Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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Sep.1,2017

INNOVATOR IN ELECTRONICS

Ceramic Trimmer Capacitors

EU RoHS Compliant

- All the products in this catalog comply with EU RoHS.
- EU RoHS is "the European Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment."
- For more details, please refer to our web page, "Murata's Approach for EU RoHS" (http://www.murata.com/en-eu/support/compliance/rohs).

Contents

Product specifications are as of September 2017.

Please check the MURATA website (**http://www.murata.com/**)
if you cannot find a part number in this catalog.

Part Numbering

Ceramic Trimmer Capacitors

(Part Number) TZ ❶ | Y2 ❷ | R ❸ | 200 ❹ | A ❺ | C01 ❻ | R00 ❼

❶Product ID

Product ID	
TZ	Trimmer Capacitors

❷Series/Terminal

Code	Series/Terminal
B4	4mm Size SMD Type
W4	4mm Size SMD Type
C3	3mm Size SMD Type
Y2	2mm Size SMD Type
R1	1mm Size SMD Type

❸Temperature Characteristics

Code	Temperature Characteristics
Z	NP0ppm/°C
R	N750ppm/°C
K	N1000ppm/°C
P	N1200ppm/°C

Please refer to ratings for tolerance of temperature characteristics.

❹Maximum Capacitance

Expressed by three-digit alphanumerics. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two numbers. If there is a decimal point, it is expressed by the capital letter "**R**". In this case, all figures are significant digits.

❺Terminal Shape

Code	Terminal Shape
A	Top Adjustment: **TZR1**, **TZY2**, **TZC3**, **TZW4**, **TZB4**
B	Top Adjustment: **TZB4**

Please refer to dimensions for terminal details.

❻Individual Specifications

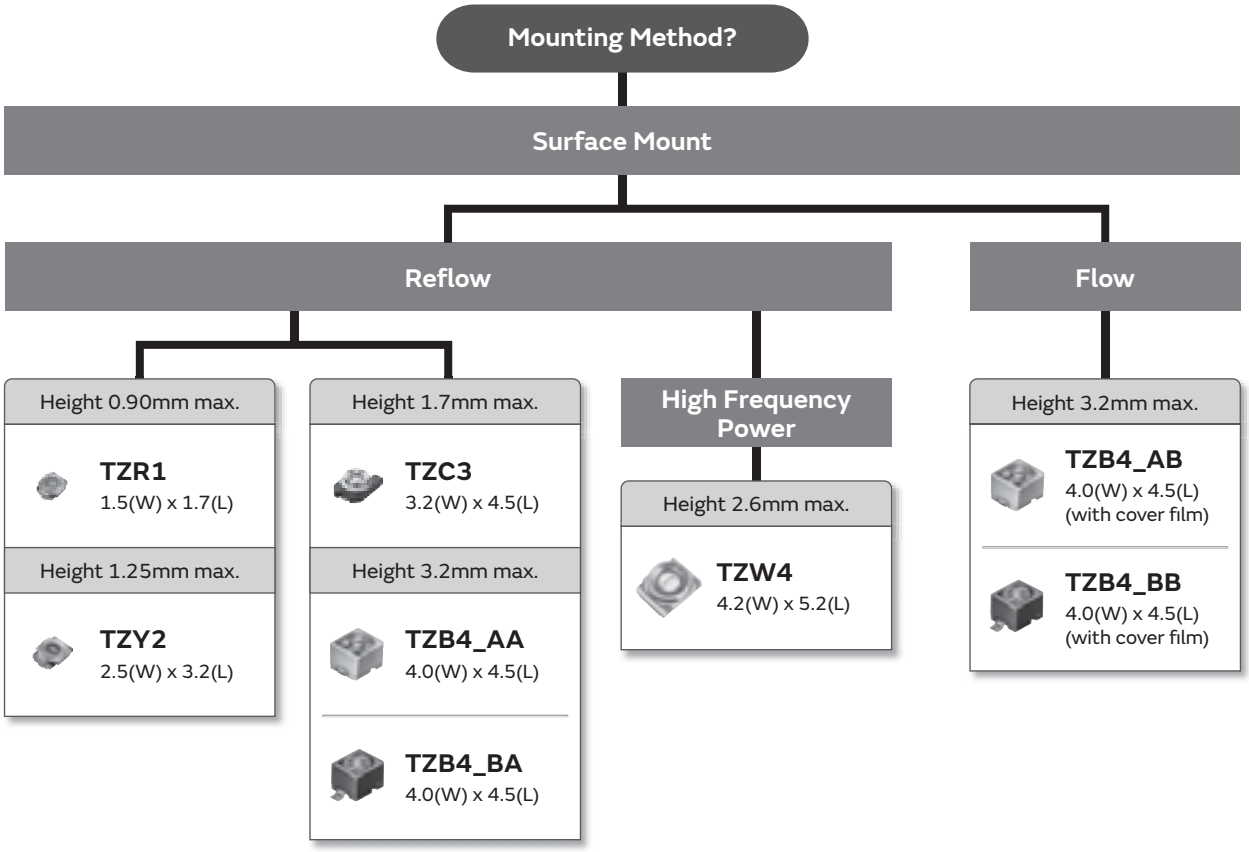
Code	Individual Specifications
001	**TZR1**, **TZW4** Standard Type
C01	**TZY2** Standard Type
A01	**TZC3** Standard Type
A10	**TZB4** No-cover Film Standard Type
B10	**TZB4** with Cover Film Standard Type

❼Packaging

Code	Packaging
B00	Bulk
R00	Reel (Taping ø180mm)
R01*	Reel (Taping ø330mm)

* TZB4 only.

Selection Guide



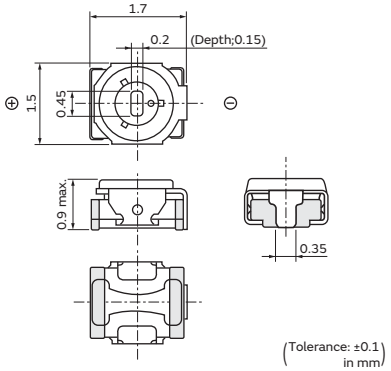
All Ceramic Trimmer Capacitor products comply with RoHS and ELV.

Ceramic Trimmer Capacitors

TZR1 Series

Features

1. Ultra-small and thin with external dimensions of 1.5(W)x1.7(L)x0.85(H)mm (80% less in volume than the current product).
2. Unique construction with no plastic material provides superior soldering heat resistance to maintain excellent characteristic performance after reflow soldering.
3. Suitable for high frequency circuit due to high self-resonant frequency (6.2GHz of TZR1Z010 at 1.0pF setting).



