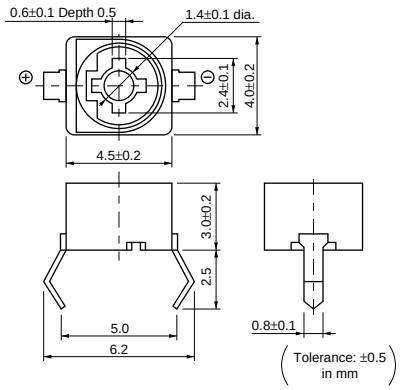
A Type



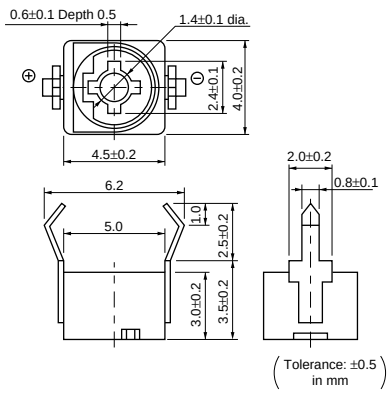
B Type



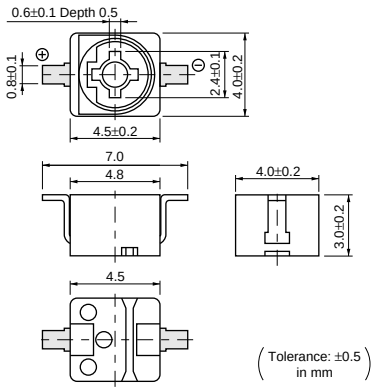
C Type



D Type



E Type



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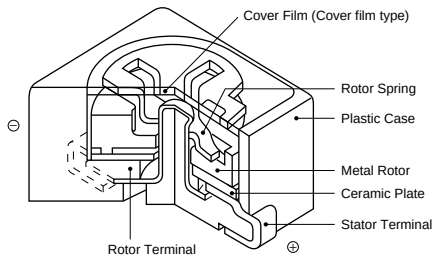
Part Number	Cmin. (max.) (pF)	Cmax. (pF)	TC	Q	Rated Voltage	Withstanding Voltage	Stator/Case Color
TZB4Z030□□10	1.4	3.0 +50/-0%	NP0±200ppm/°C	300min. at 1MHz, Cmax	100Vdc	220Vdc	Brown
TZB4Z060□□10	2.0	6.0 +50/-0%	NP0±200ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Blue
TZB4Z100□□10	3.0	10.0 +50/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	White
TZB4R200□□10	4.5	20.0 +50/-0%	N750±300ppm/°C	500min. at 1MHz, Cmax	100Vdc	220Vdc	Red
TZB4P300□□10	6.5	30.0 +50/-0%	N1200±500ppm/°C	300min. at 1MHz, Cmax	100Vdc	220Vdc	Green
TZB4P400□□10	8.5	40.0 +50/-0%	N1200±500ppm/°C	300min. at 1MHz, Cmax	100Vdc	220Vdc	Yellow
TZB4Z250□□10	4.0	25.0 +100/-0%	NP0±300ppm/°C	300min. at 1MHz, Cmax.	50Vdc	110Vdc	Black+Marking
TZB4R500□□10	7.0	50.0 +100/-0%	N750±300ppm/°C	300min. at 1MHz, Cmax	50Vdc	110Vdc	Black+Marking

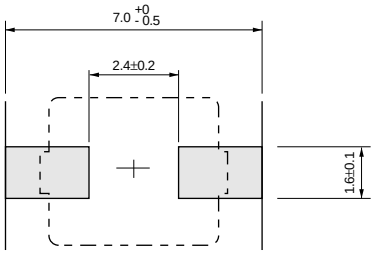
Insulation Resistance : 10000M ohm Torque : 1.5 to 10.0mNm Operating Temperature Range : -25 to +85°C
First blank: Terminal Type Second blank: Cover film codes (A: not provided, B: provided)

■ Construction



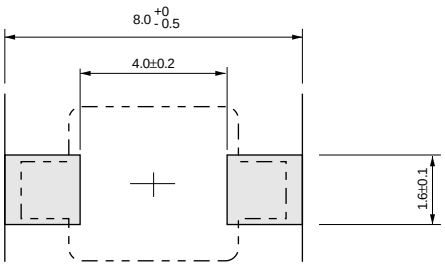
■ Land Pattern/Mounting Holes

A Type



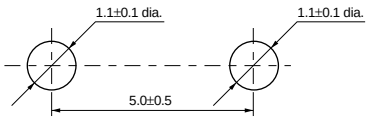
(in mm)

B Type



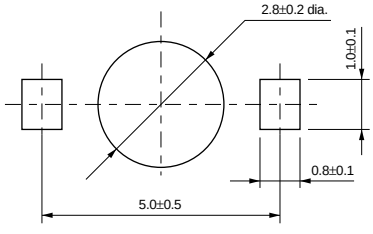
(in mm)

C Type



(in mm)

D Type



(in mm)

