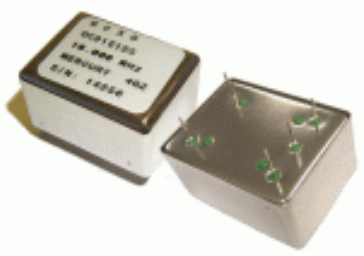
OCXO (Oven Controlled Crystal Oscillators) +5.0 V; +12 V
OC31E Series 50 ohm Load Sine Wave

MERCURY
Since 1973

Mercury OC31E is 36.2x27.2 mm 5 pin solder sealed metal pacakge with 25.4x17.8 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. HCMOS square wave output is available as OC31T series. OC30E series: Same package size as OC31E but with different pin configurations.



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

Output Wave Form			Sine wave. Wave form code is "**E**"			
Frequency Range			10 MHz ~100.0 MHz			
Type of Crystal Cut Used			**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.			
Supply Voltage (Vcc)			+5.0 $V_{D.C}$ ±5% (voltage code is "**5**"); +12.0 $V_{D.C}$ ±5% (voltage code is "**12**")			
Initial Calibration Tolerance			±0.5 ppm max. at time of shipment; Vcon=+2.5V			
Frequency Stability vs	**Operating Temperature Range (custom spec. on request)**		Best Stability	0°C to +60°C	-20°C to +70°C	-40°C to +85°C
			For **AT** crystal	±0.03 ppm	±0.08 ppm	±0.2 ppm
			For **SC** crystal	±0.01 ppm	±0.02 ppm	±0.03 ppm
	Aging (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.			
	Supply Voltage ±5% Variation		±20 ppb max.			
	Load ±5% variation		±20 ppb max.			
	Warm-up time (at +25°C)		**AT**: 3 minutes max. Within ±0.5 ppm of its reference frequency. **SC**: 1 minute max. Within ±0.1 ppm of its reference frequency.			
Voltage Control on pin 1 (EFC) (Electronics Frequency Tuning)	**Freq. Deviation Range**		**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.		
	Control Voltage Range		2.5 V ± 2.0 V			
	Transfer Function		Positive: Increasing control voltage increases output frequency.			
	Input Impedance		100 K ohms min.			
	EFC Linearity		±10% max.			
Power	**Power Dissipation (at +25°C)**		1.2 Watts max. at steady-state; 3.5 Watts max. at turn-on.			
Output	**Output Level**		+3 dBm typical; +8 dBm max. with 50Ω load			
	Harmonic		-30 dBc min.			
	Spurious		-75 dBc min.			
	Reference Voltage		+4.0 $V_{D.C}$.±0.3 $V_{D.C}$. or custom.			
	Phase Noise	**Offset**	1 Hz	10 Hz	100 Hz	1 KHz	10 KHz
		10 MHz AT-cut XTAL	-75 dBc	-100 dBc	-130 dBc	-140 dBc	-150 dBc
		10 MHz SC-cut XTAL	-85 dBc	-120 dBc	-140 dBc	-145 dBc	-150 dBc
Storage Temperature			-55°C to +125°C			
Shock			2000 G's, 0.3 ms ½ sine			
Vibration			10 to 2000 Hz / 10 G's			

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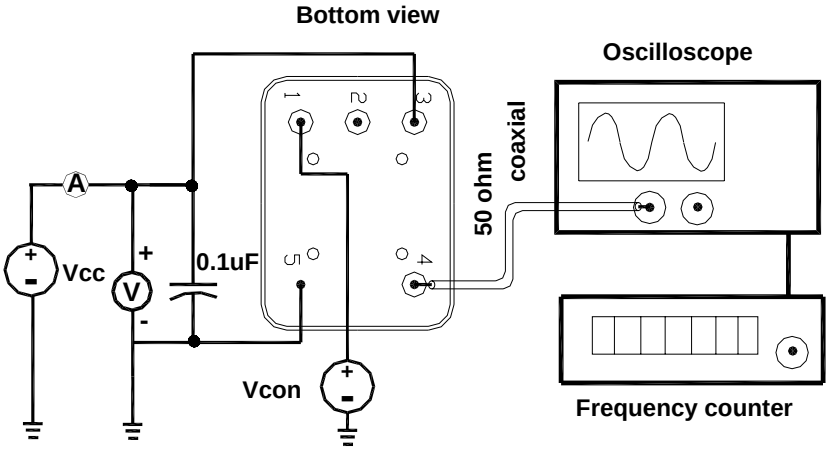
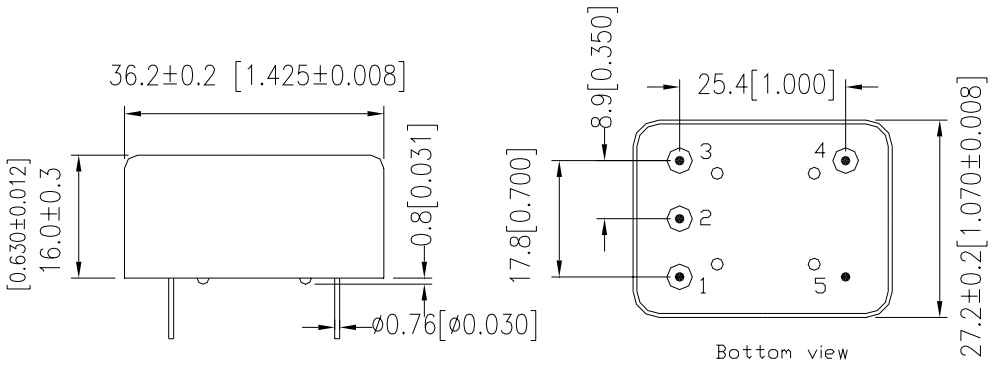
OC31E Test Circuit



OC31E Series Package Dimensions and Pin Connections:

unit mm

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



Part Number Format and Example:

Example: OC31E5S-10.000-0.01/-20+70										
OC	31	E	5	S	—	10.000	—	0.01	/	-20+70
❶	❷	❸	❹	❺	dash	❻	dash	❼	slash	❽

❶: "**OC**" Product Prefix for OCXO ❷: Package type. "**31**" for OC31 package

❸: Output wave form code. "**E**" for 50 ohm load Sine wave.

❹: Supply voltage code. "**5**" for +5.0V; "**12**" for +12.0V

❺: Crystal type. Use "**A**" for AT-cut crystal; Use "**S**" for SC-cut crystal.

❻: Frequency in MHz; ❼: Frequency stability in ppm;

❽: Operating temperature range: -20°C to +70°C in this case.