

## 2.5mm x 2.0mm Ceramic SMD Package Oscillator, CMOS

## ISM95 Series

### Product Features:

- Low Jitter, Non-PLL Based Output
- Compatible with Lead free Processing
- Pb-free, Halogen-free, and Antimony-free
- RoHS and REACH compliant

### Typical Applications:

- Fibre Channel
- Server & Storage
- Sonet / SDH
- 802.11 / WiFi
- T1/E1, T3/E3
- System Clock

### ELECTRICAL SPECIFICATIONS

<b>Frequency Range</b>	1.000MHz to 156.250MHz	
<b>Frequency Stability</b>	±10ppm Maximum ±15ppm Maximum ±20ppm Maximum ±25ppm Maximum ±50ppm Maximum ±100ppm Maximum	Inclusive of Calibration Tolerance at 25°C, Frequency Stability over Operating Temperature Range, Supply Voltage Change, Output Load Change, and First Year Aging at 25°C.
<b>Operating Temperature Range</b>	0°C to +70°C, -10°C to +60°C, -10°C to +70°C, -20°C to +70°C, -30°C to +75°C, or -40°C to +85°C	
<b>Supply Voltage (Vdd)</b>	1.8V, 2.5V, 2.7V, 3.0V, 3.3V, 1.62V - 3.63V	±5%
<b>Input Current</b>	20mA Maximum	
<b>Output Logic Type</b>	CMOS	
<b>Output Drive Capability</b>	15pF Maximum 30pF Maximum	
<b>Aging</b>	±3ppm/year Maximum	at +25°C
<b>Duty Cycle</b>	50 ±5(%) or 50 ±10(%)	Measured at 50% of waveform
<b>Rise / Fall Time</b>	6nSec Maximum	Measured from 20% to 80% of waveform
<b>Output Voltage Logic High</b>	90% of Vdd Minimum	
<b>Output Voltage Logic Low</b>	10% of Vdd Maximum	
<b>Pin 1 Connection</b>	Tri-State (High Impedance)	
<b>Input Voltage Logic High</b>	70% of Vdd Minimum or No Connect to Enable Output	
<b>Input Voltage Logic Low</b>	30% of Vdd Maximum to Disable Output (High Impedance)	
<b>Standby Current</b>	10µA Maximum	Disabled Output, High Impedance
<b>Startup Time</b>	10mSec Maximum	
<b>RMS Phase Jitter</b>	1pSec Maximum	12kHz to 20MHz offset frequency
<b>Period Jitter (RMS)</b>	5pSec Maximum	20k adjacent periods
<b>Period Jitter (pk-pk)</b>	50pSec Maximum	100k adjacent periods
<b>NOTES:</b>	<ul style="list-style-type: none"> <li>• All minimum and maximum limits are specified over temperature and rated operating voltage with 15pF output unless otherwise stated.</li> <li>• A 0.1µF bypass capacitor is recommended between Vdd (pad 4) and GND (pad 2) to minimize power supply noise.</li> </ul>	

### ABSOLUTE MAXIMUM LIMITS

<b>Storage Temperature Range</b>	-55°C to +125°C
<b>Supply Voltage Range</b>	-0.3Vdc to Vdd +0.3Vdc
<b>Electrostatic Discharge</b>	2000V Maximum
<b>Solder Temperature</b>	260°C Maximum
<b>Junction Temperature</b>	150°C Maximum
<b>NOTE:</b> If the part is used beyond absolute maximum ratings, it may cause internal destruction. The part should be used under the recommended operating conditions or the reliability of this part may be damaged if those conditions are exceeded.	