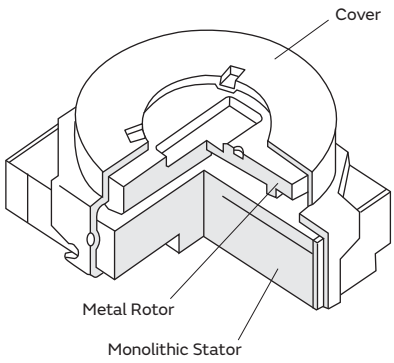
Applications

1. Bluetooth®
2. Crystal oscillators
3. Crystal filters
4. Miniature tuner packs (FM Radio, TV)
5. Remote keyless entry systems

Part Number	C min. (max.) (pF)	C max. (pF)	TC	Q	Rated Voltage	Withstanding Voltage
TZR1Z010A001	0.55	1.0 +100/-0%	NP0±300ppm/°C	200min. at 200MHz, Cmax.	25Vdc	55Vdc
TZR1Z1R5A001	0.7	1.5 +100/-0%	NP0±300ppm/°C	200min. at 200MHz, Cmax.	25Vdc	55Vdc
TZR1Z040A001	1.5	4.0 +100/-0%	NP0±500ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc
TZR1R080A001	3.0	8.0 +100/-0%	N750±500ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc

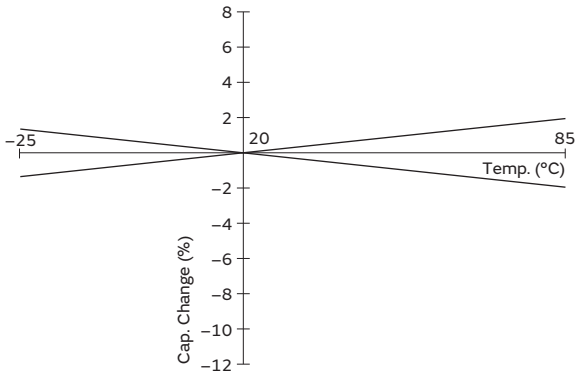
Insulation Resistance: 10000M ohm Torque: 0.1 to 1.0mNm Operating Temperature Range: -25 to +85°C

Construction

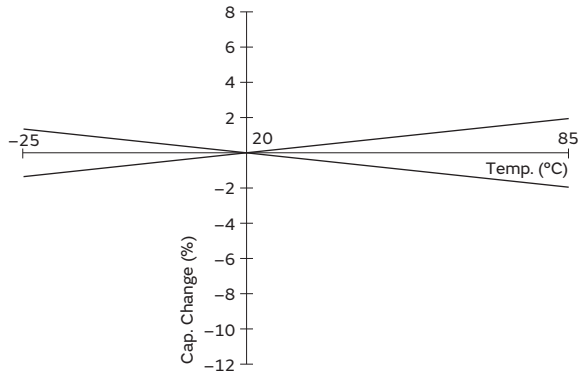


Temperature Characteristics

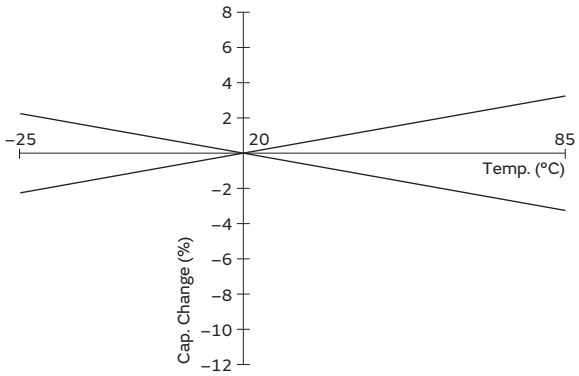
TZR1Z010



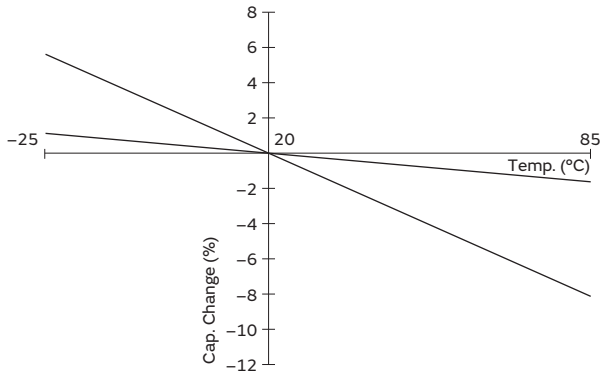
TZR1Z1R5



TZR1Z040

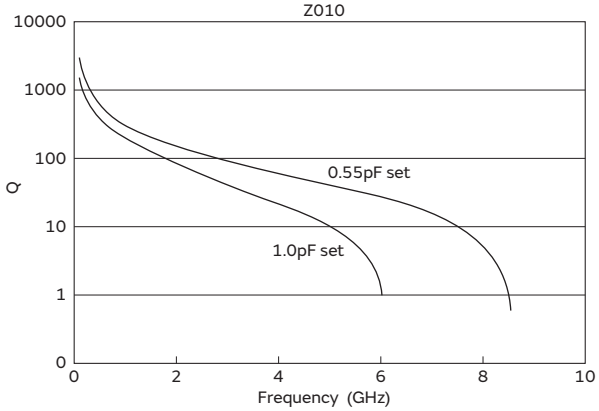


TZR1R080

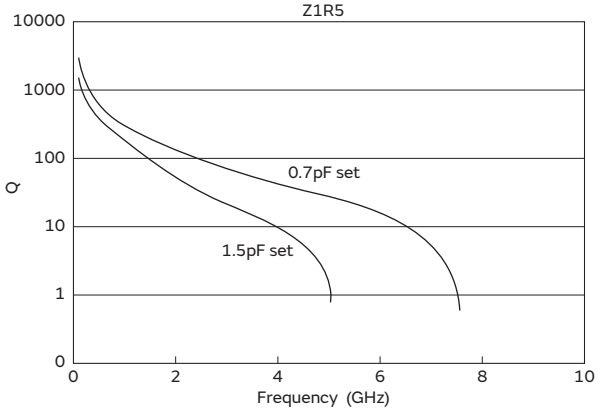


Frequency Characteristics

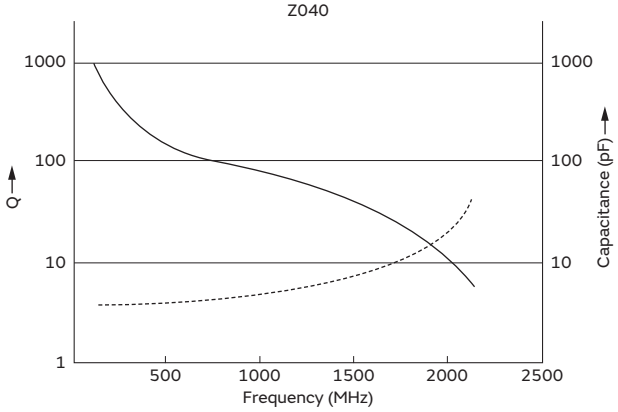
TZR1Z010



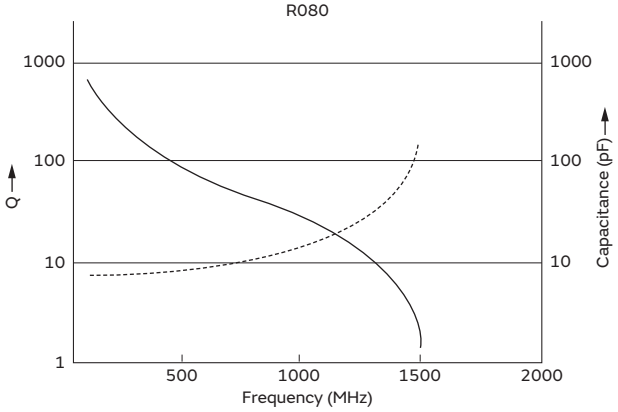
TZR1Z1R5



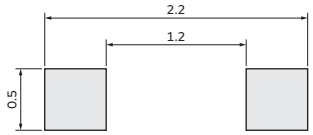
TZR1Z040



TZR1R080



Land Pattern

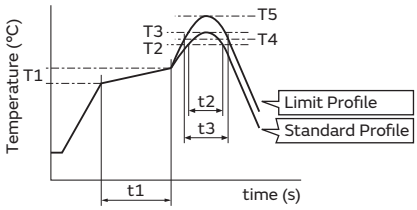


(Tolerance: ±0.1 in mm)