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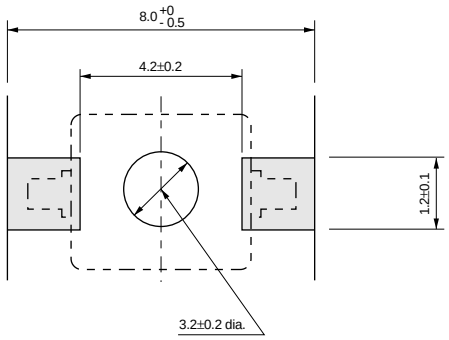
■ Land Pattern/Mounting Holes

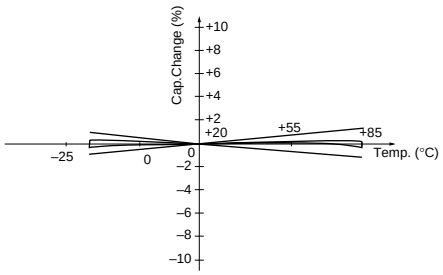
E Type



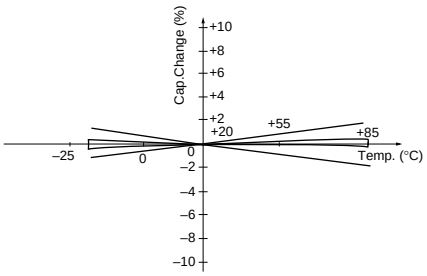
(in mm)

■ Temperature Characteristics

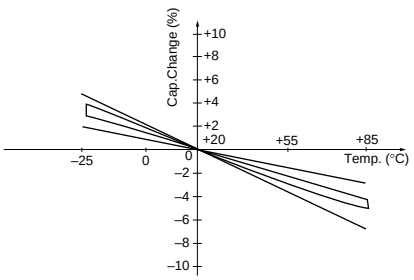
Z060 (NP0±200ppm/°C)



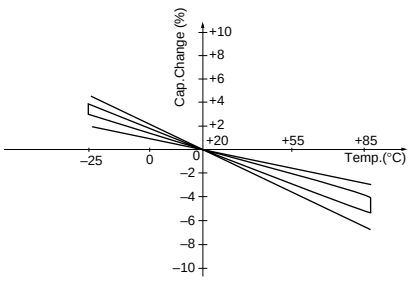
Z100 (NP0±300ppm/°C)



R200 (N750±300ppm/°C)



R500 (N750±200ppm/°C)



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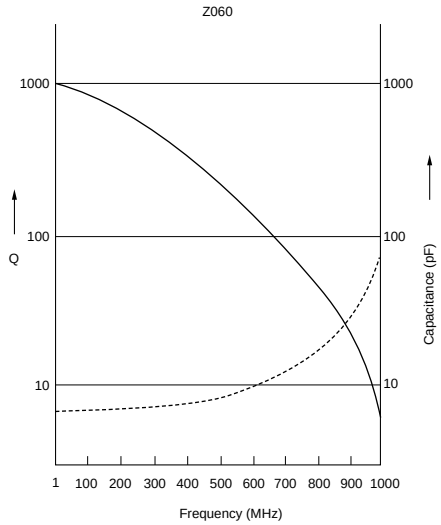
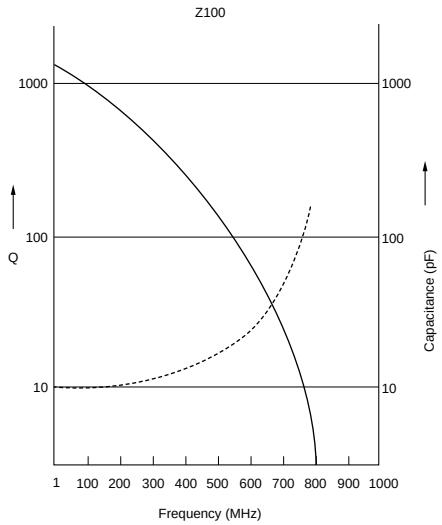
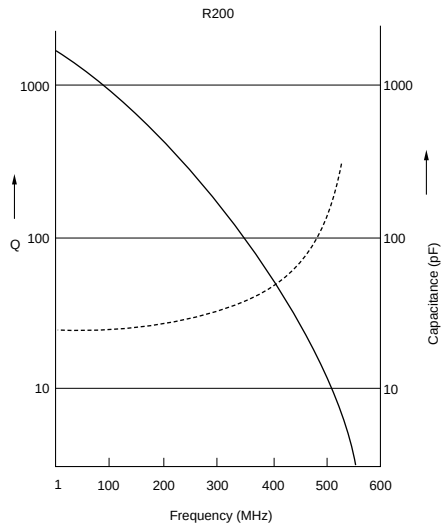
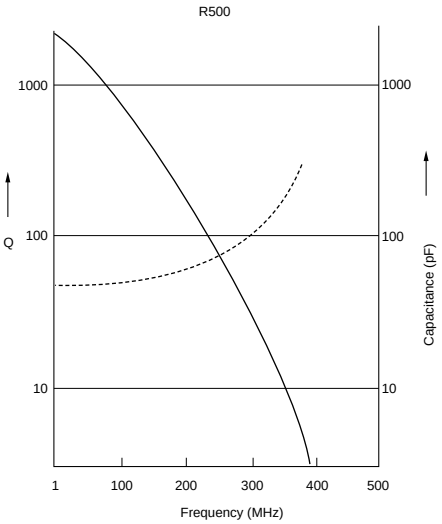
■ Frequency Characteristics









