# **Ceramic Trimmer Capacitors**

## muRata

#### **TZW4 Series**

#### ■ Features

- To meet high power application due to withstanding voltage 550Vdc
- 2. Extremely high self resonant frequency (More than 3GHz at rated C max.)
- 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 due to 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

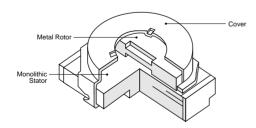
-	0.4 Depth	
(C)	80 97 3.0	
	0.3 0.1	( Tolerance: ±0.1 ) in mm

5.2±0.2

Part Number	C min. (max.) (pF)	C max. (pF)	тс	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

 $Insulation \ Resistance: 10000M \ ohm \qquad Torque: 1.5 \ to \ 10.0mNm \qquad Operating \ Temperature \ Range: -55 \ to \ +125^{\circ}C$ 

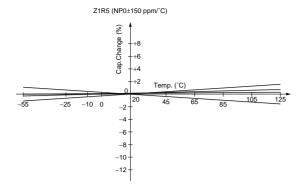
#### ■ Construction





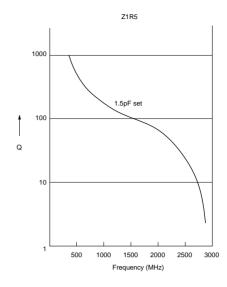
#### **■** Temperature Characteristics

#### TZW4Z1R5

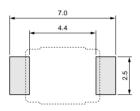


#### ■ Frequency Characteristics

#### TZW4Z1R5



#### ■ Land Pattern

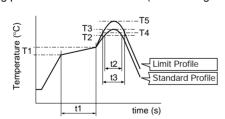


Tolerance: ±0.1

#### **■** Temperature Profile

#### Reflow Soldering Profile

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

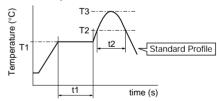


Standard Profile					
Pre-h	eating	Heating		Peak temperature	Cycle
Temp. (T1)	Time (t1)	Temp. (T2)	Time (t2)	(T3)	of reflow
150 to 180°C	60 to 120sec.	220°C	30 to 60sec.	245±3°C	2 times

Limit Profile					
Pre-h	eating	Heating		Peak temperature	Cycle
Temp. (T1)	Time (t1)	Temp. (T4)	Time (t3)	(T5)	of reflow
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-h	eating	Hea	ting	Peak	Cycle	
Temp. (T1)	Time (t1)	Temp. (T2)	Time (t2)	temperature (T3)	of reflow	
150°C	60 to 120sec.	183°C	30sec.	230 +5/-0°C	1 time	

#### Solder Iron

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

### sales representatives or product engineers before ordering. • This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

#### ■ Notice (Storage and Operating Condition)

- Do not use the trimmer capacitor under atmosphere of RTV silicone rubber (Room Temperature Vulcanizing Silicone Rubber) except Acetone liberating silicone sealant.
- Before using trimmer capacitor, please store under the condition of -10 to +40 degrees 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.

#### ■ 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 condition 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 should be less than 0.5mm. The string solder should 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

#### ■ Notice (Handling)

- Use suitable screwdrivers that fit comfortably in driver slot.
  - -Recommended screwdriver for manual adjustment VESSEL: No.9000 -1.3x30 (Murata: KMDR130)
- When adjusting with a screwdriver, do not apply excessive force (preferably 1.0 N [Ref: 100gf] max.) to minimize capacitance drift. If excessive force applied to the screwdriver slot, it may cause deformation of the products.

#### ■ Notice (Other)

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

- Do not use the trimmer capacitor under the conditions listed below.
- Corrosive gasses atmosphere
   (Ex. Chlorine gas, Hydrogen sulfide gas, Ammonia gas, Sulfuric acid gas, Nitric oxie 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
  - 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 prevent trimmer capacitor from breaking.
- (3) Use the suitable dimension of the pick-up nozzle (1.8mm external diameter and 1.1mm bore diameter).
- 3. Cleaning

Cannot be cleaned because of open construction.

 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.

