



M625x Series Stratum 3 5x7 mm, TCXO/TCVCXO

FEATURES

Stratum 3 performance with 0.34 ppm (pk-pk) holdover stability over (-40°C to +85°C)
3.0 V and 3.3 V Options
Available in 4/5 pad and 10 pad configurations
Low phase noise performance

APPLICATIONS

Synchronous Ethernet Clocks ITU-T G.8262 EEC Options 1 & 2
Stratum 3 GR-1244-Core & GR-253-Core
Telecom / Datacom
Industrial Controls
Communications & Navigation

ORDERING INFORMATION

	M625x	2	S	T	C	N	00.0000 MHz
Product Series M6251 = 3.3 V M6252 = 3.0 V							
Temperature Range 1: 0°C to +70°C 2: -40°C to +85°C 6: -20°C to +70°C 8: 0°C to +50°C F: -30°C to +75°C							
Stability S: ± 4.6 ppm with Holdover							
Output Type T: Voltage Control With Tristate (VCTCXO) F: No Voltage Control With Tristate (TCXO)							
Output Waveform C: CMOS S: Clipped Sine Wave							
Output Waveform N: 10 Pad Leadless Ceramic T: 4/5 Pad Leadless Ceramic							
Frequency (Customer Specified)							

Example Part Number: M62512STCN 10.0000 MHz

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Frequency Range	F ₀	8		38.88	MHz	Contact factory above 38.88 MHz
Initial Accuracy		-1.0		+1.0	ppm	@ +25°C at time of shipment
Frequency Stabilities						
vs. Temperature	$\Delta F/F$			0.3	ppm	T _A = -40 °C to +85 °C (includes Hysteresis) Ref GR1244CORE
vs. Drift				40	ppb	After 24 hours at constant temperature.
vs. Free-Run Accuracy		-4.6		+4.6	ppm	Includes initial calibration @ +25 °C, deviation over temperature, supply voltage and load variations, reflow, hysteresis, and 20-year aging.
vs. Supply Voltage			±0.02	±0.1	ppm	±5 % change in voltage
vs. Load			±0.02	±0.1	ppm	±5 % change in load
RF Output						
Output Logic Level (CMOS)	V _{OL} V _{OH}	90		10	%V _{CC} %V _{CC}	I _{OL} = +4mA, V _{CC} = +3.0 V I _{OH} = -4mA, V _{CC} = +3.0 V
Output Logic Level (Clipped Sinewave)		0.8	0.9		V _{pk-pk}	
Waveform Symmetry (duty cycle)	T _{DC}	40	50	60	%	@ 50% of waveform (CMOS)
Rise/Fall Time	T _R /T _F			6.5	ns	10% to 90% V _{CC}
Output Load			15 10/10		pF kΩ/pF	CMOS ¹ Clipped Sinewave Output ¹
Tristate Function		80 or Open			%V _{CC}	Output Enabled
				20	%V _{CC}	Output Disabled: to HIGH Impedance (Z)
Tristate Input Current		-100		+10	μA	
Start-up Time	T _{SU}			10	Ms	
Frequency Adjustment						
Control Voltage Range	V _C	0.3 0.3		2.7 3.0	V V	@ 3.0 V supply @ 3.3 V supply
Tuning Range		±9.2			ppm	VCTCXO only ²
Linearity				5	%	
Modulation Bandwidth		2			kHz	
Input Resistance		100			kΩ	
Phase Noise						
SSB Phase Noise (measured @ 26 MHz)			-98		dBc/Hz	@ 10Hz Offset
			-127		dBc/Hz	@ 100Hz Offset
			-148		dBc/Hz	@ 1kHz Offset
			-156		dBc/Hz	@ 10kHz Offset

