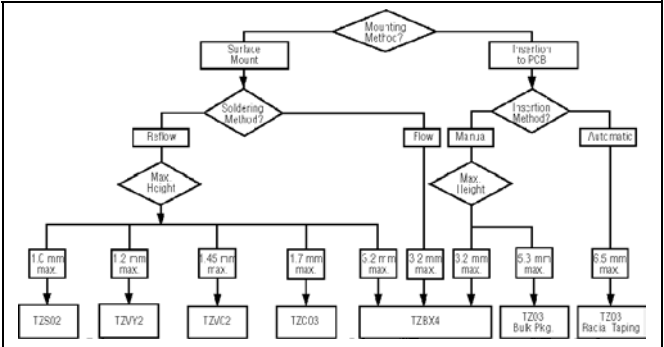


Visit Murata's Website at [www.murata.com](http://www.murata.com)



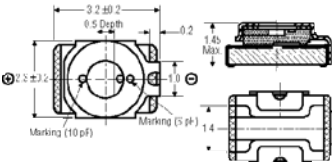
### TZBX4 Series Chip Trimmer Capacitors

- Features**
- Miniature Rectangular Shape Just 4.0 × 4.5 × 3.0 mm
  - Specifically Designed for Auto Surface Placement; Designed to Withstand Solder Bath (260°C, 5 Sec.) and Flux Baths
  - Can Be Reflow Soldered
  - Conventional Snap-In Configuration Available
  - Stable Characteristics Are a Wide Frequency Range;
  - Color Coded Cases Make Distinguishing Easy
  - Operating Temperature: -55°C to +85°C
- Applications**
- Transceiver
  - VTR System
  - Audio Equipment
  - Radio
  - Clock
  - Pagers

Stock No.	Mfr.'s Type	Cap. (pF)		Temperature Coefficient (ppm/°C)	Q Min. (1 MHz, C Max.)	Case Color	EACH*
		Min.	Max.				
231-8000	TZBX4Z060BB110T00	2.0	6.0 (+50%, -0%)	NPO (±200)	500	Blue	1.32
231-8002	TZBX4Z250BA110T00	4.0	25.0 (+100%, -0%)	NPO (±300)	300	Black	.96
231-8004	TZBX4Z100BA110T00	3.0	10.0 (+50%, -0%)	NPO (±300)	500	White	.43
231-8006	TZBX4Z030BA110T00	1.4	3.0 (+50%, -0%)	NPO (±200)	300	Brown	.43
231-8012	TZBX4Z100BB110T00	3.0	10.0 (+50%, -0%)	NPO (±300)	500	White	1.32
231-8014	TZBX4Z250BB110T00	4.0	25.0 (+100%, -0%)	NPO (±300)	300	Black	2.38
231-8018	TZBX4Z060BA110T00	2.0	6.0 (+50%, -0%)	NPO (±200)	500	Blue	.43
231-8020	TZBX4R200BB110T00	4.5	20.0 (+50%, -0%)	N750 (±300)	500	Red	1.32
231-8022	TZBX4R200BA110T00	4.5	20.0 (+50%, -0%)	N750 (±300)	500	Red	.58
231-8024	TZBX4R500BA110T00	7.0	50.0 (+100%, -0%)	N750 (±300)	300	Black	2.19
231-8026	TZBX4R500BB110T00	7.0	50.0 (+100%, -0%)	N750 (±300)	300	Black	.78
231-8028	TZBX4R500AA110T00	7.0	50.0 (+100%, -0%)	N750 (±300)	300	Black	2.05
231-8036	TZBX4P400BA110T00	6.5	40.0 (+30%, -0%)	N1200 (±500)	300	Yellow	.47

\*Sold only in multiples of 100.

### TZV02 Series Ceramic Trimmer Capacitors



- Features**
- Miniature Size with External Dimensions of 2.3 × 3.2 × 1.45 mm (W × L × H)
  - Mountable by Automatic Placer
  - Rugged Construction Ensures High Stability Thereby Minimizing Capacitance Drift After Adjustment
  - Voltage: Rated — 25 VDC; Withstanding — 55 VDC
  - Insulation Resistance: 10<sup>9</sup> MΩ Min.
  - Driving Torque: 1.0 to 9.8 mNm (10 to 100 g cm)
  - Operating Temperature Range: -25° to +85°C
- Applications**
- Crystal Oscillators, Crystal Filters
  - Pagers
  - Cordless Telephones
  - Camcorders
  - Hand-Held Telephones, Automotive Telephones
  - Hand Radios
  - Radar Detectors
  - Remote Keyless Entry Systems

Stock No.	Mfr.'s Type	Cap. (pF)		Temperature Coefficient (ppm/°C)	Q Min. (1 MHz, C Max.)	Stator Color	EACH*
		Min.	Max.				
231-8204	TZV02Z2R5A110	0.65	2.5 (+100%, -0%)	NPO (±300)	200†	White	.42
231-8209	TZV02Z060A110	2.50	6.0 (+100%, -0%)	NPO (±300)	500	Light Green‡	.42
231-8210	TZV02Z100A110	3.00	10.0 (+100%, -0%)	NPO (±300)	500	Light Green‡	.42
231-8212	TZV02R200A110	4.50	20.0 (+100%, -0%)	N750 (±750)	500	Brown	.42

\*Sold only in multiples of 100. †At 200 MHz. ‡Light Green + Marking.

