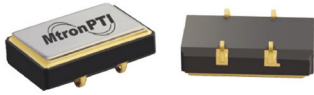


**This product is not recommended for new designs**

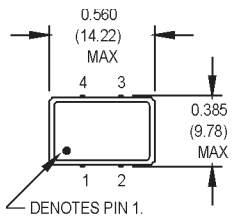


# M5RJ Series

9x14 mm, 3.3 Volt, LVPECL/LVDS, Clock Oscillator



- Integrated phase jitter of less than 1 ps from 12 kHz to 20 MHz
- Ideal for 10 and 40 Gigabit Ethernet and Optical Carrier applications



FREQUENCY RANGE	AVAILABLE OUTPUT TYPES
19.440 to 170.000 MHz	Z, E, R
170.000 to 250 MHz	S, U

**Ordering Information**

M5RJ 1 8 Z Q J -R 00.0000 MHz

**Product Series** M5RJ

**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    5: ±35 ppm  
 6: ±25 ppm    8: ±20 ppm

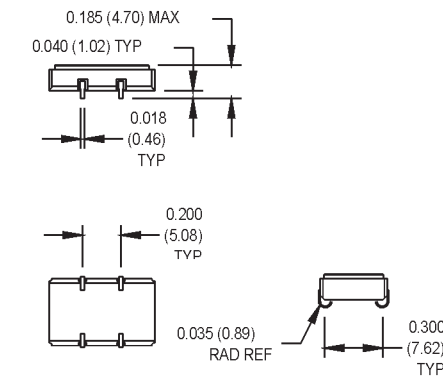
**Output Type**  
 E: Complementary, pins 1 & 4, enable (enabled w/pin 2 low)  
 R: Complementary, pins 1 & 4, enable (enabled w/pin 2 high)  
 S: Complementary, pins 4 & 5, enable (enabled w/pin 2 low)  
 U: Complementary, pins 4 & 5  
 Z: Complementary, pins 1 & 3

**\*Symmetry/Output Logic Type**  
 P: 45/55% PECL  
 Q: 40/60% PECL

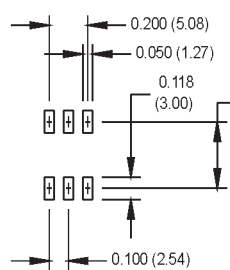
**Package/Lead Configurations**  
 J: J-lead

**RoHS Compliance**  
 Blank: non-RoHS compliant part  
 -R: RoHS compliant part  
 Frequency (customer specified)

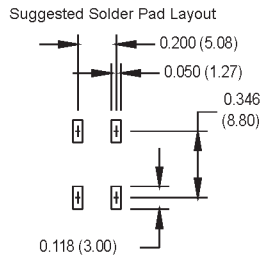
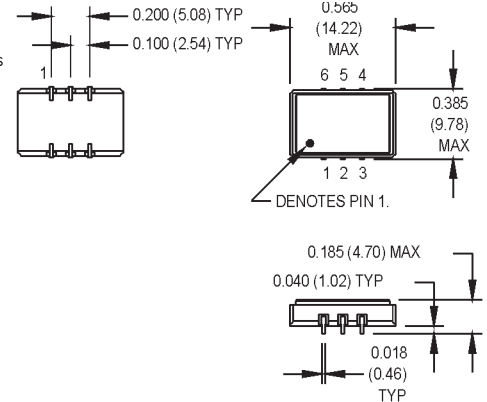
\* Contact the factory regarding LVDS output availability  
 M2003Sxxx - Contact factory for datasheet.



**SUGGESTED SOLDER PAD LAYOUT**



All dimensions in inches (mm).



**Pin Connections (Z, E, and R Output Types)**

FUNCTION	4 Pin	6 Pin
Output/Q	1	1
Enable		2
Ground/Cover	2	3
Output Q	3	4
N/C		5
+Vcc	4	6

**Pin Connections (S and U Output Types)**

PIN	FUNCTION
1	N/C
2	N/C or Enable
3	Ground/Cover
4	Output Q
5	Output/Q
6	+Vcc

PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes
Frequency Range	F	19.44		250	MHz	See Note 1
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 2
1st Year			±2		ppm	
Thereafter (per year)			±1		ppm	
Input Voltage	V <sub>cc</sub>	3.135	3.3	3.465	V	
Supply Current	I <sub>cc</sub>			75	mA	<150 MHz
	I <sub>cc</sub>			85	mA	>150 MHz
Output Type						LVPECL/LVDS
Load						50 Ohms to V <sub>cc</sub> - 2.0 V Or Thevenin equivalent
Symmetry (Duty Cycle)						PECL load @ V <sub>cc</sub> -1.3 VDC
Output Skew				200	ps	PECL
Differential Voltage		250	350	450	mV	LVDS
Logic "1" Level	V <sub>oh</sub>	V <sub>cc</sub> -1.02			V	PECL
Logic "0" Level	V <sub>ol</sub>			V <sub>cc</sub> -1.63	V	PECL
Rise/Fall Time	T <sub>r</sub> /T <sub>f</sub>		0.50	0.55	ns	@ 20/80% LVPECL
				1.0	ns	@ 20/80% LVDS
Enable Function						PECL low: output active PECL high: output disables 80% V <sub>cc</sub> min or N/C: output active 20% V <sub>cc</sub> max: output disables to high-Z
						"E" & "S" output types "R" output types
Start up Time				10	ms	
Phase Jitter	φ <sub>J</sub>					
Below 75 MHz				1.5	ps RMS	Integrated 12 kHz - 20 MHz
75 MHz & above				1.0	ps RMS	Integrated 12 kHz - 20 MHz
Mechanical Shock		MIL-STD-202, Method 213, C (100 g's)				
Vibration		MIL-STD-202, Method 201 & 204 (10 g's from 10-2000 Hz)				
Thermal Cycle		MIL-STD-883, Method 1010, B (-55°C to +125°C, 15 min dwell, 10 cycles)				
Hermeticity		MIL-STD-202, Method 112				
Solderability		Per EIAJ-STD-002				
Max Soldering Conditions		See solder profile, Figure 1				

1. Consult factory for exact frequency availability.  
 2. Calibration, deviation over temperature, shock, vibration and aging.  
 3. PECL load - see Load Circuit Diagram #5. LVDS load - see load circuit diagram #9.

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# MtronPTI Lead Free Solder Profile