Temperature Profile

●Reflow Soldering Profile

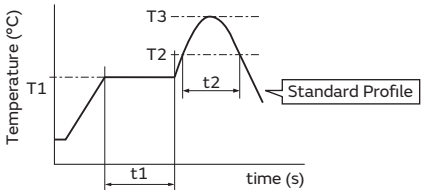
①Soldering profile for Lead-free solder (96.5Sn/3Ag/0.5Cu)



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) TZR1 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 100 micro m to 150 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 breaking.
 (3) Use a pick-up nozzle of a suitable dimension. (1.6mm external diameter and 0.8mm 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.
 *Recommended screwdriver for manual adjustment
 MURATA: KMDR160
2. When adjusting with a screwdriver, do not apply excessive force (preferably 0.5 N [Ref: 50gf] 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)

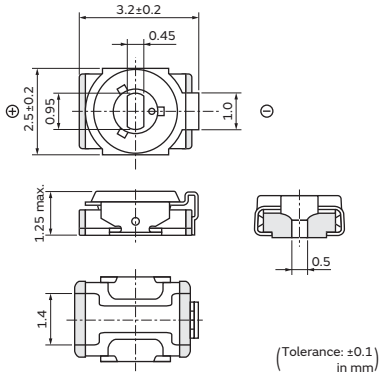
Before using trimmer capacitors, please test after assembly in your particular mass production system.

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).



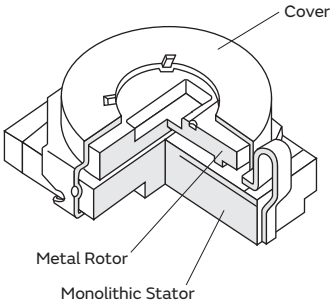
Applications

1. Crystal oscillators
2. Crystal filters
3. Stylus pen
4. Hand radios
5. Watches
6. Remote keyless entry systems
7. W-LAN
8. Radar detectors
9. Compact radios
10. Burglarproof devices
11. Headphone stereos

Part Number	C min. (max.) (pF)	C max. (pF)	TC	Q	Rated Voltage	Withstanding Voltage
TZY2Z010AC01	0.6	1.0 +100/-0%	NP0±300ppm/°C	200min. at 200MHz, Cmax.	25Vdc	55Vdc
TZY2Z2R5AC01	1.0	2.5 +100/-0%	NP0±300ppm/°C	200min. at 200MHz, Cmax.	25Vdc	55Vdc
TZY2Z030AC01	1.5	3.0 +100/-0%	NP0±300ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2Z060AC01	2.5	6.0 +100/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2Z100AC01	3.0	10.0 +100/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2R200AC01	4.5	20.0 +100/-0%	N750±500ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2R250AC01	5.5	25.0 +100/-0%	N750±500ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2K450AC01	8.0	45.0 +100/-0%	N1000±500ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc

Insulation Resistance: 10000M ohm Torque: 0.7 to 4.9mNm Operating Temperature Range: -25 to +85°C

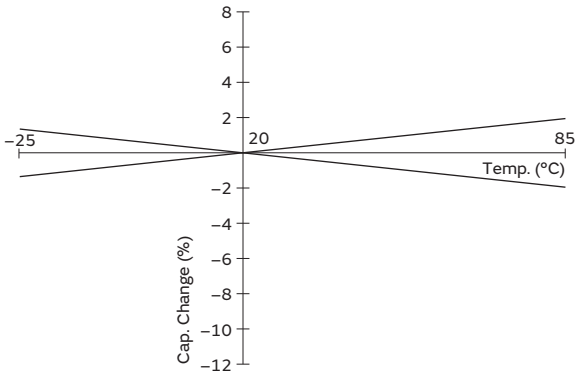
Construction



Temperature Characteristics

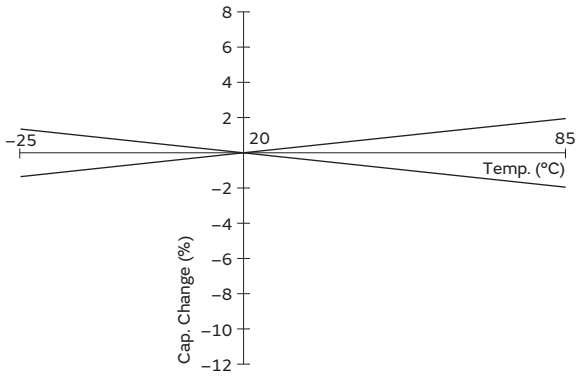
TZY2Z010

Z010 (NP0±300 ppm/°C)



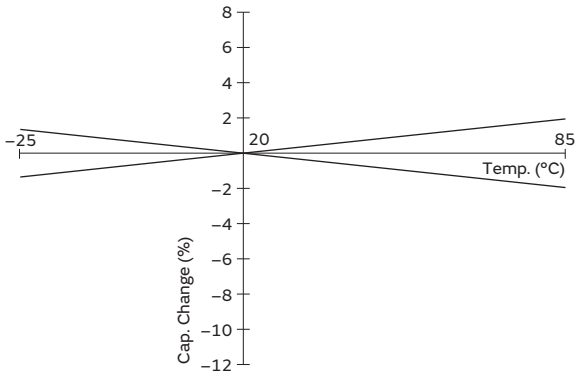
TZY2Z2R5

Z2R5 (NP0±300 ppm/°C)



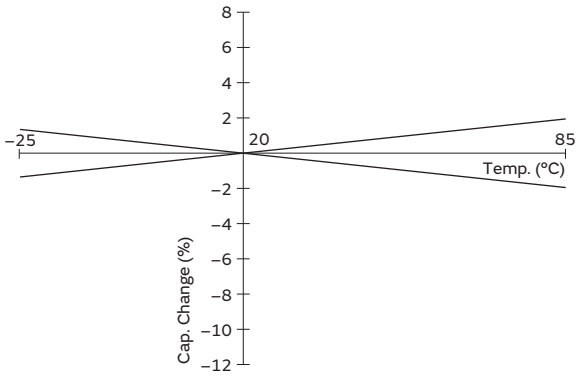
TZY2Z030

Z030 (NP0±300 ppm/°C)



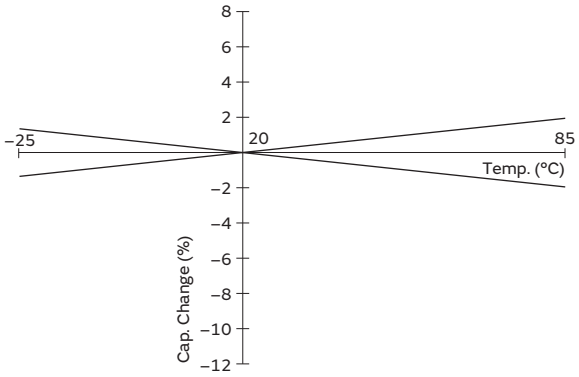
TZY2Z060

Z060 (NP0±300 ppm/°C)



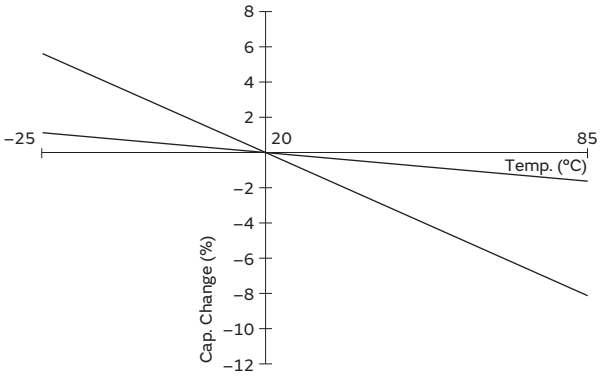
TZY2Z100

Z100 (NP0±300 ppm/°C)