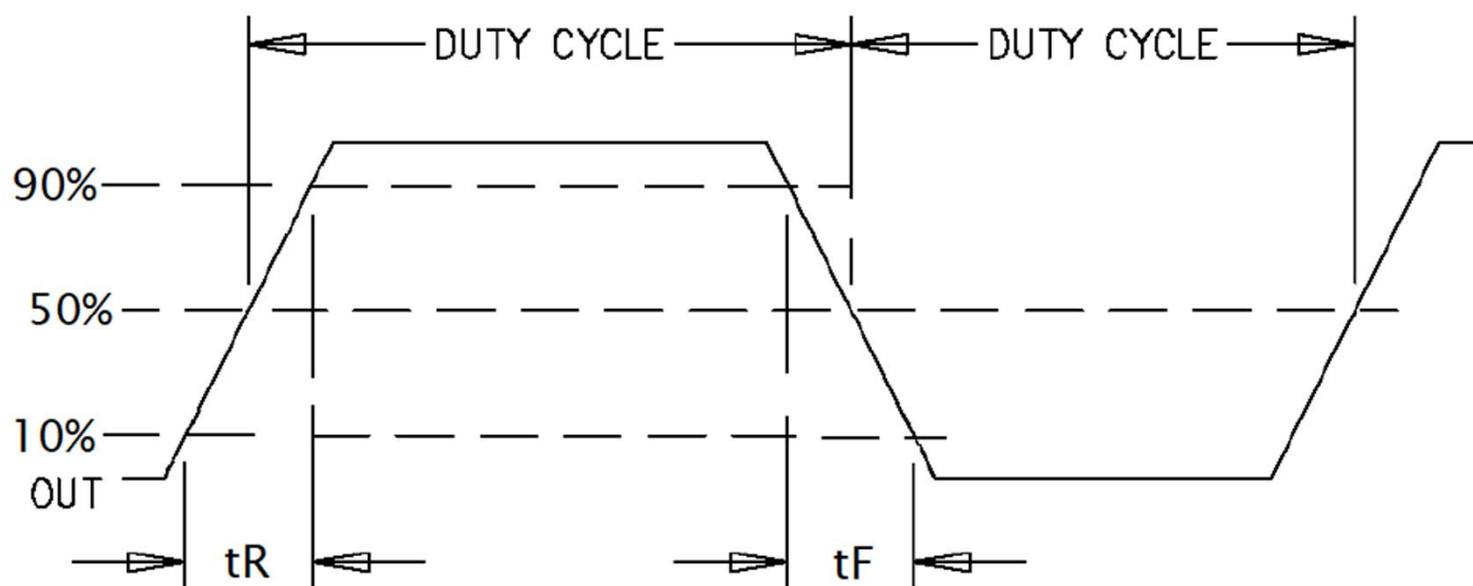
ELECTRICAL SPECIFICATIONS

Operating Voltage and Current						
Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Operating Voltage	V _{CC}	3.135	3.300	3.465	V	M6251
		2.850	3.000	3.150	V	M6252
Operating Current	I _C			4.4	mA	CMOS @ 16 MHz
				5.5	mA	CMOS @ 26 MHz
				7.8	mA	CMOS @ 50 MHz
				3.5	mA	Clipped Sine @ 16 MHz
				3.9	mA	Clipped Sine @ 26 MHz
				5.0	mA	Clipped Sine @ 50 MHz
Temperature						
Operating Temperature	T _A	See ordering information			°C	
Storage Temperature	T _S	-55		+125	°C	
Notes						
Note 1	Refer to the load circuit diagram in this data sheet.					
Note 2	Contact factory for other tuning range options.					

