

# M2001 Series

5x7 mm, 3.3 Volt, CMOS/LVPECL/LVDS, Clock Oscillator



- Low cost oscillator series with jitter performance optimized specifically for Fibre Channel applications. CMOS, LVPECL, and LVDS versions available.
- Ideal for Fibre Channel, Storage Area Networks (SAN), and HDD Control

## Ordering Information

Product Series	M2001	1	5	T	L	N	00.0000 MHz
Temperature Range	1: 0°C to +70°C		2: -40°C to +85°C		6: -20°C to +70°C		7: -0°C to +85°C
Stability	3: ±100 ppm		4: ±50 ppm		6: ±25 ppm		5: ±35 ppm
Output Type	F: Fixed		T: Tristate				
Symmetry/Output Logic Type	C: 45/55% CMOS		L: 45/55% LVDS				
	P: 45/55% PECL						
Package/Lead Configurations	N: Leadless Ceramic						
Frequency (customer specified)							

PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes
Frequency Range	F	53.125		125	MHz	CMOS
		53.125		156.25	MHz	PECL/LVDS
Operating Temperature	T <sub>A</sub>	(See Ordering Information)				
Storage Temperature	T <sub>S</sub>	-55		+125	°C	
Frequency Stability	ΔF/F	(See Ordering Information)				
Aging						See Note 1
1st Year			±2		ppm	
Thereafter (per year)			±1		ppm	
Input Voltage	V <sub>CC</sub> /V <sub>DD</sub>	3.135	3.3	3.465	V	
Input Current	V <sub>DD</sub> /I <sub>DD</sub>			60	mA	CMOS/LVDS
				100	mA	PECL
Output Type						CMOS/PECL/LVDS
Load		15 pF 50 Ohms to V <sub>CC</sub> -2 VDC 100 Ohm differential load				CMOS (See Note 2) PECL (See Note 3) LVDS (See Note 4)
Symmetry (Duty Cycle) (Per Symmetry Code)		45	50	55	%	50% V <sub>DD</sub> (CMOS) V <sub>CC</sub> -1.3 VDC (PECL) 1.25 VDC (LVDS)
Output Skew				200	ps	PECL
Differential Voltage	V <sub>O</sub>	250	340	450	mV	LVDS
Logic "1" Level	V <sub>OH</sub>	90% V <sub>DD</sub> V <sub>CC</sub> -1.02 1.375			V V V	CMOS PECL LVDS
Logic "0" Level	V <sub>OL</sub>			10% V <sub>DD</sub> V <sub>CC</sub> -1.63 1.125	V V V	CMOS PECL LVDS
Output Current		-4		+4	mA	CMOS
Rise/Fall Time	T <sub>r</sub> /T <sub>f</sub>		0.35 .50	3 0.55 1.0	ns ns ns	CMOS @ 20/80% LVPECL @ 20/80% LVDS @ 20/80%
Tristate Function		80% V <sub>DD</sub> min or floating: output active 20% V <sub>DD</sub> max: output disables to high-Z				
Start up Time		5 ms				
Peak to Peak Jitter (+/-)	T <sub>J</sub>		10 15	15 20	ps ps	@ BER 1E-12 (See Note 5) CMOS PECL/LVDS

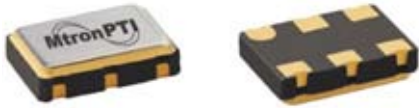
1. Inclusive of initial tolerance, deviation over temperature, shock, vibration, voltage, and aging.
2. See load circuit diagram #2.
3. See load circuit diagram #5.
4. See load circuit diagram #9.
5. See jitter test circuit in Figure 1.

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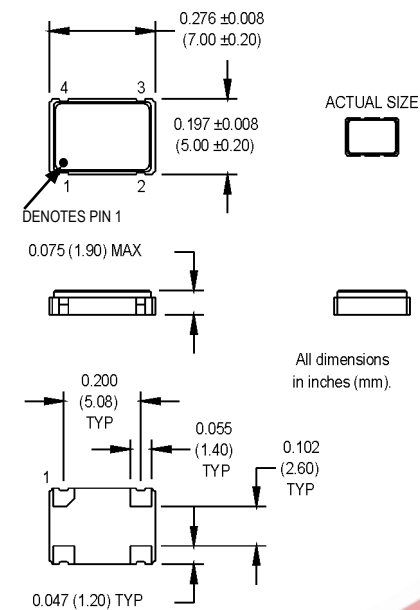
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# M2001 Series

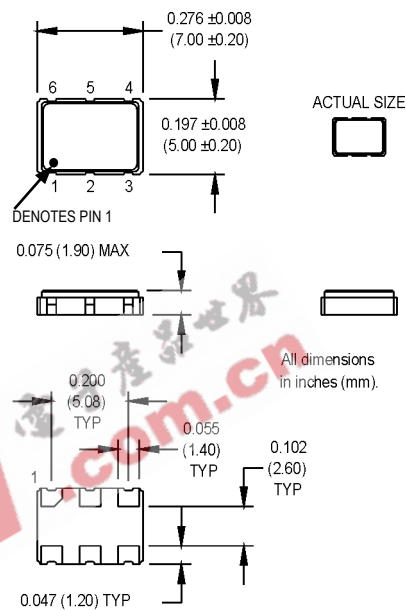
## 5x7 mm, 3.3 Volt, CMOS/LVPECL/LVDS, Clock Oscillator



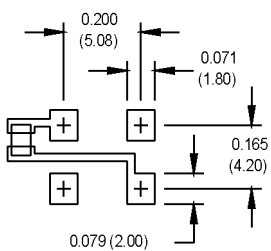
### CMOS Output



### LVPECL/LVDS Output



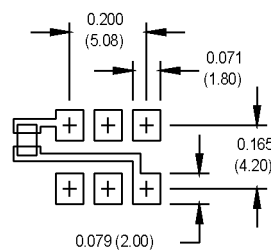
### SUGGESTED SOLDER PAD LAYOUT



### Pin Connections

PIN	FUNCTION
1	Tristate/NC
2	Ground
3	Output
4	+Vdd

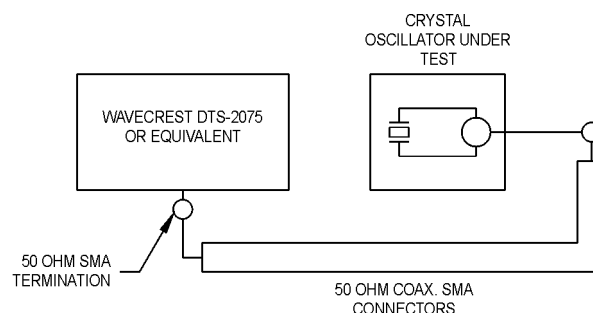
### SUGGESTED SOLDER PAD LAYOUT



### Pin Connections

PIN	FUNCTION
1	Tristate
2	N/C
3	Ground
4	Output1/ Q
5	Output2/ $\bar{Q}$
6	+Vdd

Figure 1



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