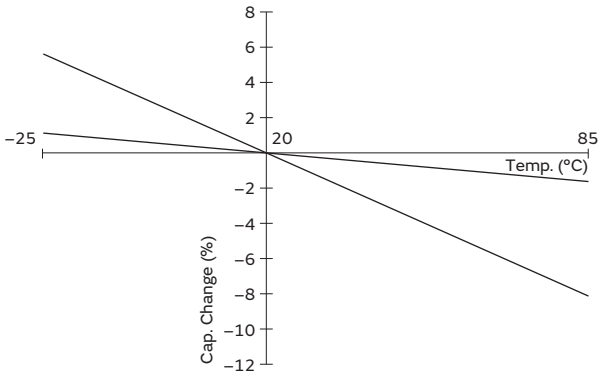
TZY2R200

R200 (N750±500 ppm/°C)



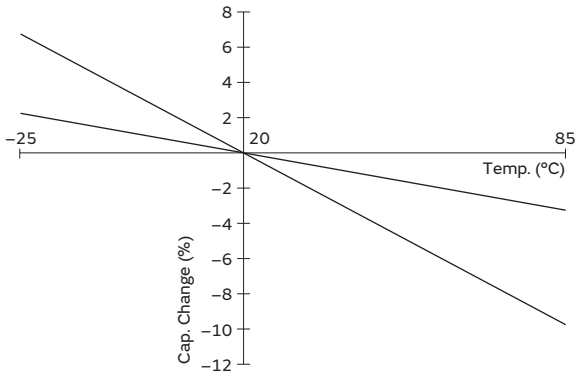
TZY2R250

R250 (N750±500 ppm/°C)



TZY2K450

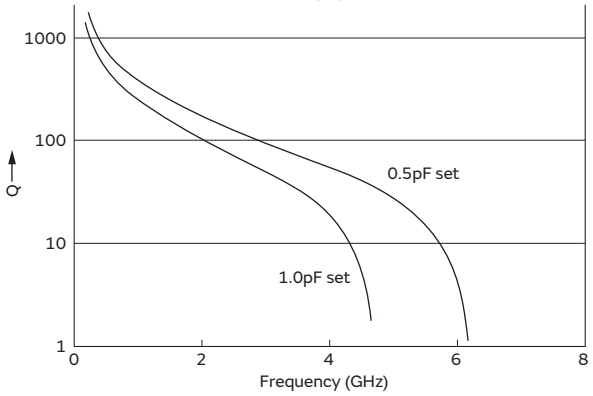
K450 (N1000±500 ppm/°C)



Frequency Characteristics

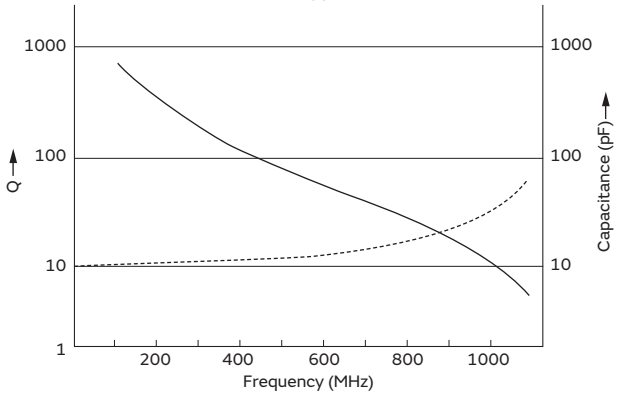
TZY2Z010

Z010



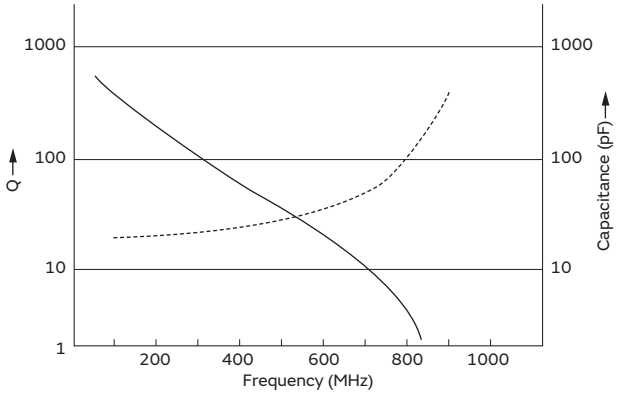
TZY2Z100

Z100



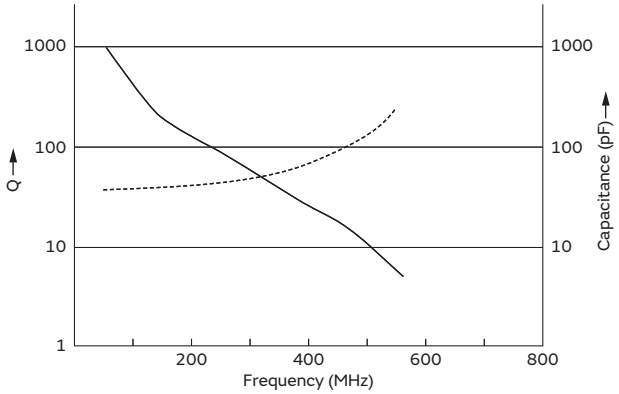
TZY2R200

R200

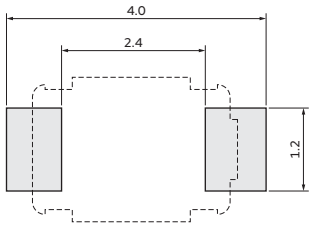


TZY2K450

K450



Land Pattern

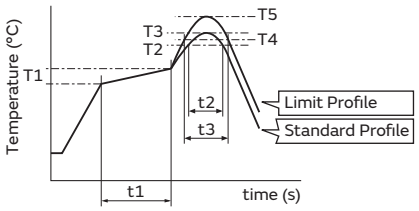


(Tolerance: ±0.1 in mm)

Temperature Profile

●Reflow Soldering Profile

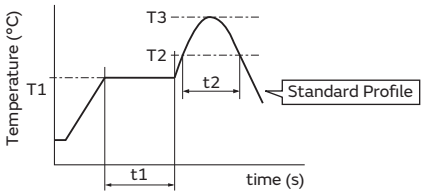
①Soldering profile for Lead-free solder (96.5Sn/3Ag/0.5Cu)



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. (2.5mm external diameter and 1.2mm 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
 MURATA: KMDR020
 (2) Recommended screwdriver bit for automatic adjustment
 MURATA: KMBT020
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)

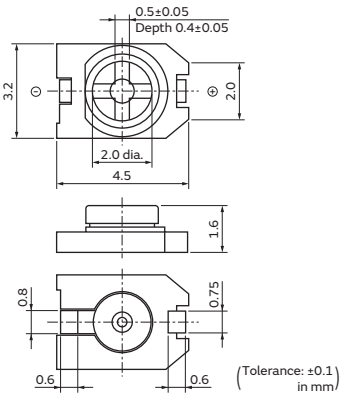
Before using trimmer capacitor, please test after assembly in your particular mass production system.

Ceramic Trimmer Capacitors

TZC3 Series

Features

1. Small size with external dimension of 3.2(W)x4.5(L)x1.6(H)mm.
2. Can be adjusted with conventional adjustment tools having a thickness of 0.5mm.
3. Designed for automatic placement in surface mount applications.
4. Heat resistant resin withstands reflow soldering temperatures.