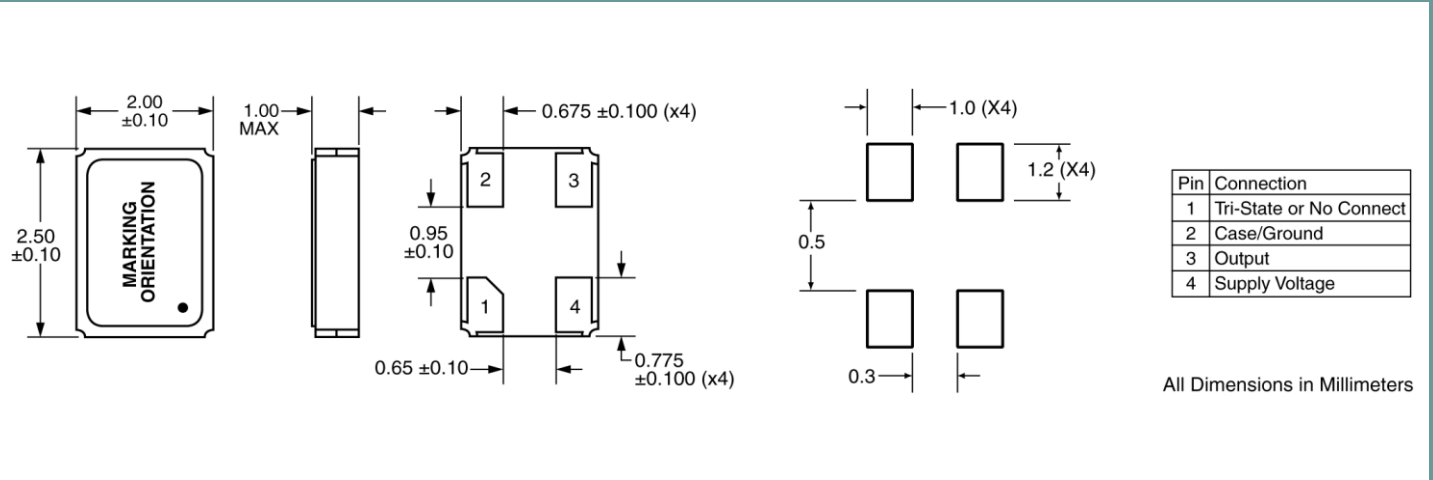
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### ENVIRONMENTAL SPECIFICATIONS

Mechanical Shock	MIL-STD-202, Method 213
Mechanical Vibration	MIL-STD-202, Method 204
Resistance to Soldering Heat	MIL-STD-202, Method 210
Solderability	J-STD-002
Gross Leak	MIL-STD-883, Method 1014
Fine Leak	MIL-STD-883, Method 1014
Moisture Sensitivity Level	MSL 1 (+260°C)

### MECHANICAL & SOLDER PAD LAYOUT DIMENSIONS



### PART NUMBER GUIDE

Series	Supply Voltage	Operating Temperature Range	Duty Cycle	Output Drive Capability	Frequency Stability	Pin 1 Connection	Frequency
ISM95-	3 = 3.3V	1 = 0°C to +70°C	5 = 50 ±5%	1 = 15pF	E = ±10ppm	H = Tri-State	-25.000 MHz
	7 = 3.0V	8 = -10°C to +60°C	6 = 50 ±10%	6 = 30pF	D = ±15ppm	O = N/C	
	2 = 2.7V	6 = -10°C to +70°C			F = ±20ppm		
	6 = 2.5V	3 = -20°C to +70°C			A = ±25ppm		
	1 = 1.8V	4 = -30°C to +75°C			B = ±50ppm		
	8 = 1.62V - 3.63V	2 = -40°C to +85°C			C = ±100ppm		

Sample Part Number: ISM95-3251BH-20.000 MHz

#### NOTES:

- Not all Frequency Stability options are available at all frequencies and Operating Temperature Ranges.
- Not all Output Drive Capability options are available at all frequencies.
- Not all Supply Voltage options are available at all frequencies.
- Please consult with Sales Department any other parameters or options.

### MARKING

Line 1: ILSI, Date Code (YWW)

Line 2: Frequency

Pin 1 Dot

### PACKAGE INFORMATION

Termination = e4 (Au over Ni over W base metallization)

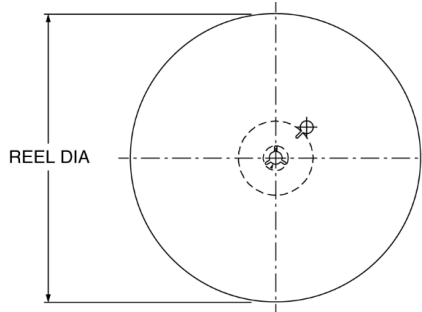
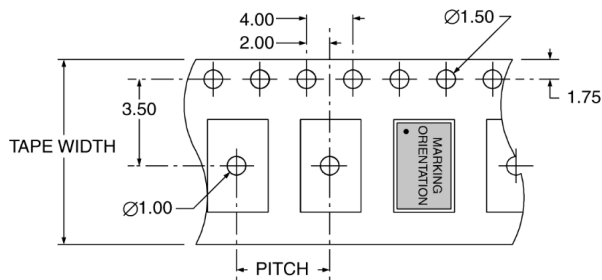
Terminal Plating Thickness:

Gold (0.3µm to 1.0µm), Nickel (1.27µm to 8.89µm)

