OCXO (Oven Controlled Crystal Oscillators) +12.0 V
OC149T12A, OC149T12S Series Square Wave

MERCURY
Since 1973

Features:

- Full size 4 pin DIP full metal package
- +12.0 V D.C supply Voltage
- 15 pF load CMOS sqaure wave output
- Choice of AT-cut or SC-cut crystal
- Voltage control (Electronic Frequency Tuning) on pin 1

General Specifications:

Output Wave From		Square wave. Wave form code is "**T**"	
Frequency Range		AT-cut crystal: 8.0 MHz ~125.0 MHz SC-cut crystal: 10.0 MHz ~ 100.0 MHz	
Type of Crystal Cut Used		**AT**-cut. Use "**A**" for crystal code. **SC**-cut. Use "**S**" for crystal code Please refer to technical note TN031 for SC and AT-cut crystal comparison	
Supply Voltage (V_{DD})		+12.0 V (voltage code is "**12**")	
Initial Calibration Tolerance		AT-cut: ±0.5 ppm max. at the time of shipment. @+25°C, Vcon=+2.0 V SC-cut: ±0.05 ppm max. at the time of shipment. @+25°C, Vcon=+2.0 V	
Frequency Stability vs	**Operating Temperature Range (custom spec. on request)**	AT-cut crystal	SC-cut crystal
		±0.05 ppm over -20°C to +70°C ±0.1 ppm over -20°C to +70°C ±0.3 ppm over -20°C to +70°C	±0.02 ppm over -20°C to +70°C
		±0.1 ppm over -40°C to +85°C ±0.5 ppm over -40°C to +85°C ±1.0 ppm over -40°C to +85°C	±0.05 ppm over -40°C to +85°C
	Long Term Aging	AT-cut: ±0.7 ppm typical for 20 MHz; first year. After 30 day power on. SC-cut: ±0.2 ppm typical for 20 MHz; first year. After 30 day power on.	
	Supply Voltage ±5% Variation	AT-cut: ±30 ppb typical ; SC-cut: ±20 ppb typical	
	Load ±5% variation	AT-cut: ±30 ppb typical ; SC-cut: ±20 ppb typical	
Voltage Control on pin 1	**Electronic Frequency Control (EFC at pin 1)**	AT-cut: ±6.0 ppm typical; SC-cut: ±1.5 ppm typical	
	Control Voltage Range	0.0 V to 4.0 V	
	Transfer Function	Positive: Increasing control voltage increases output frequency	
	Input Impedance	100 K Ω min.	
	EFC Linearity	±10% max.	
Power	**Power Dissipation**	Steady-state: 80 mA max. at +25°C.	
		Warm-up: 200 mA max.	
	Warm-up time (at +25°C)	AT-cut: 3 minutes max. Within ±0.1 ppm of the unit output frequency. SC-cut: 2 minutes max. Within ±0.1 ppm of the unit output frequency.	
Output	**Output Wave Form**	CMOS Square Wave	
	Output Load	15 pF typical	
	Output Logic HIGH (VOH)	4.5 V typical	
	Output Logic LOW (VOL)	0.5 V typical	

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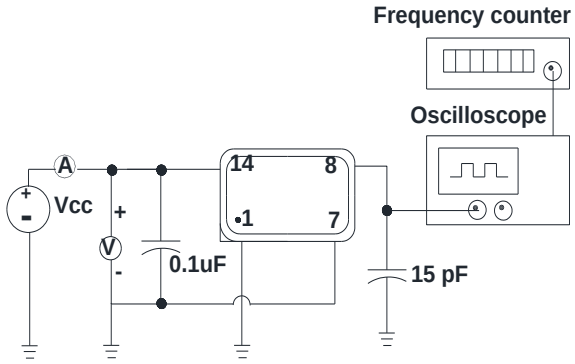
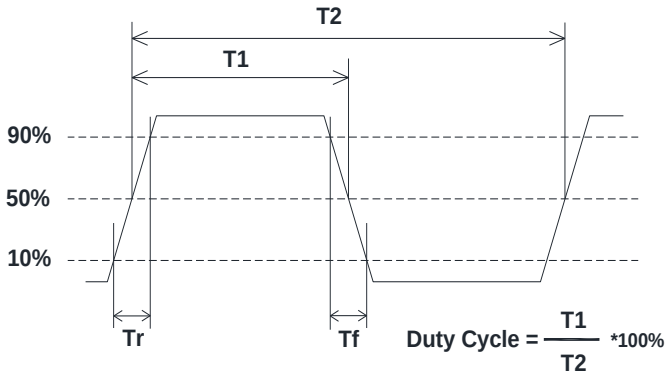
	Rise and Fall Time		6 n. sec. max.			
	Duty Cycle (Symmetry)		40 % min; 60% max.			
	Phase Noise	**Offset**	10 Hz	100 Hz	1 KHz	10 KHz
		10 MHz AT-cut Crystal	-80 dBc typ.	-120 dBc typ.	-145 dBc typ.	-150 dBc typ.
Storage Temperature			-40°C to +85°C			
Shock			2000 G’s, 0.3 ms ½ Square			
Vibration			10 to 2000 Hz / 10 G’s			

OC149T12 Test Circuit:



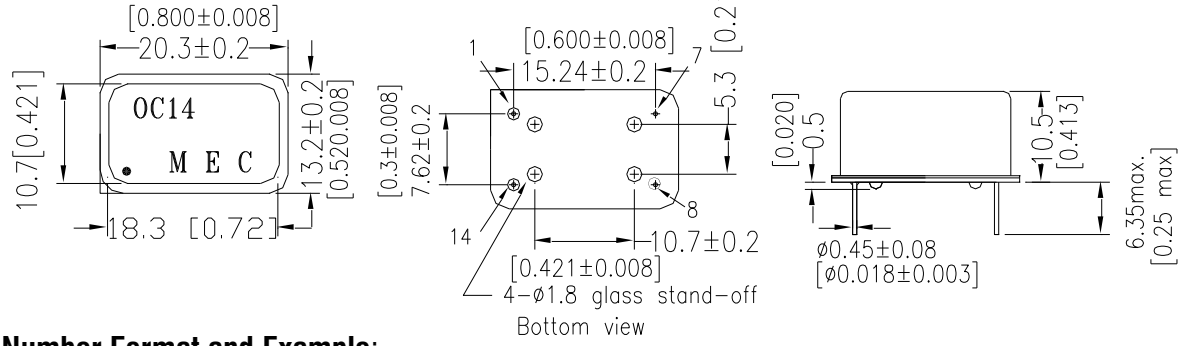


OC149T12 Package Dimensions and Pin Connections:

unit mm [inches]

Pin 1: Voltage Control Pin 7: Ground / Case Square corner is pin No. 1

Pin 8: Output Pin 14: Supply Voltage



Part Number Format and Example:

Example: OC149T12A-10.000-0.1/-20+70							
OC149T12	A	—	10.000	—	0.1	/	-20+70
❶	❷	dash	❸	Dash	❹	slash	❺

❶: OC149T12: OC149 series; “T” for CMOS Square wave; “12” for +12.0 V 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