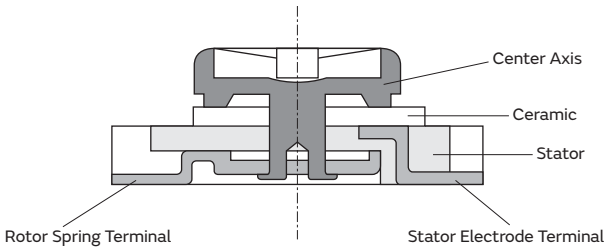
Applications

1. Compact radios
2. Stylus pen
3. Portable radio equipment
4. Hybrid ICs
5. Remote keyless entry systems

Part Number	C min. (max.) (pF)	C max. (pF)	TC	Q	Rated Voltage	Withstanding Voltage
TZC3Z030AA01	1.4	3.0 +50/-0%	NP0±300ppm/°C	300min. at 1MHz, Cmax.	100Vdc	220Vdc
TZC3Z060AA01	2.0	6.0 +50/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc
TZC3R100AA01	3.0	10.0 +50/-0%	N750±300ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc
TZC3P200AA01	5.0	20.0 +50/-0%	N1200±500ppm/°C	300min. at 1MHz, Cmax.	100Vdc	220Vdc
TZC3P300AA01	6.5	30.0 +50/-0%	N1200±500ppm/°C	300min. at 1MHz, Cmax.	100Vdc	220Vdc

Insulation Resistance: 10000M ohm Torque: 1.5 to 9.8mNm Operating Temperature Range: -25 to +85°C

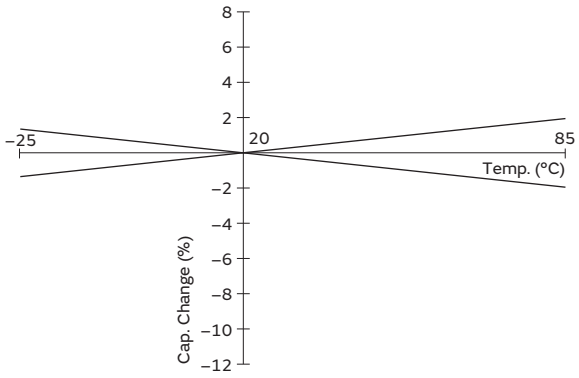
Construction



Temperature Characteristics

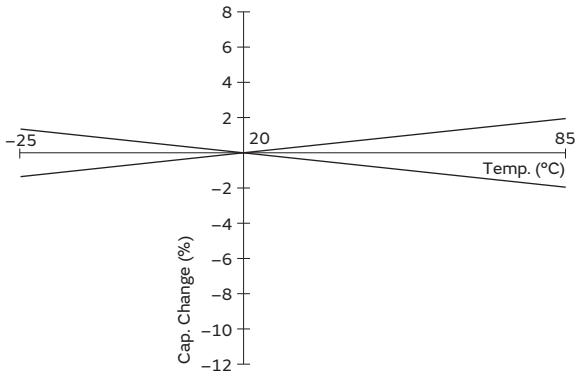
TZC3Z030

Z030 (NP0±300 ppm/°C)



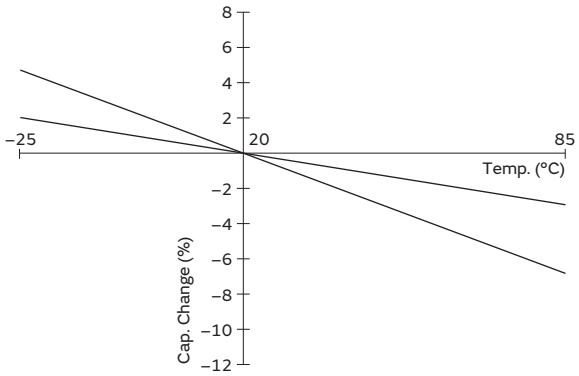
TZC3Z060

Z060 (NP0±300 ppm/°C)



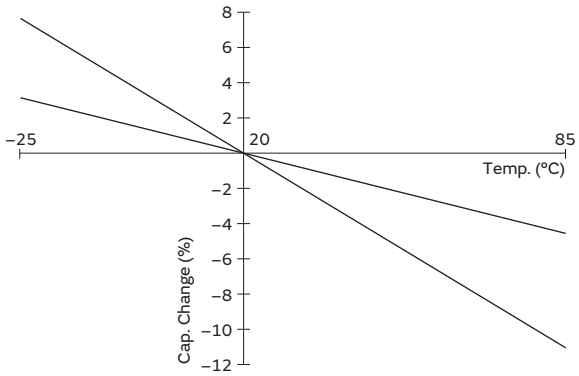
TZC3R100

R100 (N750±300 ppm/°C)



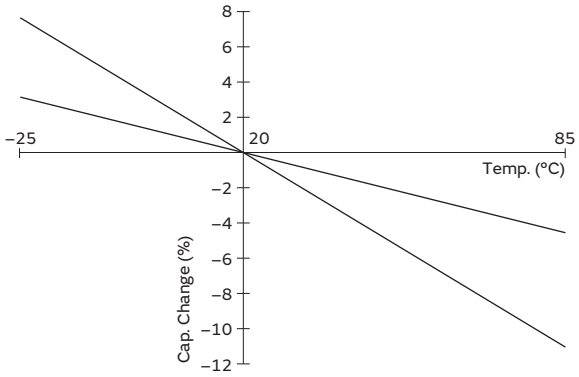
TZC3P200

P200 (N1200±500 ppm/°C)



TZC3P300

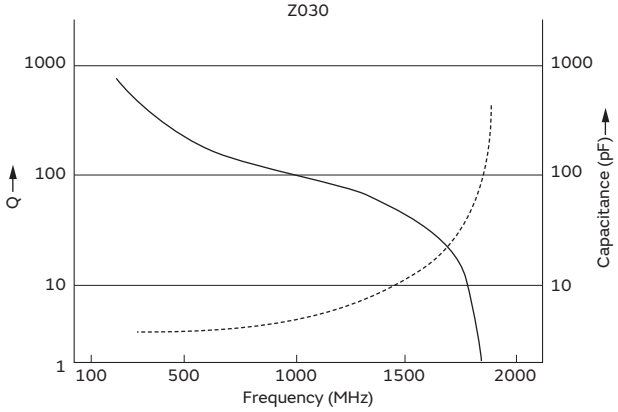
P300 (N1200±500 ppm/°C)



