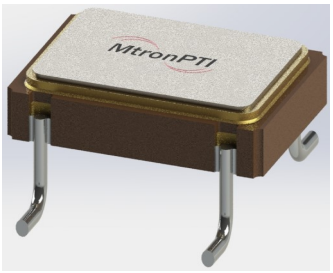
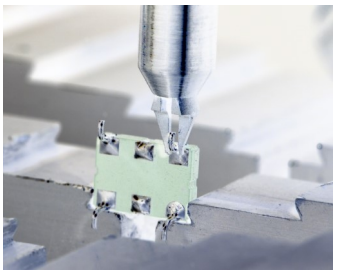
MtronPTI Announce In-house capability for Gull-wing attach for 5x7mm Ceramic Package

Gull-wing lead attach for 5x7mm CMOS Oscillators

In harsh environments observed in flight applications, reliability comes first. All components and solder joint connections must perform when environmental conditions are less than ideal. Coefficient of thermal expansion (CTE) mismatch between components and printed circuit board (PCB) can create thermomechanical stress and fatigue driving solder joints to fail. In these types of environments, the reliability of SMT packages can be enhanced through the addition of gull-wing leads for stress relief. The gull-wing configuration also lends itself for better accessibility of solder fillets for inspection.



MtronPTI helps enhance solder joint interface reliability of its already robust surface mount 5x7mm electrical designs, with in-house lead-attach process capability. All CMOS output, 5x7mm oscillators on the MtronPTI frequency control portfolio (http://www.mtronpti.com/products/Oscillator/XO) can be available with a gull-wing configuration. The MtronPTI lead attach process has been tested and passed lead integrity per MIL-STD-883 M2004 condition B2 and Adhesion of Lead Finish per MIL-STD-883 M2025. In contrast to 3rd party lead attach facilities, MtronPTI is also able to perform 100% pre and post lead-attach electrical parameter and gross/fine leak testing on products.



Key Features:

- Operating Frequency: 1.000 MHz to 150.000 MHz
- Operating Temperature Range: -55V to + 125°C
- Package: 5x7mm, 4 gull-wing leaded
- 100% Pre/Post attach electrical and hermeticity test

Applications:

- Avionics controls
- Satellite communications
- Defense

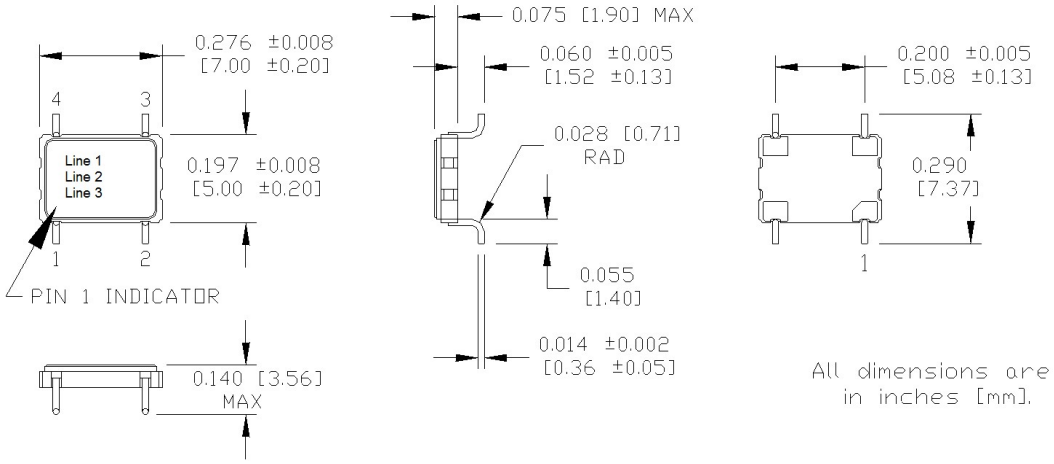
Electrical Characteristics

Parameter	Sym-	Min.	Typ.	Max.	Units	Conditions
Output Frequency Range	F_O	1.000000		150.000	MHz	
Frequency Stability Op-		±10, ±20, ±25, ±50, ±100			ppm	
Operating Temperature		-55		+125	˚C	
Storage Temperature		-55		+125	˚C	
Supply Voltage Options		1.8V, 2.5V, 3.3V, 5V				
Aging		-3	±5	+3	ppm	1st year
		-2		+2	ppm	Per year thereafter
RF Output						
Output Type		CMOS				
Output Load				15	pF	
Output Voltage High	V_{OH}	90% V_{DD}			V	HCMOS Load
Output Voltage Low	V_{OL}			10%	V	HCMOS Load
Symmetry (Duty Cycle)		45		55	%	At 50% V_{DD}
Rise and Fall Times	Tr/Tf			6 3	ns	Fo < 50.000 MHz Fo > 50.000 MHz
Start-Up Time				10	ms	
Enable/Disable Logic		Logic “1” or Open				Pin 1: Output Enabled
		Logic “0”				Pin 1: Output Disabled to high-Z

Qualification

Parameter	Test Condition
Physical Dimensions	MIL-STD-883 Method 2016
Lead Integrity	MIL-STD-883 Method 2004 Condition B2
Internal Water Vapor	MIL-STD-883 Method 1018
Temperature Cycle	MIL-STD-883 Method 1010 Condition B
Temperature Cycling	JESD22-A104 Condition B
Mechanical Shock	MIL-STD-202 Method 213, Condition C (100g Peak, 6 ms, 3 Pulses/Axis)
Mechanical Vibration	MIL-STD-202 Method204 Condition D (20g Peak, 20-2000 Hz, X, Y, Z Axis)
Constant Acceleration	MIL-STD-883 Method 2001 Condition A (5,000g Y1 Orientation only)
Salt Atmosphere	MIL-STD-883 Method 1009 Condition A
Adhesion of Lead Finis	MIL-STD-883 Method 2025
External Visual	MIL-STD-883 Method 2009
Gross/Fine Leak	MIL-STD-883 Method 1014

Mechanical, Pinout and Marking



Pin	Function
Pin 1	Enable/Disable or NC
Pin 2	*Ground*
Pin 3	*Output*
Pin 4	$+V_{DD}$