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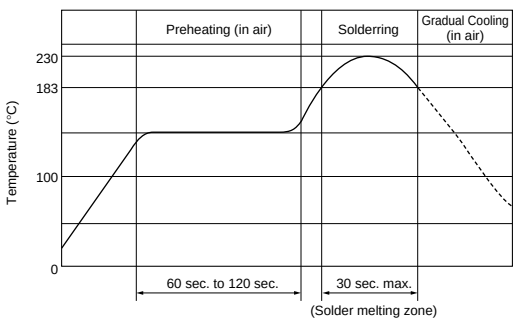
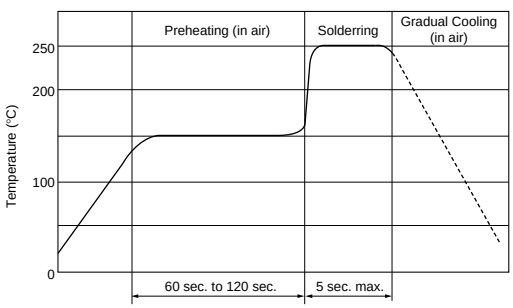
■ Temperature Profile

Reflow



Flow



■ Notice (Storage and operating condition)

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 capacitor, please store under the condition of -10 to +40 degree C and 30 to 85%RH.
3. Do not store in or near corrosive gasses.
4. Use within 6 months of deliverly.
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 nor electric/magnetic fields
   (6) Direct sea breeze
   (7) Other variations of the above

■ Notice (Soldering and mounting)

1. Soldering
   (1) Can be soldered by reflow soldering method, flow soldering method, and soldering iron.
   (2) Standard soldering condition
   (a) Reflow soldering: Refer to the standard temperature profile.
   *Available for terminal shape A, B, and E.
   (b) Flow soldering: Refer to the standard temperature profile.
   > Immerse the body in solder bath
   - Available for cover film type
   > Only immerse the terminal in solder bath
   - Availabe for terminal shape C and D.
   (c) Soldering iron:
   > Temperature of tip 260+-10 degree C
   > Soldering time 3 sec. max.
   > Diameter 3mm max.
   > Wattage of iron 30W max.
   Before using other soldering conditions than those listed above, please consult with Murata factory representative prior to using. 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 150 micro m to 200 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 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 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.
   (6) Our recommendable 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 (preferable 5.0N (Ref.; 500gf) max.), when the trimmer capacitor is mounted on the PCB.
   (2) Do not warp and/or bend PCB to prevent trimmer capacitor from breakage.
   (3) Use the suitable PCB holes which are the same pitch as the terminal of the trimmer capacitor. If it would not fit with the terminal, the excessive stress would be applied to the terminal and the trimmer capacitor may deviate from the specified characteristics (Terminal shape C and D).
   (4) Do not apply bending stress more than 10.0N (Ref.; 1kgf) after the trimmer capacitor has been mounted on the PCB (Terminal shape C and D).
   (5) Mount trimmer capacitor in contact with PCB (Terminal shape C and D).
   (6) In case of bending the terminals, do not apply excessive force to the body of the product and prevent the terminal fixing part from damaging.
   (7) Use the suitable dimension of the pick-up nozzle.
   > Without cover film type
   - External dimensions of 4.5x4.0mm and 2.5mm bore diameter.
   > With cover film type
   - 4.0mm external diameter and 2.0mm bore diameter.
3. Cleaning [with cover film type]
   (1) Isopropyl alcohol and Ethyl alcohol are available material for cleaning. Water group material like Pinealpha, Cleanthru can not be used. For other materials, please consult with

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Murata factory representative prior to using.

(2) The total cleaning time by dipping, vapor and ultra-sonic method shall be less than 2 minutes. For ultra-sonic cleaning, the available condition is as follows.
> Cleaning time: 1 min. max.
> Power: 20W/liter max.
> Frequency: 20 - 60kHz
> Temperature: Ambient temperature
Due to the ultra-sonic cleaning equipment's peculiar self resonance point and the cleaning compatibility usually depends on the jig construction and/or the cleaning condition such as the depth of immersion, please check the cleaning equipment to determine the suitable conditions. If the trimmer capacitor is cleaned by other conditions, the trimmer capacitor may deviate from the specified characteristics.

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 (preferable 1.0N (Ref; 100gf) max.) to minimize capacitance drift. If excessive force is applied to the screwdriver slot, it 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.
4. Do not break the cover film before the completion of PCB mounting, soldering, and cleaning.
5. Do not clean the trimmer capacitor after the cover film has been broken.
6. To break the cover film, first turn the screwdriver more than 45 deg., the set the capacitance value. (Only inserting the screwdriver cannot break the cover film.)

■ Notice (Other)

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