Frequency Characteristics

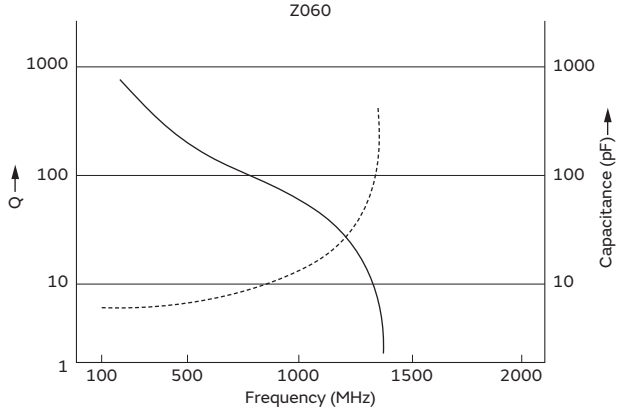
TZC3Z030

Z030



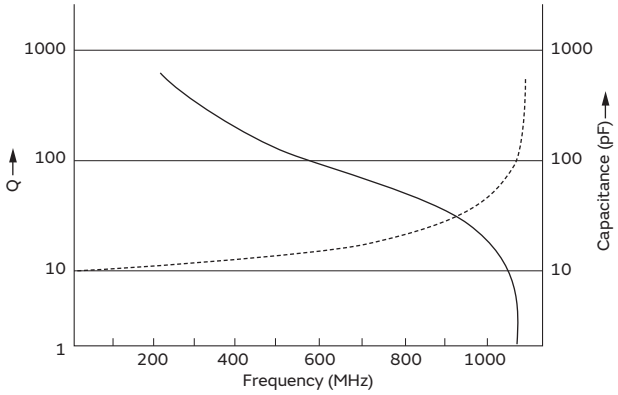
TZC3Z060

Z060



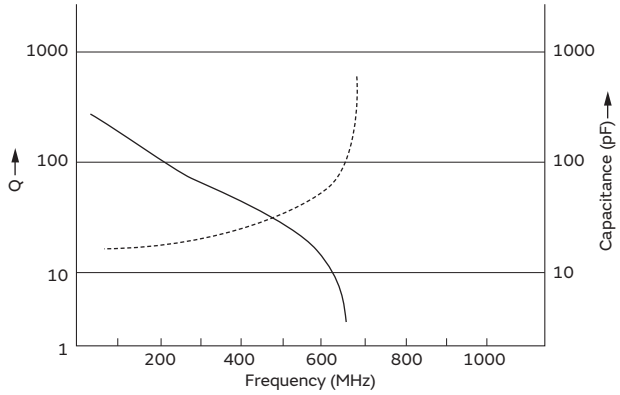
TZC3R100

R100

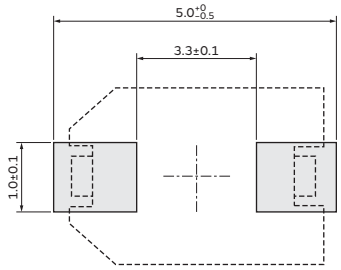


TZC3P200

P200



Land Pattern

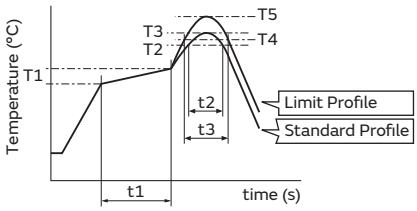


(Tolerance: ±0.1 in mm)

Temperature Profile

●Reflow Soldering Profile

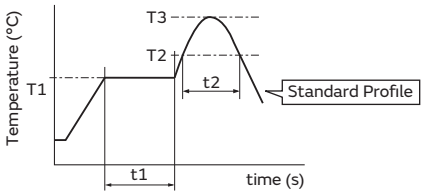
①Soldering profile for Lead-free solder (96.5Sn/3Ag/0.5Cu)



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) TZC3 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 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 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 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.
 (8) When soldering the TZC3 series, the solder should not flow into the staking part of the substrate. If such flow does occur, driver slot rotation will be damaged.
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. (2.5mm external diameter and 1.5mm 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)

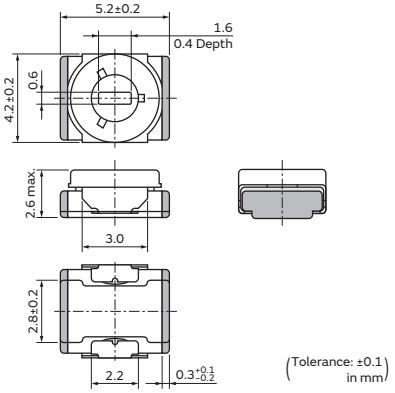
1. Use suitable screwdrivers that fit comfortably in driver slot.
 Recommended screwdriver for manual adjustment
 Standard type --> MURATA: KMDR080
2. When adjusting with a screwdriver, do not apply excessive force (preferably 1.0 N [Ref: 100gf] max.) to minimize capacitance drift. Excessive force applied 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.

Ceramic Trimmer Capacitors

TZW4 Series



Features

1. To meet high power application due to withstanding voltage 550Vdc.
2. Extremely high self-resonant frequency. (More than 3GHz at rated C max.)
3. Typical application: Impedance matching for Cellular Base Station.
4. High Q value in more than VHF, UHF and Microwave bands. (More than 200 in 500MHz, C max.)
5. Available for pick and place machine. Possible thinner design due to 2.6mm low profile.
6. Non-electrical contact construction (rotor as middle electrode) provides high reliability.
7. Compact size: 4.2(W)x5.2(L)x2.6max.(H)mm.

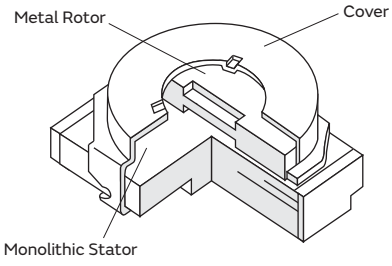
Applications

1. Transmitting power amplifier for Cellular base station
2. Transmitting amplifier for PHS base station
3. High frequency electric circuit
4. High power radio transmission
5. Transponder amplifier for cable TV

Part Number	C min. (max.) (pF)	C max. (pF)	TC	Q	Rated Voltage	Withstanding Voltage
TZW4Z010A001	0.4	1.0 +50/-0%	NP0±150ppm/°C	200min. at 500MHz, Cmax.	250Vdc	550Vdc
TZW4Z1R5A001	0.4	1.5 +100/-0%	NP0±150ppm/°C	200min. at 500MHz, Cmax.	250Vdc	550Vdc

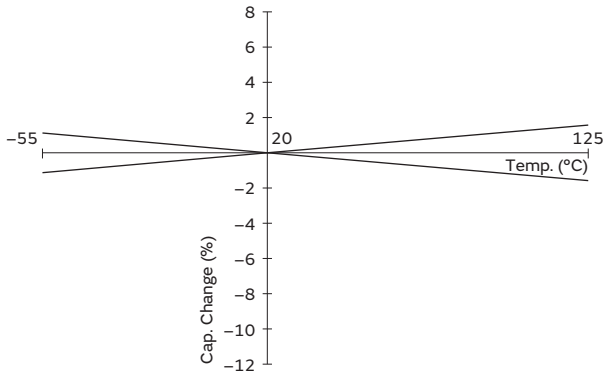
Insulation Resistance: 10000M ohm Torque: 1.5 to 10.0mNm Operating Temperature Range: -55 to +125°C

Construction

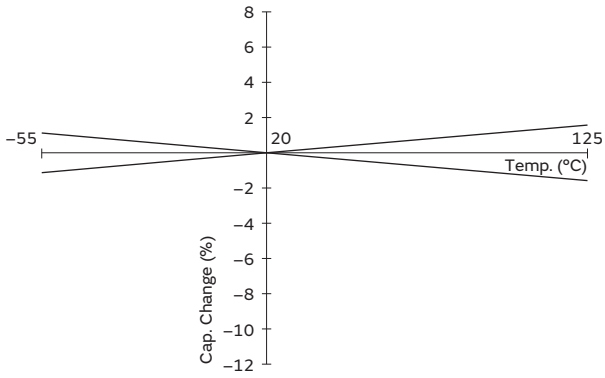


Temperature Characteristics

TZW4Z010

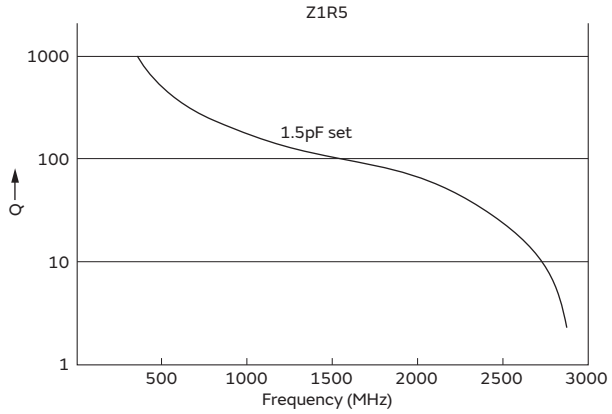


TZW4Z1R5

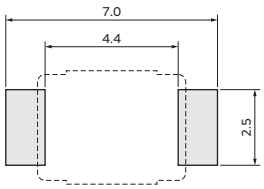


Frequency Characteristics

TZW4Z1R5



Land Pattern

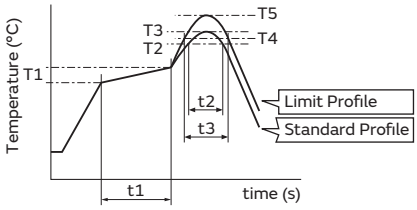


(Tolerance: ±0.1 in mm)

