

Surface Mount TCXOs with VC Option

TC813 • TC815 • TCV813 • TCV815

(3.0V) (5.0V) (3.0V, VC Control) (5.0V, VC Control)

FEATURES

- Very tight stability
- Wide temperature range
- Optional supply voltages
- Voltage control option

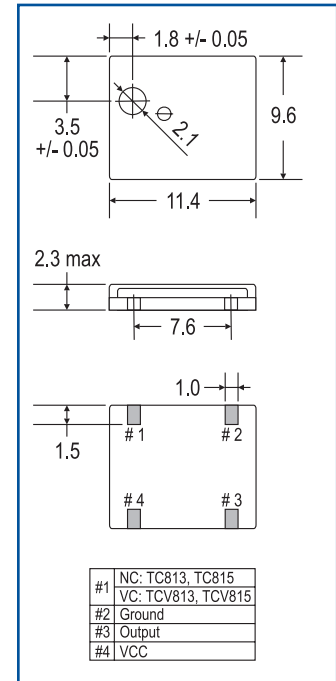
APPLICATIONS

- Mobile communications
- Wireless RF
- Test equipment

SPECIFICATIONS TC813 / TCV813 TC815 / TCV815

Power Supply	3.0V ± 5%	5.0V ± 5%
Frequency Range	10.0 to 20.0 MHz (see Developed Frequencies below)	
Operating Temp Range	- 30°C ~ 85°C	
Trim Range Option	± 3.0 ppm min (TCV813, TCV815)	
Voltage Control Option	± 3.0 ppm, positive slope* (TCV813, TCV815)	
Input Current	2.0 mA max	
Output Load	10K Ω / 10 pF	
Output Level	1.0V p-p min (Clipped Sinewave)	
Start Time	8.0 ms max	
Stability/Aging	± 1.0 ppm max / year	
Stability/Supply Voltage	± 0.2 ppm vs VCC ± 5%	
Stability/Temp	±0.5 ppm	±1.0 ppm
0°C ~ 55°C	•	•
- 10°C ~ 60°C		•
0°C ~ 70°C		•
- 20°C ~ 70°C		•
- 30°C ~ 75°C		•
- 30°C ~ 85°C		•
- 40°C ~ 85°C		•
Phase Noise	100 Hz : 110 dBc/Hz	1 KHz : -125 dBc/Hz
	1 KHz : -125 dBc/Hz	10 KHz : -130 dBc/Hz

* Consult Monitor for extended pullability requirements



TC813 / TC815 Units = mm
TCV813 / TCV815

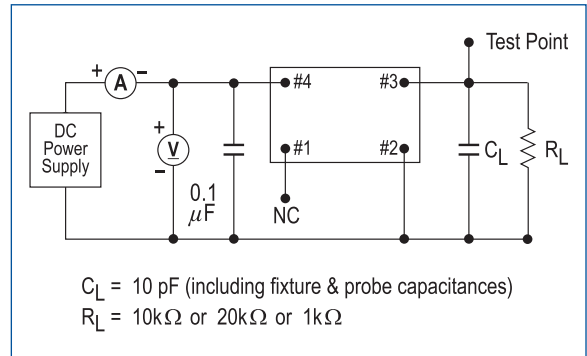
DEVELOPED FREQUENCIES

10.0000	13.0000	16.3670
12.0000	14.4000	19.2000
12.6000	14.8500	19.6800
12.8000	15.3600	20.0000

Monitor Products has a proven track record as a pioneer manufacturer in the frequency control market. If our extensive selection of standard and engineered crystals and oscillators does not meet your spec, we will work with you towards a customized solution.