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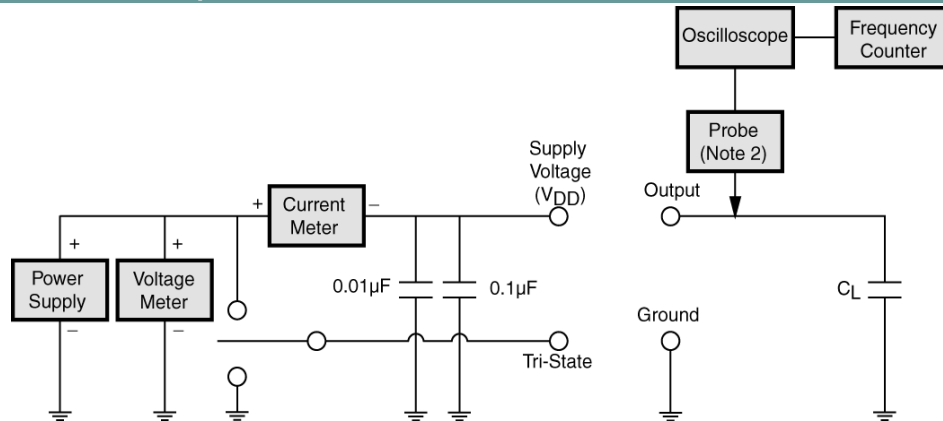
### TAPE & REEL DIMENSIONS



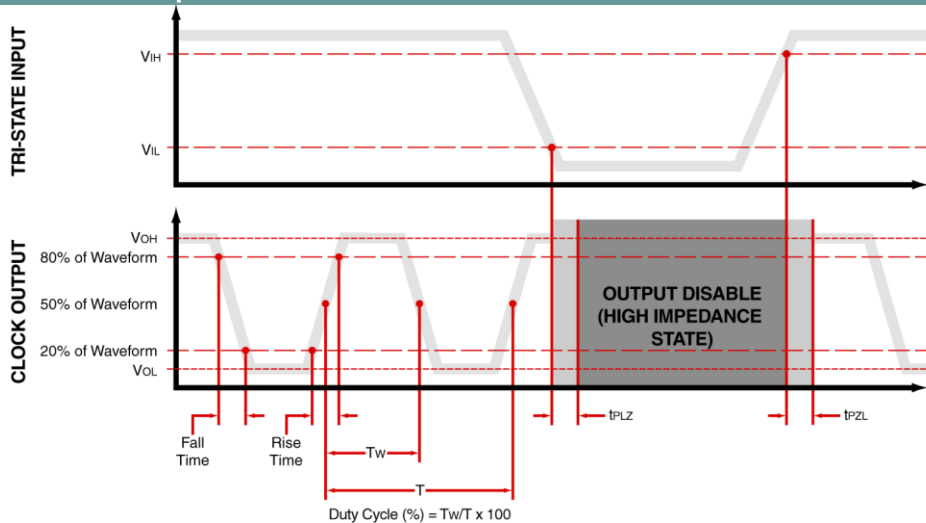
PITCH	4.00
TAPE WIDTH	8.00
REEL DIA	180
QTY PER REEL	3,000

All Dimensions in Millimeters

### TEST CIRCUIT: Enable/Disable Option



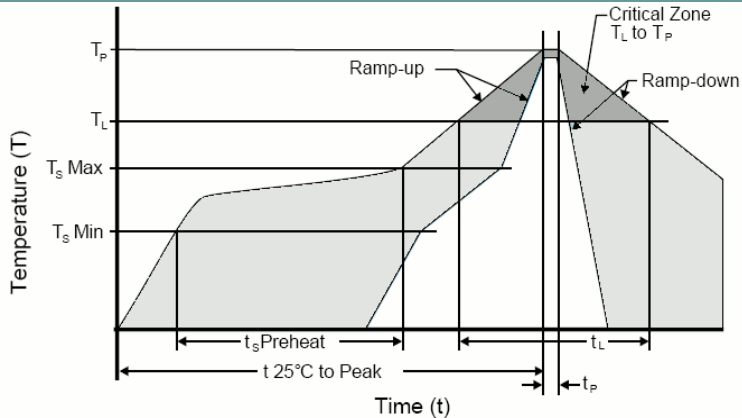
### WAVEFORM: Enable/Disable Option



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### SOLDER REFLOW PROFILE



Units are backward compatible with +240°C reflow process

Ts max to $T_L$ (Ramp-up Rate)	3°C / second max
Preheat	
Temperature min ( $T_s$ min)	150°C
Temperature typ ( $T_s$ typ)	175°C
Temperature max ( $T_s$ max)	200°C
Time ( $T_s$ )	60 to 180 seconds
Ramp-up Rate ( $T_L$ to $T_p$ )	3°C / second max
Time Maintained Above Temperature ( $T_L$ )	217°C
Time ( $T_L$ )	60 to 150 seconds
Peak Temperature ( $T_p$ )	260°C max for 10 seconds
Time within 5°C to Peak Temperature ( $T_p$ )	20 to 40 seconds
Ramp-down Rate	6°C / second max
Time 25°C to Peak Temperature	8 minute max
Moisture Sensitivity Level (MSL)	Level 1

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