Temperature Profile

●Reflow Soldering Profile

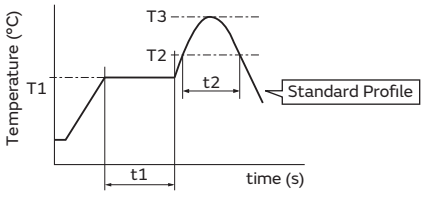
①Soldering profile for Lead-free solder (96.5Sn/3Ag/0.5Cu)



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) TZW4 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 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 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 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 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 breaking.
   (3) Use a pick-up nozzle of a suitable dimension. (4.0mm external diameter and 1.2mm bore diameter.)
3. Cleaning
   This product cannot be cleaned because of open construction.

Notice (Handling)

1. Use suitable screwdrivers that fit comfortably in driver slot.
   -Recommended screwdriver for manual adjustment
   VESSEL : No.9000 -1.3x30
   (Murata P/N is KMDR130)
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.

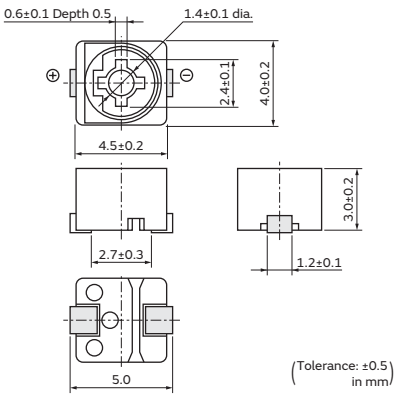
Ceramic Trimmer Capacitors

TZB4 Series

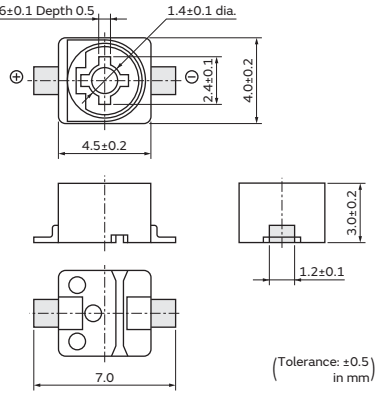
Features

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)

A Type



B Type



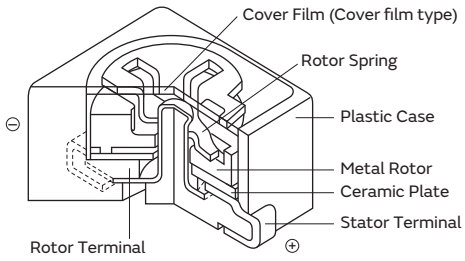
Applications

1. Car audio systems
2. Hybrid ICs
3. Remote keyless entry systems
4. Surveillance cameras
5. Burglarproof devices
6. Entry phone

Part Number	C min. (max.) (pF)	C max. (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±400ppm/°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

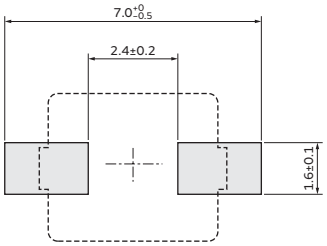
Insulation Resistance: 10000M ohm Torque: 1.5 to 9.8mNm Operating Temperature Range: -25 to +85°C
First blank: Terminal Type Second blank: Cover film codes (A: not provided, B: provided)
rex. TZB4Z100AB10: Terminal Type is A, and Cover film is provided.

Construction



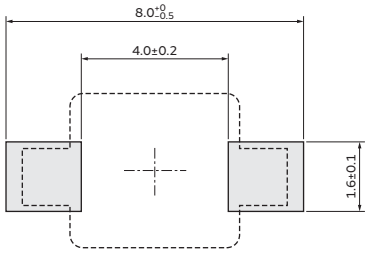
Land Pattern/Mounting Holes

A Type



(in mm)

B Type

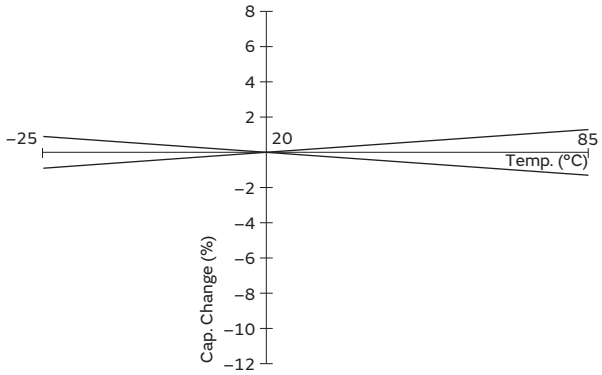


(in mm)

Temperature Characteristics

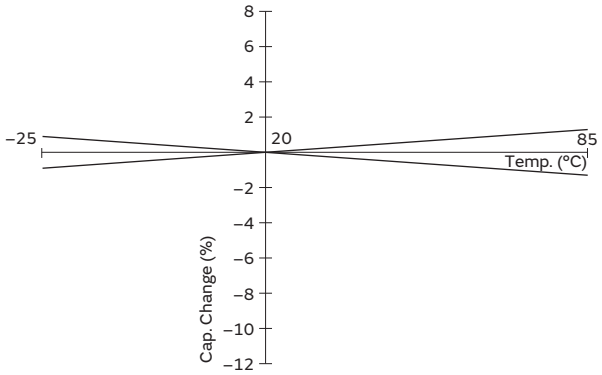
TZB4Z030

Z030 (NP0±200 ppm/°C)



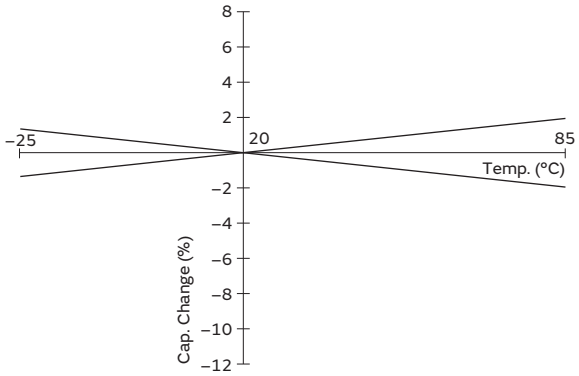
TZB4Z060

Z060 (NP0±200 ppm/°C)