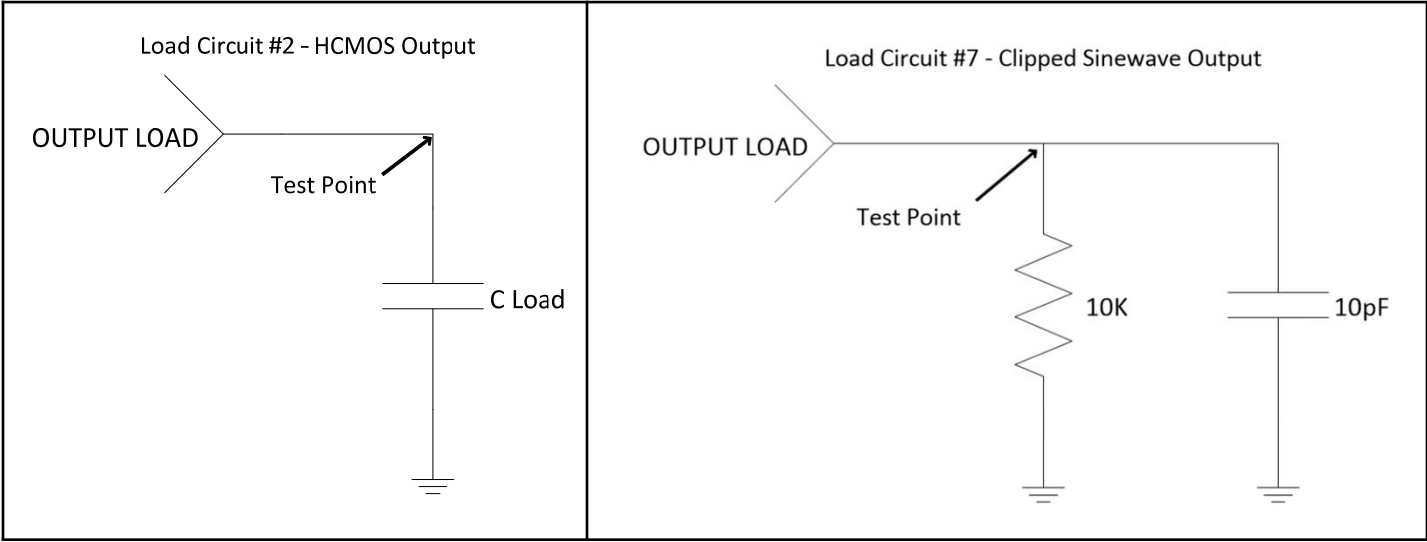
ENVIRONMENTAL CONDITIONS

Shock	Per MIL-STD-202, Method 213, Condition C
Vibration	Per MIL-STD-202, Methods 201 & 204
Solderability	Per EIAJ-STD-002
Hermeticity	Per MIL-STD-202, Method 112 (1 x 10 ⁻⁸ atm cc/s of helium)
Thermal Shock	Per MIL-STD-883, Method 1011, Condition A
Thermal Cycle	Per MIL-STD-883, Method 1010, Condition B

OUTPUT WAVEFORM (CMOS OUTPUT)

