

**OCXO (Oven Controlled Crystal Oscillators) +5.0V; +12V**  
**OC40T Series HCMOS Square Wave**



**MERCURY**  
Since 1973

Mercury OC40T is 38.8x38.8 mm 4 pin solder sealed metal package with 25.4x25.4 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 output is available as OC40E series.

**General Specifications** ( 10 MHz at +25°C, at specified Vcc and +2.5 V Vcon)

<b>Output Wave Form</b>		HCMOS square wave. Wave form code is "T"				
<b>Frequency Range</b>		1.25 MHz ~100.0 MHz				
<b>Type of Crystal Cut Used</b>		AT-cut. Use "A" for crystal code or SC-cut: use "S" for crystal code. SC has better performance but higher cost. See technical note TN-031.				
<b>Supply Voltage (Vcc)</b>		+5.0 V <sub>D.C</sub> ±5% (voltage code is "5"); +12.0 V <sub>D.C</sub> ±5% (voltage code is "12")				
<b>Initial Calibration Tolerance</b>		±0.5 ppm max. at time of shipment; Vcon = +2.5V, at +25°C				
<b>Frequency Stability vs</b>	<b>Operating Temperature Range (custom spec. on request)</b>	Best Stability	0°C to +60°C	-20°C to +70°C	-40°C to +85°C	
		For AT crystal	±0.05 ppm	±0.1 ppm	±0.2 ppm	
		For SC crystal	±0.01 ppm	±0.02 ppm	±0.03 ppm	
	<b>Aging</b> (after 72 hours of continuous operation)	AT: ±3 ppb max./day; ±0.5 ppm max./first year; ±3 ppm max. over 10 years. SC: ±2 ppb max./day; ±0.1 ppm max./first year; ±0.5 ppm max. over 10 years.				
	<b>Supply Voltage ±5% Variation</b>	±20 ppb max.				
	<b>Load ±5% variation:</b>	±20 ppb max.				
<b>Warm-up time (at +25°C)</b>		AT: 1 minute max. Within ±0.2 ppm of its reference frequency. SC: 1 minute max. Within ±0.05 ppm of its reference frequency.				
<b>Voltage Control on pin 1 (EFC) (Electronics Frequency Tuning)</b>	<b>Freq. Deviation Range</b>	AT: ±5 ppm min. ±20 ppm max.; SC: ±0.5 ppm min, ±2 ppm max.		Referenced to fo at +25°C and over operating temperature range.		
	<b>Control Voltage Range</b>	2.5 V ± 2.0 V				
	<b>Transfer Function</b>	Positive: Increasing control voltage increases output frequency.				
	<b>Input Impedance</b>	100 K ohms min.	<b>EFC Linearity</b>		±10% max.	
<b>Power</b>	<b>Power Dissipation (at +25°C)</b>	+5.0 V units: 1.2 Watts max. at steady-state; 3.6 Watts max. at turn-on.				
<b>Output</b>	<b>Load (Fan out)</b>	15 pF HCMOS max.				
	<b>Duty Cycle</b>	50% ± 10%. (measured at 50%Vcc)				
	<b>Output Voltage Logic High (V<sub>OH</sub>)</b>	+4.5 V min.				
	<b>Output Voltage Logic Low (V<sub>OL</sub>)</b>	+0.5 max.				
	<b>Rise and Fall Time</b>	5 nS max. (measured at 20% ≧ 80% of waveform)				
	<b>Reference Voltage Output</b>	+4.0 V <sub>D.C</sub> ±0.3 V <sub>D.C</sub> or custom.				
	<b>Phase Noise</b>	<b>Offset</b>	1 Hz	10 Hz	100 Hz	1 KHz
<b>10 MHz AT-cut XTAL</b>		-75 dBc	-100 dBc	-130 dBc	-140 dBc	-150 dBc
<b>10 MHz SC-cut XTAL</b>		-85 dBc	-120 dBc	-140 dBc	-145 dBc	-150 dBc
<b>Storage Temperature</b>		-55°C to +125°C				
<b>Shock</b>		2000 G's, 0.3 ms ½ sine				
<b>Vibration</b>		10 to 2000 Hz / 10 G's				

