M220x Series

9x14 mm, 3.3/2.5/1.8 Volt, PECL/LVDS/CML, Clock Oscillator

QiK Chip™

- Featuring *QiK Chip™* Technology
- Superior Jitter Performance (comparable to SAW based)
- Frequencies from 150 MHz to 1.4 GHz
- Designed for a short 2 week cycle time

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

M220 0 6 8 B P J 00.0000 MHz

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

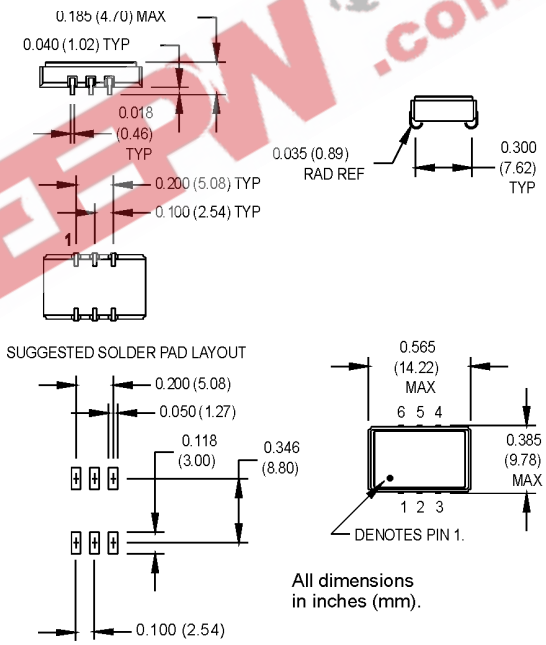
Stability
4: ±50 ppm **3:** ±100 ppm
8: ±20 ppm

Enable/Disable
B: Enable High (pin 1) **G:** Enable High (pin 2)
S: Enable Low (pin 1) **M:** Enable Low (pin 2)
U: No Enable/Disable

Logic Type
P: LVPECL **L:** LVDS
M: CML

Package/Lead Configuration
J: 9x14 mm J-lead

Frequency (customer specified)



All dimensions in inches (mm).

PIN 1 ENABLE
Pin1: Enable/Disable
Pin2: N/C
Pin3: Ground
Pin4: Output Q (LVPECL,LVDS,CML)
Pin5: Output $\bar{Q}$ (LVPECL,LVDS,CML)
Pin6: Vcc

PIN 2 ENABLE
Pin1: N/C
Pin2: Enable/Disable
Pin3: Ground
Pin4: Output Q (LVPECL,LVDS,CML)
Pin5: Output $\bar{Q}$ (LVPECL,LVDS,CML)
Pin6: Vcc

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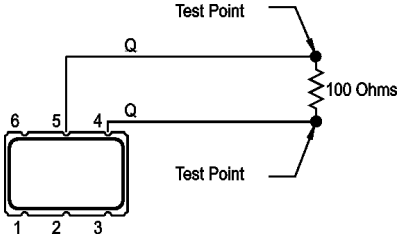
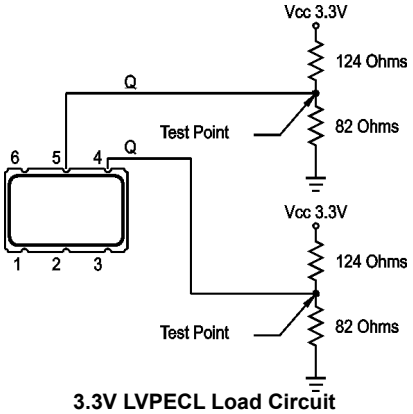
	PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes
Electrical Specifications	Frequency Range	F	150		1400	MHz	See Note 2
	Operating Temperature	TA	(See ordering information)				See Note 1
	Storage Temperature	Ts	-55		+125	°C	
	Frequency Stability	ΔF/F	(See ordering information)				See Note 3
	Aging						
	1st Year		-3		+3	ppm	
	Thereafter (per year)		-1		+1	ppm	
	Supply Voltage	Vcc	1.71	1.8	1.89	V	
			2.375	2.5	2.625	V	
			3.135	3.3	3.465	V	
	Input Current	Icc			125	mA	LVPECL/LVDS/CML
	Load		50 Ohms to (Vcc -2) Vdc 100 Ohm differential load				See Note 4 LVPECL Waveform LVDS/CML Waveform
	Symmetry (Duty Cycle)		45		55	%	@ 50% of waveform
	Output Skew			TBD			
	Differential Voltage		350	425 TBD	500	mVppd	LVDS CML
	Common Mode Output Voltage	Vcm		1.2		V	LVDS
	Logic "1" Level	Voh	Vcc -1.02			V	LVPECL
	Logic "0" Level	Vol			Vcc -1.63	V	LVPECL
	Rise/Fall Time	Tr/Tf		0.23	0.50	ns	@ 20/80% LVPECL
	Enable Function		80% Vcc min. or N/C: output active 20% Vcc max.: output disables to high-Z				Output Option B or G
			20% Vcc max: output active 80% Vcc min.: output disables to high-Z				Output Option S or M
	Start up Time			10		ms	
	Phase Jitter @ 622.08 MHz	ϕJ		0.3		ps RMS	Integrated 12 kHz – 20 MHz
	Phase Noise 10 Hz 100 Hz 1 KHz 10 KHz 100 KHz 1 MHz 10 MHz 40 MHz			 -50 -80 -106 -117 -120 -130 -147 -150			@ 622.08 MHz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz
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					
	Soldering Conditions	+260°C max. for 10 secs.					

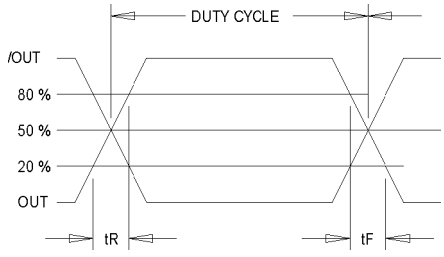
Note 1: If the device is powered up below -20°C and then the ambient temperature rises 105°C during normal operation, the output will be interrupted for approximately 2-3 ms. A correction is in process an will be available Q1 2007.
Note 2: Contact factory for exact frequency availability over 945 MHz
Note 3: Stability 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

MtronPTI Lead Free Solder Profile