### Tuning Tools for Murata Trimming Capacitors

711-3505. KMTZ04. For TZS02 Series.....	EACH	32.89
711-3515. KMTZ11V. For TZV02 Series.....	EACH	18.98
711-3520. PPTZ-0022. For TZBX4 and TZ03 Series.....	EACH	9.93

### TZS02 Series Ceramic Trimmer Capacitors

- Features**
- Ultra-Small and Thin Type with External Dimensions of 2.2 × 2.7 × 0.95 mm (W × L × T)
  - Mountable by Automatic Placer
  - Newly Designed Metal Rotor and Rugged Construction Ensure High Stability Thereby Minimizing Capacitance Drift After Adjustment
  - Voltage: Rated — 25 VDC; Withstanding — 55 VDC
  - Funnel Shaped Metal Case and Pierced Square Hole Enable In-Process Automatic Adjustment; Pierced Square Hole Allows High Resistance to Tuning Force
  - Insulation Resistance: 10<sup>9</sup> MΩ Min.
  - Driving Torque: 0.49 to 4.9 mNm (5 to 50 g cm)
  - Operating Temperature Range: -25° to +85°C

- Applications**
- Crystal Oscillators, Crystal Filters
  - Pagers
  - Cordless Telephones
  - Camcorders
  - Hand-Held Telephones, Automotive Telephones
  - Hand Radios
  - Radar Detectors
  - Remote Keyless Entry Systems

Stock No.	Mfr.'s Type	Cap. (pF)		Temperature Coefficient (ppm/°C)	Q Min. (1 MHz, C Max.)	Stator Color	EACH*
		Min.	Max.				
231-8084	TZS02Z060A110	3.0	6.0 (+100%, -0%)	NPO (±300)	500	Light Green	.43
231-8086	TZS02Z100A110	3.5	10.0 (+100%, -0%)	NPO (±300)	500	Light Green	.43
231-8088	TZS02R200A110	7.0	20.0 (+100%, -0%)	N750	500	Brown	.43

\*Sold only in multiples of 100.

### TZ03 Leaded Trimmer Capacitors

- Features**
- Excellent Shock and Vibration Resistance
  - Exceptionally Linear TC
  - Dust and Flux Resistant Construction
  - Plastic Case Meets UL94V-0
  - Available on Tape and Reel for Automatic Insertion
  - Operating Temperature: -55°C to +85°C

Stock No.	Mfr.'s Type	Cap. (pF)		Temperature Coefficient (ppm/°C)	Q Min. (1 MHz, C Max.)	Case Color	EACH*
		Min.	Max.				
231-8040	TZ03Z070FR169	2.0	7.0 (-0, +50%)	NPO (±200)	300 Min.	Blue	.64
231-8062	TZ03Z100ER169	2.7	10.0 (-0, +50%)	NPO (±200)	500 Min.	Blue	.64
231-8044	TZ03Z500ER169	6.0	50.0 (-0, +100%)	NPO (±300)	300 Min.	Orange	.63
231-8050	TZ03P450ER169	6.8	45.0 (-0, +50%)	N1200 (±500)	300 Min.	Yellow	.28
231-8064	TZ03R300ER169	5.2	30.0 (-0, +50%)	N750 (±300)	500 Min.	Green	.69
231-8066	TZ03R200FR169	4.2	20.0 (-0, +50%)	N750 (±300)	500 Min.	Red	.31
231-8068	TZ03R200ER169	4.2	20.0 (-0, +50%)	N750 (±300)	500 Min.	Red	.69
231-8070	TZ03R121ER169	10.0	120.0 (-0, +100%)	N750 (±300)	300 Min.	Black	1.42

\*Sold only in multiples of 100.

### Piezo-Alarms



#### PC Mountable Piezo-Alarms with Internal Circuitry

These PC mountable piezo-alarms are completely self-contained requiring only a DC voltage source for operation.

Stock No.	Mfr.'s Type	Sound Level dB	Freq. (Hz)	Current (mA)	Oper. Volt (p-p)	EACH	
						1-99	100-249
711-0140	PKB24SPC-3601*	90	3.6K	16	3 to 15	2.99	2.33

#### Internal Drive Piezo-Alarms

These piezo-alarms are completely self-contained requiring only a DC voltage source for operation.

711-0120	PKB5-3AO	85	2.8K	12	3 to 20	6.67	5.36
711-0130	PKB6-5AO	85	4.7K	12	3 to 20	5.85	4.78

#### Self-Drive Piezo-Alarms

These units are equipped with a feedback tab for use with self-oscillating circuit designs.

711-0160	PKM25-6AO	85	6.8K	10	3 to 20	3.30	2.46
711-0170	PKM11-6AO	75	6.5K	8	3 to 15	2.66	2.07
711-0175	PKM29-3AO	85	3.4K	20	4.5 to 18	3.64	2.71

\*Also available as washable parts with tape covering the sound emitting hole and epoxy seal at the case bottom as custom order. Call for price and delivery.

#### External Drive Piezo-Alarms

These piezo-alarms have no "feedback" tab and is particularly suited for the generation of both single tones and the unusual sound effects that are possible with specifically designed driving circuits.

Stock No.	Mfr.'s Type	Sound Level dB	Freq. (Hz)	Current (mA)	Oper. Volt (p-p)	Cap (pF)	EACH	
							1-99	100-249
711-0100	PKM22EPP-4001	75	4K	1	3 to 30	12,000	.75	.63
711-0105	PKM17EPP-4001*	72	4K	1	3 to 20	7,000	.71	.60
711-0110	PKM11-4AO	75	4K	1	3 to 25	10,000	1.83	1.25

\*Without Mounting Ears.