

### Features and Benefits

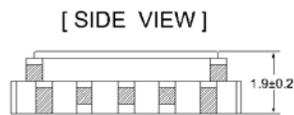
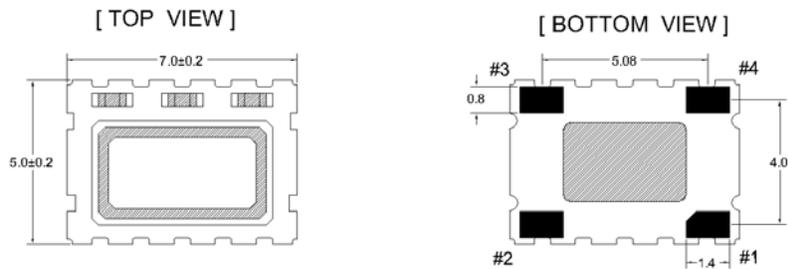
Better than +/- 1ppm from -30°C to +70°C  
 20MHz output nominal frequency  
 3.3V supply voltage, 6.0 mA max  
 Less than -110dBc/Hz @100Hz offset  
 Less than -130dBc/Hz @1KHz offset  
 Less than -145dBc/Hz @10KHz offset

### Description

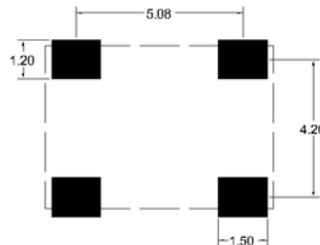
20MHz CMOS output, 3.3V supply voltage, 15pF max load, 2.0 ms max start time.

### Mechanical Drawing & Pin Connections

**Drawing No:**  
**MD140012 2**



Recommended Soldering Pattern



PIN	FUNCTION
#1	NC/GND
#2	GND
#3	OUTPUT
#4	VDD

Unit : mm

## Specifications

Oscillator Specification	Sym	Condition	Value			Unit	Note	
			Min.	Typ.	Max.			
Operational Frequency Range	F <sub>nom</sub>			20.000		MHz		
CMOS	Logic Level 1		2.97			V		
	Logic Level 0				0.33	V		
	Output load	R <sub>L</sub>	Operating range		15	pF		
	Rise / Fall Time		CMOS logic output at 10% to 90%		8.0	ns		
	Duty Cycle		Measured at 50% V <sub>DD</sub> trigger level		45	50	55	%
	Start time					2.0	ms	
<b>Power Supply</b>								
Supply voltage	V <sub>cc</sub>		3.135	3.30	3.465	V		
Supply current	I	At maximum supply voltage			6.0	mA		
<b>Frequency Stability</b>								
Nominal frequency tolerance		Frequency at 25°C, 1 hour after reflow	-2.0		+2.0	ppm		
vs. Temperature		-30°C to +70°C, Referenced to the frequency at 25°C	-1.0		+1.0	ppm		
vs. Supply voltage change		Supply voltage varied +/-5% at 25°C	-0.2		+0.2	ppm		
vs. Load change		+/-10% load change	-0.2		+0.2	ppm		
First Year Aging		First year at 25°C	-1.0		+1.0	ppm		
SSB Phase noise @20 MHz CMOS output and V <sub>cc</sub> = 3.3V		10 Hz		-90	-80	dBc/Hz		
		100 Hz		-118	-110			
		1000 Hz		-138	-130			
		10 KHz		-152	-145			
		100 KHz		-155	-148			
<b>Environmental Conditions</b>								
Parameter	Reference Std.			Test condition				
Vibration	MIL-STD-883 2007 Condition A JESD22-B103 condition 1			10-2000Hz, 1.52mm, 20G, each axis for 4 hrs				
Thermal shock	MIL-STD-883 1010 Condition B JESD22-A104 condition B			-55°C, 125°C, soak time is 10 mins, with total 200 cycles				
Mechanical shock	MIL-STD-883 2002 Condition B JESD22-B104 condition B			1500G, half-sine, 0.5ms, each axis for 3 times				
Operating temperature				-30°C to +70°C, The operating temperature range over which the frequency stability is measured				
Storage temperature				-55°C to +125°C				