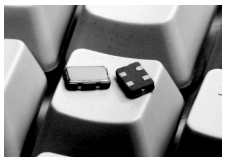
M3L & M5L Series

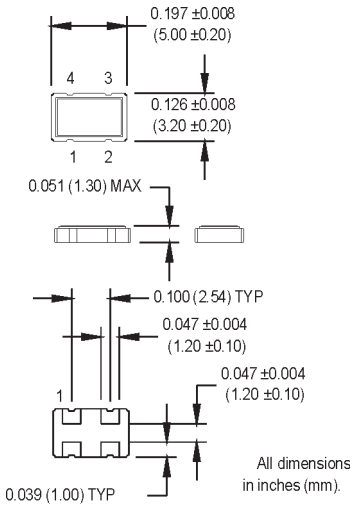
3.2x5 mm, 3.3 or 5.0 Volt, HCMOS, Clock Oscillator



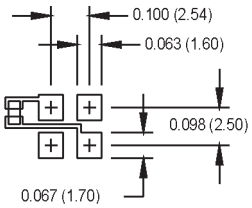
RoHS Compliant

This product is not recommended for new designs

- Ultra-miniature size
- Ideal for PCMCIA cards, laptop/palmtop computers, wireless handsets, portable instrumentation



SUGGESTED SOLDER PAD LAYOUT



Pin Connections

PIN	FUNCTION
1	Tristate
2	Ground
3	Output
4	+Vcc

Ordering Information

M3L/M5L 1 3 T G N 00.0000 MHz

Product Series
M3L - 3.3V
M5L - 5V

Temperature Range
1: 0°C to +70°C **2:** -40°C to +85°C

Stability
3: ±100 ppm **4:** ±50 ppm **8:** ±20 ppm
5: ±35 ppm **6:** ±25 ppm

Output Type
F: Fixed
T: Tristate

Symmetry/Logic Compatibility
G: 40/60 HCMOS C: 45/55 HCMOS

Package/Lead Configurations
N: Leadless

Frequency (customer specified)

M2038Sxxx & M2039Sxxx - Contact factory for datasheets.

	PARAMETER	Symbol	Min.	Typ.	Max	Units	Condition
Electrical Specifications	Frequency Range	F	1.544		125	MHz	See Note 1
	Operating Temperature	T_A	(see ordering information)			°C	See ordering information
	Storage Temperature	T_S	-55		+125	°C	
	Frequency Stability	ΔF/F	(see ordering information			ppm	
	Aging						
	1st year		-5		+5	ppm	
	Thereafter (per year)		-4		+4	ppm	
	Input Voltage	Vdd	3.0	3.3	3.6	V	M3L
			4.5	5.0	5.5	V	M5L
	Input Current	Idd					
	Frequencies up to 50 MHz				35	mA	
	50.001 – 67.000 MHz				45	mA	
	67.001 – 125.000 MHz				55	mA	
	Output Type						HCMOS
	Load				15	pF	See Note 2
	Symmetry (Duty Cycle)		(see ordering information)				50% Vdd reference level
	Logic "1" Level	Voh	90% Vdd			V	
	Logic "0" Level	Vol			10%	V	
	Output Current				±4	mA	M3L
					±12	mA	M5L
	Rise/Fall Time	Tr/Tf					10% to 90% Vdd
	frequencies up to 50 MHz				7	ns	
	50.001 – 67.000 MHz				4	ns	
	67.001 – 125.000 MHz				3	ns	
	Tristate Function		Input Logic "1" or floating: output active				
			Input Logic "0": output to high-Z				
	Start up Time				10	ms	
	Random Jitter	Rj		5	15	ps RMS	1-sigma
Environmental							
	Mechanical Shock	Per MIL-STD-202, Method 213, Condition C (100 g's, 6 mS duration, ½ sinewave)					
	Vibration	Per MIL-STD-202, Method 201 & 204 (10 g's from 10-2000 Hz)					
	Hermeticity	Per MIL-STD-202, Method 112, (1x10-8 atm. cc/s of Helium)					
	Thermal Cycle	Per MIL-STD-883, Method 1010, Condition B (-55°C to +125°C, 15 min. dwell, 10 cycles)					
	Solderability	Per EIAJ-STD-002					
	Max Soldering Conditions	See solder profile, Figure 1					

1. Because this product is based on AT-strip technology, not all frequencies in the range stated are available. Contact the factory for availability of specific frequencies.
2. CMOS load - See load circuit diagram #2.

MtronPTI Lead Free Solder Profile