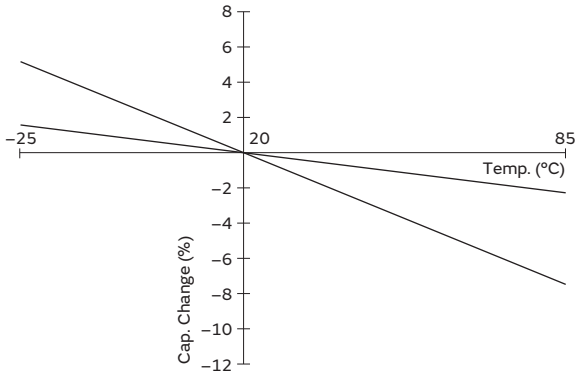
TZB4Z100

Z100 (NP0±300 ppm/°C)



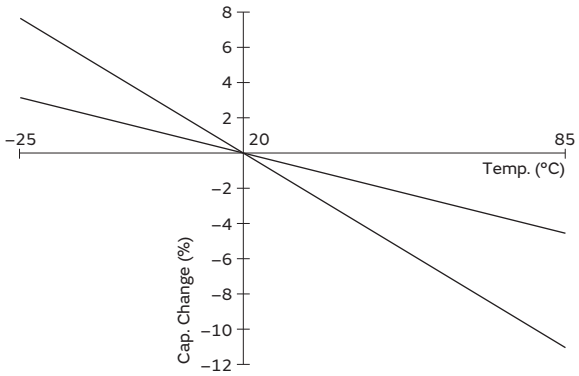
TZB4R200

R200 (N750±400 ppm/°C)



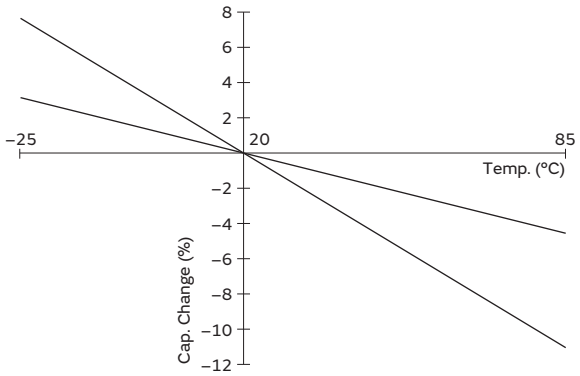
TZB4P300

P300 (N1200±500 ppm/°C)



TZB4P400

P400 (N1200±500 ppm/°C)



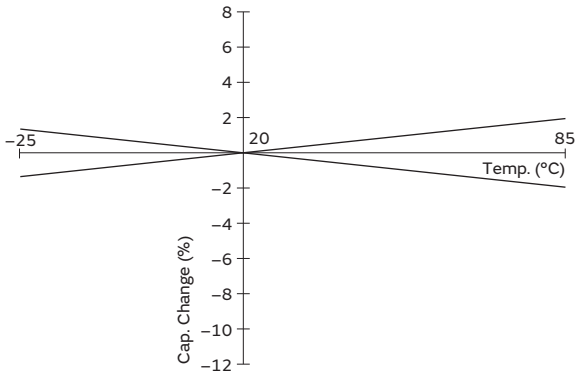
Continued on the following page.↗

Continued from the preceding page. ↘

Temperature Characteristics

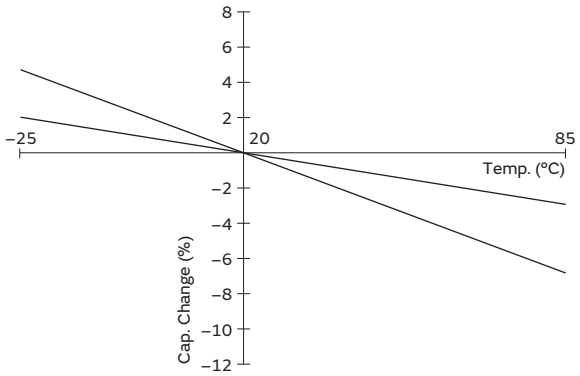
TZB4Z250

Z250 (NP0±300 ppm/°C)



TZB4R500

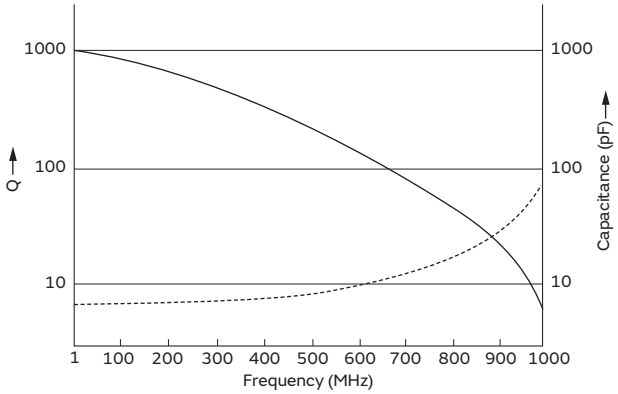
R500 (N750±300 ppm/°C)



Frequency Characteristics

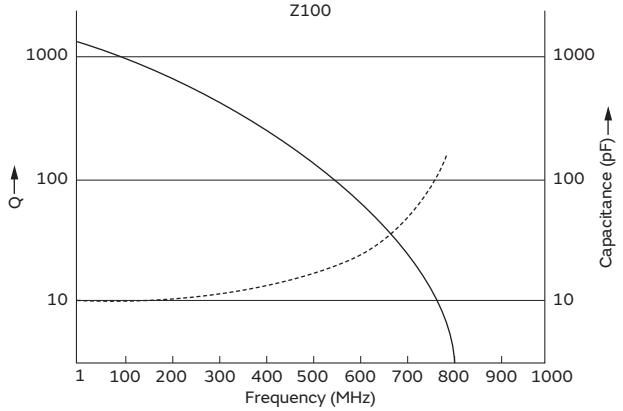
TZB4Z060

Z060



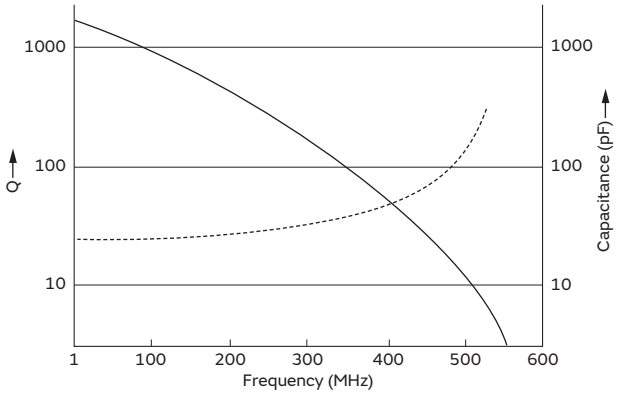
TZB4Z100

Z100



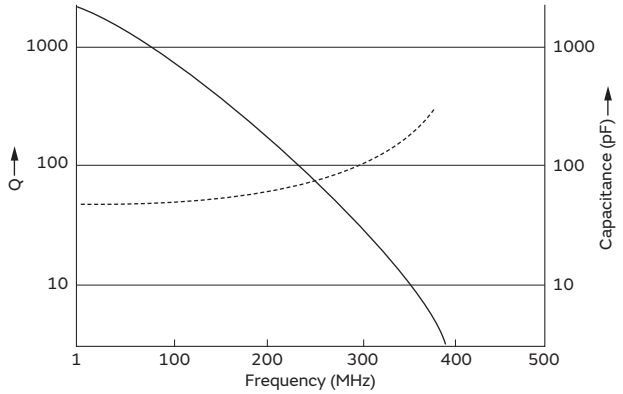
TZB4R200

R200



TZB4R500

R500



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