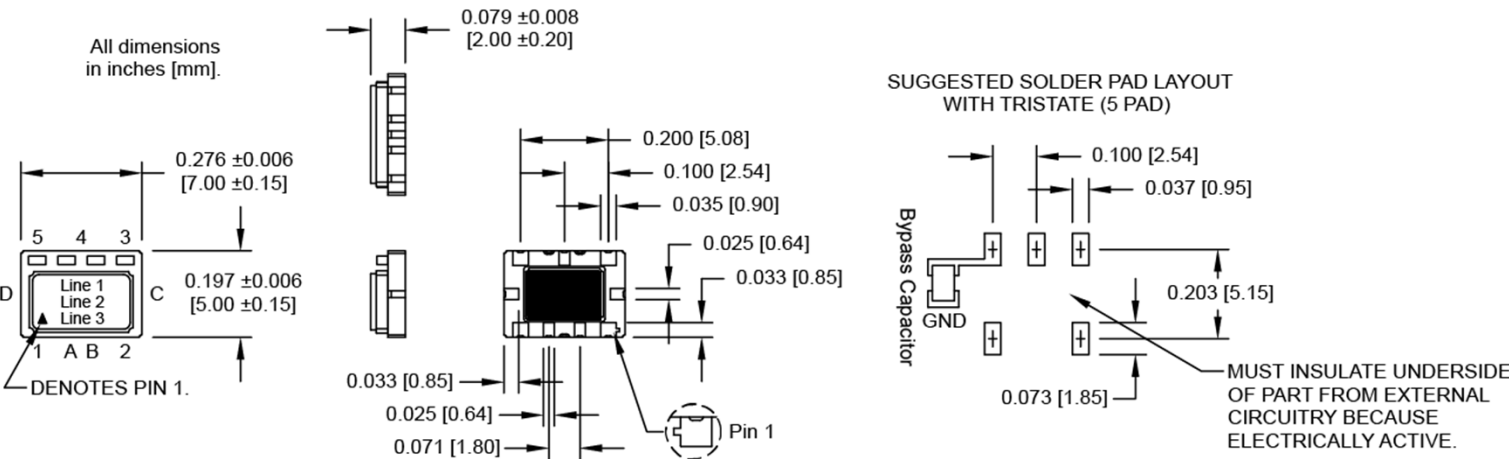


LOAD CIRCUIT DIAGRAMS



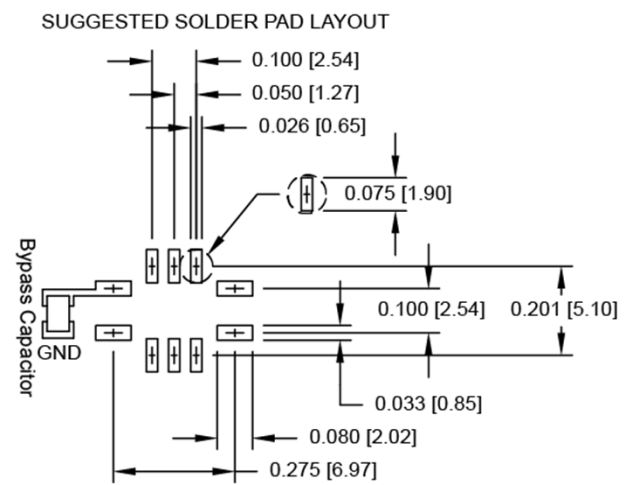
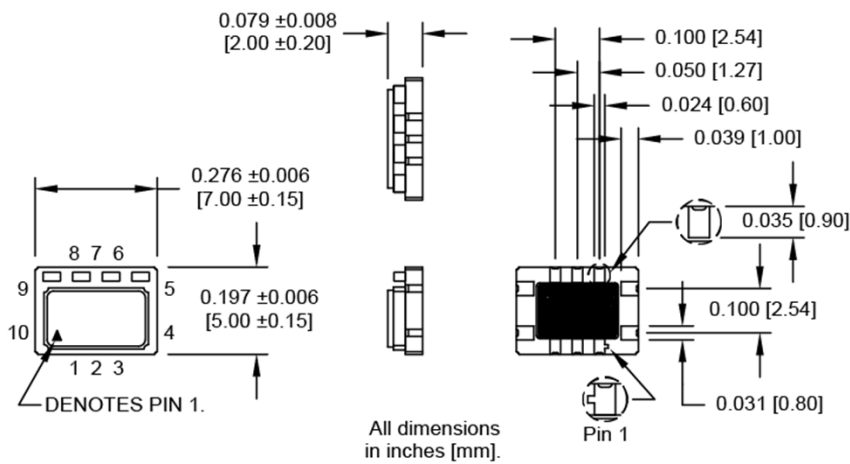
MECHANICAL AND PIN OUT INFORMATION - Package Code T (4/5 Pad)

Pad	Function
1	Voltage Control or N/C
A	N/C – Do Not Connect
B	N/C – Do Not Connect
2	Ground
C	N/C – Do Not Connect
3	Output
4	Tristate or N/C - Do Not Connect
5	Supply Vcc+
D	N/C – Do Not Connect