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TEST CIRCUIT



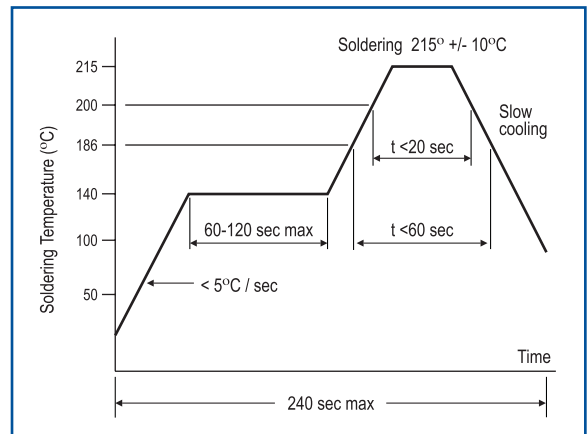
ENVIRONMENTAL PERFORMANCE SPECIFICATIONS

Oper Temp Range	-30°C ~ 85°C std *
Storage Temp Range	-40°C ~ 85°C
Humidity	85% RH, 85°C, 48 Hours
Solderability	MIL-STD-202F Method 208E
Reflow Solderability	215°C for 10 seconds
Vibration	MIL-STD-202F Method 204, 10G, 50 to 2000 Hz
Shock	MIL-STD-202F Method 213B 500G, 1/2 Sine Wave
Packaging	24mm Tape & Reel (1000pcs/reel) std or Bulk (<1000pcs)

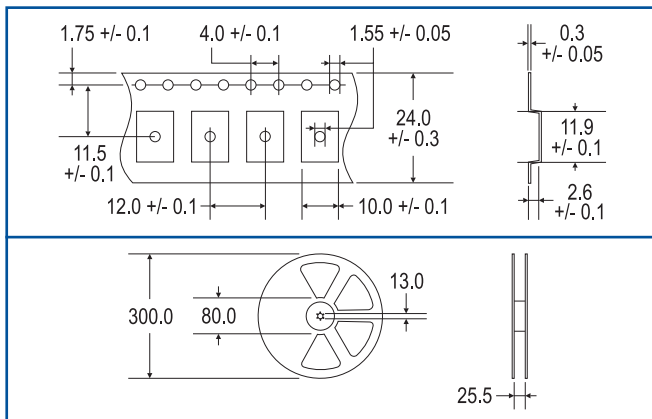
*See Part Numbering Key for other temperature options

NOTE: Non-hermetically sealed TCXOs should not be immersed in solvents during a wash process. The recommended procedure is **NO CLEAN**.

SOLDER REFLOW DIAGRAM



TAPE & REEL DIMENSIONS



STABILITY VS TEMPERATURE OPTIONS

Stability/Temp	±0.5ppm	±1.0ppm	±1.5ppm	±2.0ppm	±2.5ppm	±5.0ppm
0°C ~ 55°C	•	•	•	•	•	•
-10°C ~ 60°C		•	•	•	•	•
0°C ~ 70°C		•	•	•	•	•
-20°C ~ 70°C			•	•	•	•
-30°C ~ 75°C				•	•	•
-30°C ~ 85°C					•	•
-40°C ~ 85°C						•

PART NUMBERING KEY

Sample Part Numbers

TC813A1BE @ 12.8 MHz

TCV815E3AE @ 19.2 MHz

SERIES	FREQUENCY STABILITY*	TEMPERATURE RANGE*	MECHANICAL TRIMMER	PACKAGING	FREQUENCY (MHz)
TC813 (3.0V) TC815 (5.0V) TCV813 (3.0V, with VC) TCV815 (5.0V, with VC)	A = 0.5 ppm B = 1.0 ppm C = 1.5 ppm D = 2.0 ppm E = 2.5 ppm G = 5.0 ppm	1 = 0°C ~ 55°C 2 = -10°C ~ 60°C 3 = 0°C ~ 70°C 4 = -20°C ~ 70°C 5 = -30°C ~ 75°C 6 = -30°C ~ 85°C 7 = -40°C ~ 85°C	A = Yes B = No	A = Bulk E = Tape & Reel (24mm tape, 1000 pcs/reel)	12.8 19.2

* See Stability vs Temp Range chart above for available options before making selection.

Parts will be marked with frequency only. Use full descriptive part number when ordering.