

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		00.0000 MHz	
Product Series	M2001	1	5 T L N
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	
	8: 0°C to +50°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 _A	(See Ordering Information)				
Storage Temperature	T _s	-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 _{cc} /V _{dd}	3.135	3.3	3.465	V	
Input Current	V _{dd} /I _{dd}			60	mA	CMOS/LVDS
				100	mA	PECL
Output Type						CMOS/PECL/LVDS
Load		15 pF 50 Ohms to V _{cc} -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 _{dd} (CMOS)
		45	50	55	%	V _{cc} -1.3 VDC (PECL)
		45	50	55	%	1.25 VDC (LVDS)
Output Skew				200	ps	PECL
Differential Voltage	V _o	250	340	450	mV	LVDS
Logic "1" Level	V _{oh}	90% V _{dd} V _{cc} -1.02 1.375			V	CMOS
					V	PECL
					V	LVDS
Logic "0" Level	V _{ol}			10% V _{dd} V _{cc} -1.63 1.125	V	CMOS
					V	PECL
					V	LVDS
Output Current		-4		+4	mA	CMOS
Rise/Fall Time	T _r /T _f		0.35 .50	3 0.55 1.0	ns	CMOS @ 20/80%
					ns	LVPECL @ 20/80%
					ns	LVDS @ 20/80%
Tristate Function		80% V _{dd} min or floating: output active 20% V _{dd} max: output disables to high-Z				
Start up Time		5 ms				
Peak to Peak Jitter (+/-)	T _J		10 15	15 20	ps	@ BER 1E-12 (See Note 5)
					ps	CMOS
					ps	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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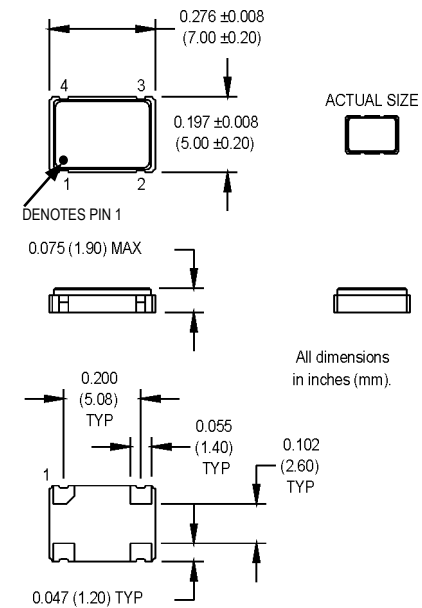
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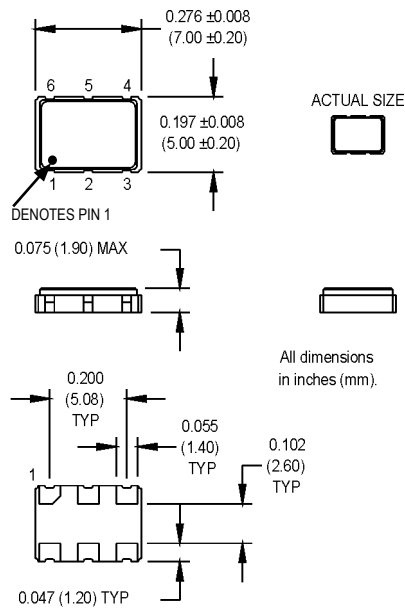
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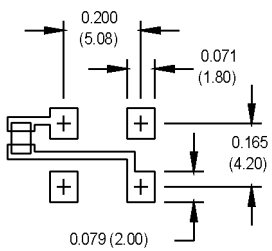
CMOS Output



LVPECL/LVDS Output



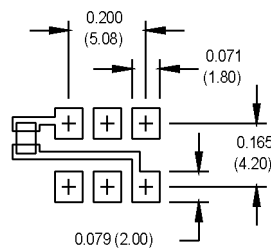
SUGGESTED SOLDER PAD LAYOUT



Pin Connections

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

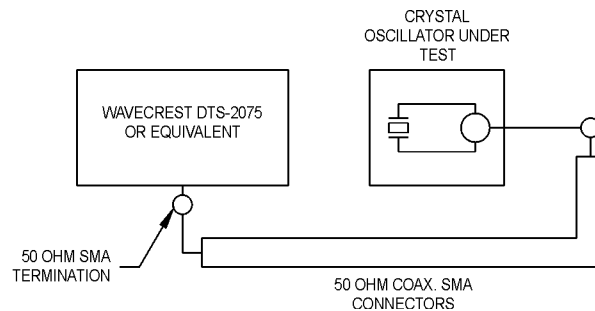
SUGGESTED SOLDER PAD LAYOUT



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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