OCXO (Oven Controlled Crystal Oscillators) +12.0V
OC189T12A; OC189T12S Series HCMOS Square Wave

MERCURY Since 1973

Mercury OC189T12 is 20.3x20.3 mm 5 pin solder sealed metal pacakge with 15.2x15.2 mm pin-to-pin spacing high stability low aging OCXO. Besides standard AT cut crystal, users can also choose SC cut crystal for better performance. 50 ohm load sine wave output is available as OC189E12 series.

General Specifications

Output Wave From			HCMOS square wave. Wave form code is "**T**"			
Frequency Range			1.0 MHz ~100.0 MHz			
Type of Crystal Cut Used			**AT**-cut. Use "**A**" for crystal code or **SC**-cut: use "**S**" for crystal code. Please refer to technical note TN031 for SC and AT-cut crystal comparison			
Supply Voltage (Vcc)			$+12.0V_{D.C}$ ±5% (voltage code is "**12**")			
Initial Calibration Tolerance			±0.2 ppm typical; ±0.2 ppm max. at time of shipment; Vcon=+2.5V, at +25°C			
Frequency Stability vs	**Operating Temperature Range (custom spec. on request)**		**AT-cut** crystal		**SC-cut** crystal	
			±0.03 ppm over -20°C to +70°C ±0.05 ppm over -20°C to +70°C		±0.01 ppm over -20°C to +70°C ±0.03 ppm over -20°C to +70°C	
			±0.05 ppm over -40°C to +85°C ±0.1 ppm over -40°C to +85°C		±0.03 ppm over -40°C to +85°C ±0.05 ppm over -40°C to +85°C	
	Aging		**AT-cut**: ±0.1 ppm typical. First year. 10 MHz **SC-cut**: ±0.05 ppm typical. First year. 10 MHz			
	Supply Voltage ±5% Variation		±20 ppb max.			
	Load ±5% variation		±20 ppb max.			
	Warm-up time (at +25°C)		3 minutes max. Within ±0.1 ppm of its reference frequency.			
Voltage Control on pin 1 (EFC) (Electronics Frequency Tuning)		**Freq. Deviation Range**	**AT**: ±5 ppm typical **SC**: ±0.7 ppm typical			
		Control Voltage Range	2.5 V ± 2.0 V			
		Transfer Function	Positive: Increasing control voltage increases output frequency.			
		Input Impedance	100 Ω min.			
		EFC Linearity	±10% max.			
Power	**Power Dissipation (at +25°C)**		**Warm-up**: 200 mA max. **Steady-state**: 500 mA max.			
Output	**Load (Fan out)**		15 pF HCMOS max.	**Duty Cycle (measured at 50%Vcc)**		50% ± 10%
	Output Voltage Logic High (V_{OH})		+4.5 V min.	**Output Voltage Logic Low (V_{OL})**		+0.5 max.
	Rise and Fall Time		5 nS typical; 7 nS max. (measured at 20% ⇄ 80% of waveform)			
	Phase Noise	**Offset**	10 Hz	100 Hz	1 KHz	10 KHz
		10 MHz AT-cut XTAL	-110 dBc typical	-135 dBc typical	-150 dBc typical	-155 dBc typical
Storage Temperature			-40°C to +105°C			
Shock			2000 G's, 0.3 ms ½ sine			
Vibration			10 to 2000 Hz / 10 G's			

MERCURY www.mercury-crystal.com

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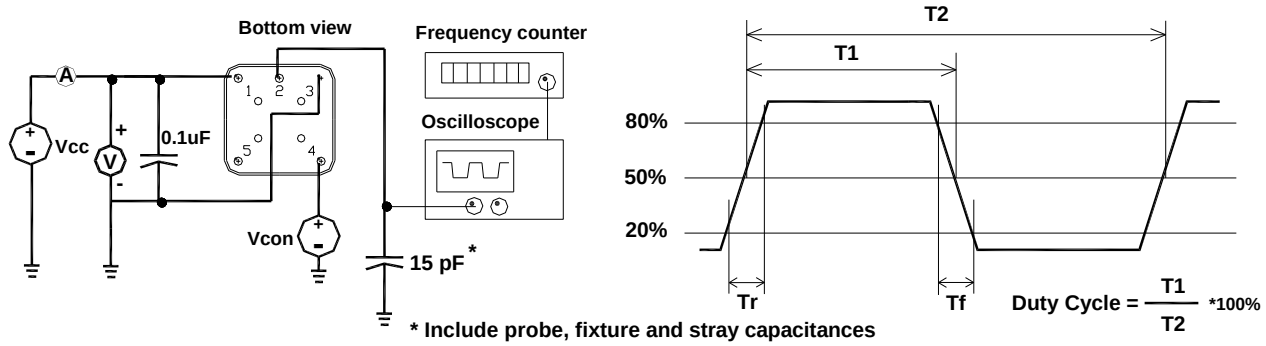
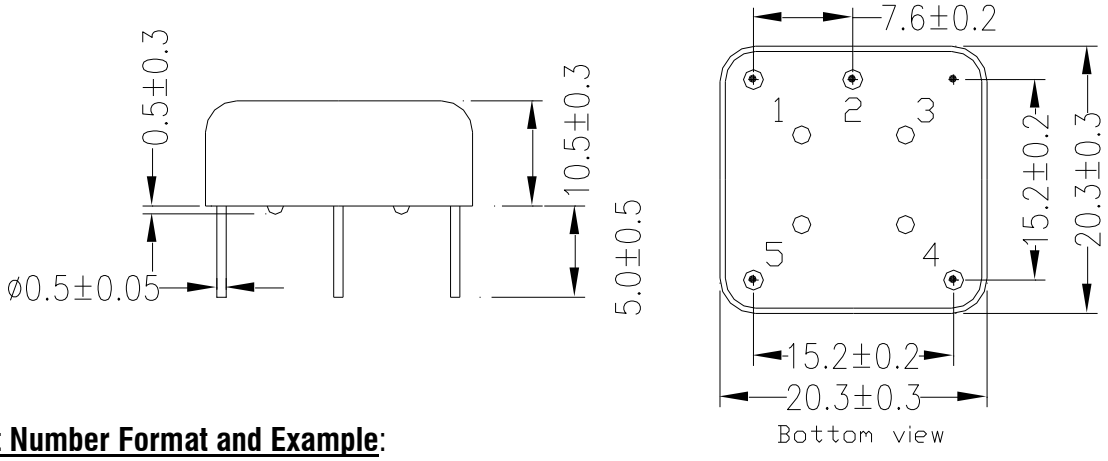
OC189T12 Test Circuit



OC189T12 Series Package Dimensions and Pin Connections: unit mm

Pin 1: Supply Control Pin 2: RF Output Pin 3: Ground / Case
Pin 4: Voltage Control EFC Pin 5: Reference Voltage Output



Part Number Format and Example:

Example: OC189T12A-10.000-0.1/-20+70							
OC189T12	A	—	10.000	—	0.1	/	-20+70
❶	❷	dash	❸	Dash	❹	slash	❺

❶: OC189T12: OC189 series; "T" for CMOS Square wave; "12" for +12.0V supply voltage
❷: Crystal type. "**A**" for AT-cut crystal; "**S**" for SC-cut crystal ❸: Frequency in MHz
❹: Frequency stability in ppm ❺: Operating temperature range in Celsius