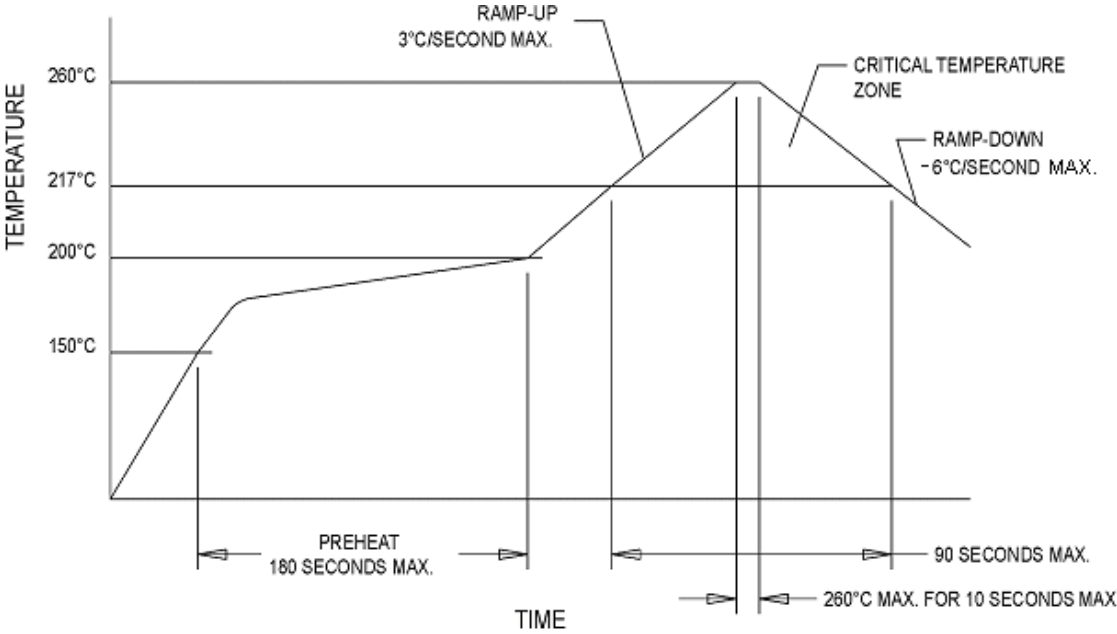


MECHANICAL AND PIN OUT INFORMATION - Package Code N (10 Pad)

Pad	Function
1	N/C – Do Not Connect
2	N/C – Do Not Connect
3	N/C – Do Not Connect
4	Ground
5	Output
6	N/C – Do Not Connect
7	N/C – Do Not Connect
8	Tristate or N/C - Do Not Connect
9	Supply Vcc+
10	Voltage Control or N/C

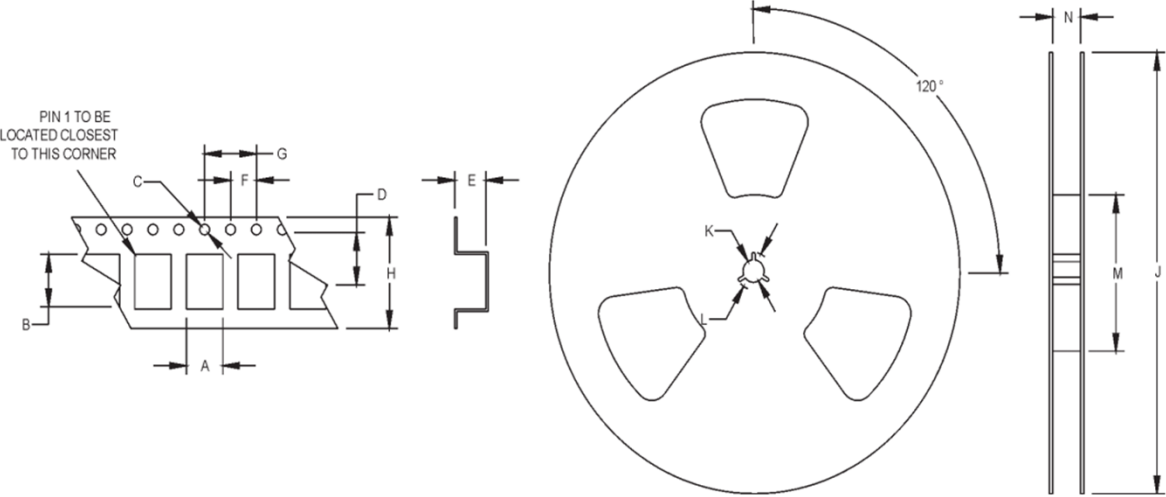


LEAD FREE SOLDER PROFILE



TAPE AND REEL SPECIFICATIONS

All units in mm



A	B	C	D	E	F	G	H	J	K	L	M
5.32	7.28	1.5	7.5	2.2	4	8	16	178	13.5	24.8	80