

# M310x Series

5x7 mm, 3.3/2.5/1.8 Volt, PECL/LVDS/CML, VCXO



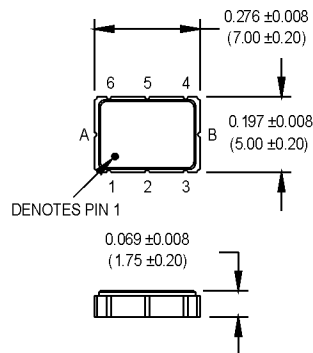
- Featuring *QiK Chip™* Technology
- Superior Jitter Performance (comparable to SAW based)
- APR of  $\pm 50$  or  $\pm 100$ ppm over industrial temperature range
- Frequencies from 150 MHz to 1.4 GHz
- Designed for a short 2 week cycle time

### Phase Lock Loop Applications:

- Telecommunications such as SONET / SDH / DWDM / FEC / SERDES / OC-3 thru OC-192
- Wireless base stations / WLAN / Gigabit Ethernet
- Avionic flight controls and military communications

### Ordering Information

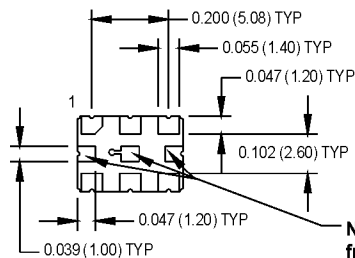
	M310	0	6	A	G	P	N	00.0000
Product Series								
Supply Voltage								
0: 3.3 V								
1: 2.5 V								
2: 1.8 V								
Temperature Range								
2: -40°C to +85°C (see note 1)								
6: -20°C to +70°C								
Absolute Pull Range (APR)								
A: $\pm 50$ ppm								
B: $\pm 100$ ppm								
Enable/Disable								
G: Complementary Enable High (Pad 2)								
M: Complementary Enable Low (Pad 2)								
U: Complementary Output								
Logic Type								
P: PECL								
L: LVDS								
M: CML								
Package/Lead Configuration								
N: 5x7 mm Leadless								
Frequency (customer specified)								



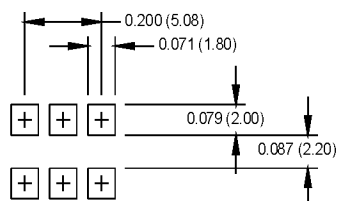
ACTUAL SIZE

All dimensions in inches (mm).

- Pad1: Voltage Control
- Pad2: Enable/Disable (or N/C)
- Pad3: Ground
- Pad4: Output Q (PECL, LVDS, CML)
- Pad5: Output  $\bar{Q}$  (PECL, LVDS, CML)
- Pad6: Vcc
- PadA: Do not connect!
- PadB: Do not connect!
- PadC: Do not connect!



SUGGESTED SOLDER PAD LAYOUT



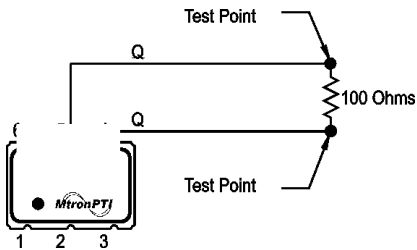
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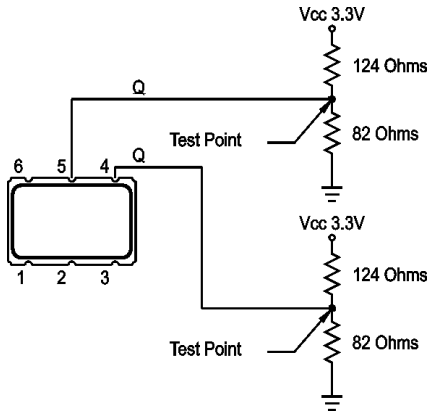


PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes	
Frequency Range	F	150		1400	MHz	See Note 2	
Operating Temperature	T <sub>A</sub>	(See ordering information)					See Note 1
Storage Temperature	T <sub>S</sub>	-55		+125	°C		
Frequency Stability	ΔF/F		±25		ppm		
Aging							
1st Year		-3		+3	ppm		
Thereafter (per year)		-1		+1	ppm		
Pullability/APR		(See ordering information)					See Note 3
Control Voltage	V <sub>c</sub>	0.18	0.90	1.62	V	@ 1.8V V <sub>cc</sub>	
		0.25	1.25	2.25	V	@ 2.5V V <sub>cc</sub>	
		0.30	1.65	3.0	V	@ 3.3V V <sub>cc</sub>	
Linearity			1	5	%	Positive Monotonic	
Modulation Bandwidth	f <sub>m</sub>	20			KHz	-3 dB bandwidth	
Input Impedance	Z <sub>in</sub>	500k	1M		Ohms	@ DC	
Supply Voltage	V <sub>cc</sub>	1.71	1.8	1.89	V		
		2.375	2.5	2.625	V		
		3.135	3.3	3.465	V		
Input Current	I <sub>cc</sub>			125	mA	PECL/LVDS/CML	
Load		50 Ohms to (V <sub>cc</sub> - 2) V <sub>dc</sub> 100 Ohm differential load					See Note 4 PECL Waveform LVDS/CML Waveform
Symmetry (Duty Cycle)		45		55	%	@ 50% of waveform	
Output Skew			TBD				
Differential Voltage		350	425	500	mV <sub>ppd</sub>	LVDS CML	
Common Mode Output Voltage	V <sub>cm</sub>		1.2		V	LVDS	
Logic "1" Level	V <sub>oh</sub>	V <sub>cc</sub> - 1.02			V	LVPECL	
Logic "0" Level	V <sub>ol</sub>			V <sub>cc</sub> - 1.63	V	LVPECL	
Rise/Fall Time	T <sub>r</sub> /T <sub>f</sub>		0.23	0.50	ns	@ 20/80% LVPECL	
Enable Function		80% V <sub>cc</sub> min. or N/C: output active 20% V <sub>cc</sub> max: output disables to high-Z					Output Option G
		20% V <sub>cc</sub> max: output active 80% V <sub>cc</sub> min: output disables to high-Z					Output Option M
Start up Time			10		ms		
Phase Jitter	φ <sub>J</sub>		0.50		ps RMS	Integrated 12 kHz – 20 MHz	

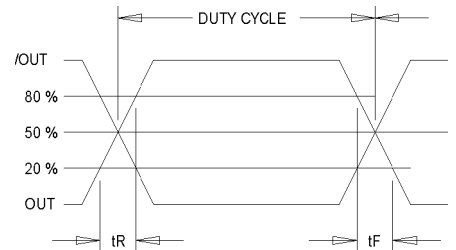
- Note 1: If the device is powered up below -20°C and then the ambient temperature rises 105°C during normal operation, the output will be interrupted for approximately 2-3 ms. A correction is in process and will be available Q1 2007
- Note 2: Contact factory for exact frequency availability over 945 MHz.
- Note 3: APR specification is inclusive of initial tolerance, deviation over temperature, shock, vibration, supply voltage, and aging for one year at 50°C mean ambient temperature.
- Note 4: See Load Circuit Diagram in this Datasheet. Consult factory with nonstandard output load requirements.



LVDS Load Circuit



3.3V LVPECL Load Circuit



Output Waveform: LVDS/CML/PECL

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