**MERCURY** [www.mercury-crystal.com](http://www.mercury-crystal.com)

Taiwan: TEL (886)-2-2406-2779, FAX (886)-2-2496-0769, e-mail: sales-tw@mercury-crystal.com

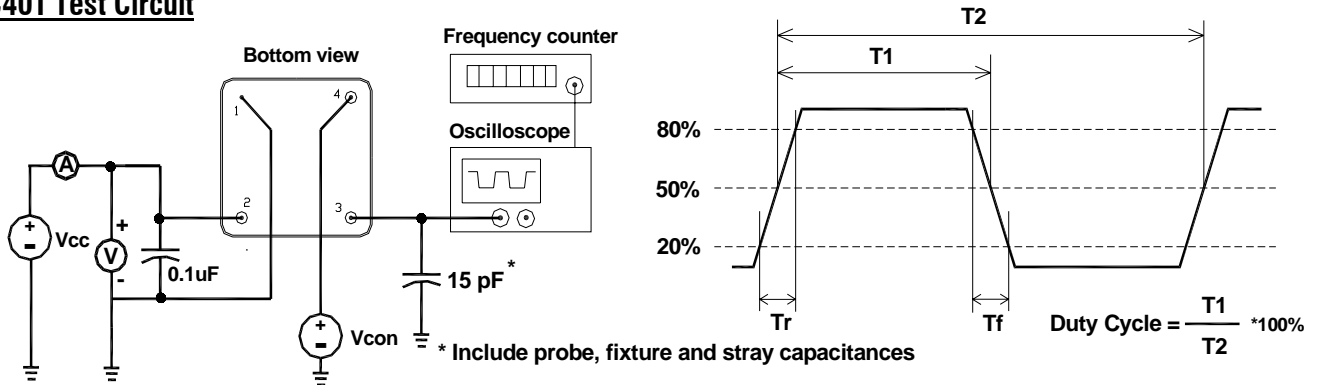
U.S.A.: TEL (1)-909-466-0427, FAX (1)-909-466-0762, e-mail: sales-us@mercury-crystal.com

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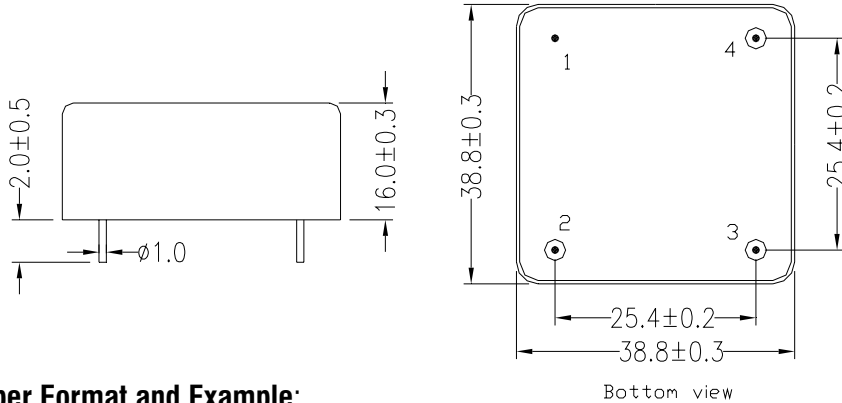
**OC40T Test Circuit**



**OC40T Series Package Dimensions and Pin Connections:**

unit mm

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



**Part Number Format and Example:**

**Example:** OC40T5S-10.000-0.01/-20+70

OC	40	T	5	S	—	10.000	—	0.01	/	-20+70
①	②	③	④	⑤	dash	⑥	dash	⑦	slash	⑧

**①**: "OC" Product Prefix for OCXO      **②**: Package type. "40" for OC40 package  
**③**: Output wave form code. "T" for HCMOS square wave output..  
**④**: Supply voltage code. "5" for +5.0V; "12" for +12.0V  
**⑤**: Crystal type. Use "A" for AT-cut crystal; Use "S" for SC-cut crystal.  
**⑥**: Frequency in MHz;      **⑦**: Frequency stability in ppm;  
**⑧**: Operating temperature range: -20°C to +70°C in this case.