

## Ultra-Low Noise 2.5 x 3.2 SMD Oscillator

ISM43 Series

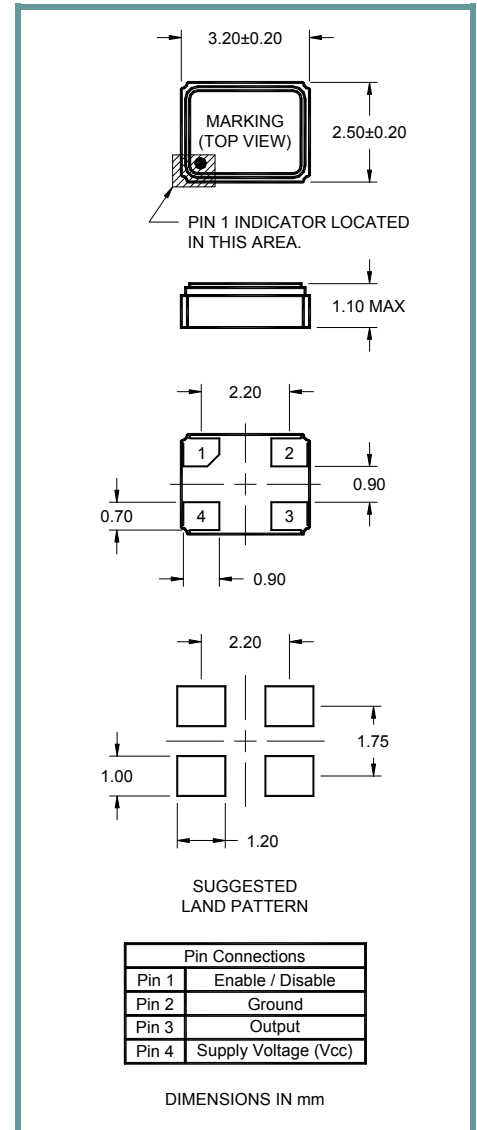
### Product Features:

Freq. Range: 5.000 MHz to 50.000 MHz  
Supply Voltage: +1.80 VDC to +3.30 VDC  
Tri-State Function on Pin 1  
Ultra-Low Phase Jitter and Phase Noise  
LVCMOS Compatible

### Applications:

SD/HD Video  
Wireless Base Stations  
Sonet/SDH  
T1/E1, T3/E3

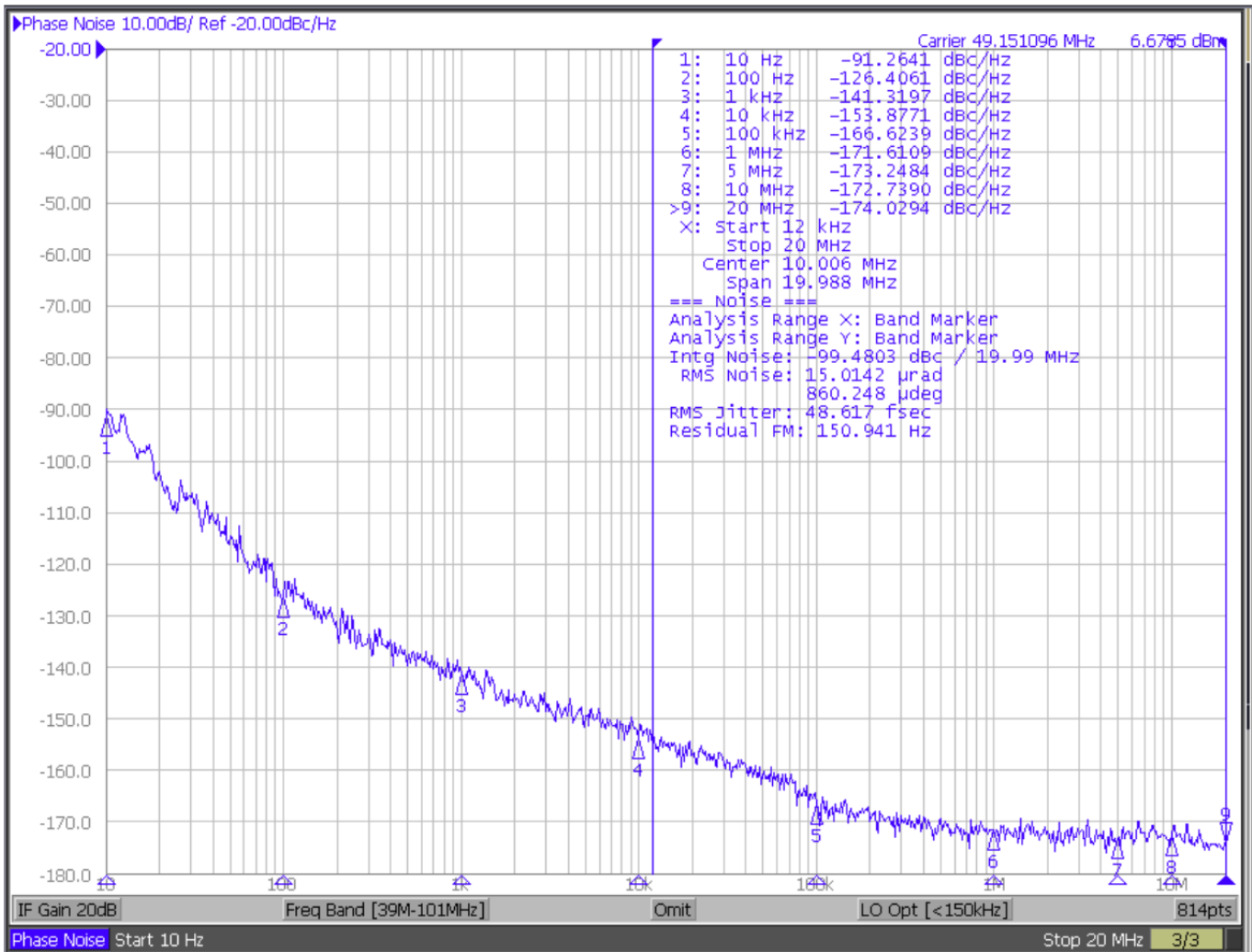
<b>Frequency Range</b>	5.000 MHz to 50.000MHz												
<b>Frequency Tolerance at +25°C ±2°C</b>	See Part Number Guide Below												
<b>vs Temperature</b>	See Part Number Guide Below												
<b>vs Supply Voltage (Vcc)</b>	±1.0 ppm max												
<b>Output Waveform</b>	LVCMOS												
<b>Logic "0"</b>	10% of Vcc max												
<b>Logic "1"</b>	90% of Vcc min												
<b>Rise / Fall Time</b>	10 nSec max for 10% to 90% of waveform												
<b>Duty Cycle</b>	50% ± 5% at 50% of waveform												
<b>Start-up Time</b>	0.8 mSec typ. , 5.0 mSec max												
<b>Load</b>	15 pF												
<b>Aging</b>	±3 ppm max first year ±2 ppm max per year thereafter												
<b>Tri-State Function (Pin 1)</b>													
<b>Tri-State Operation</b>	Voh = 70% of Vcc min or no connection to Enable Output Vol = 30% of Vcc or grounded to Disable Out (High Impedance)												
<b>Enable / Disable Time</b>	Enable: 1.0 mSec max Disable: 200 nSec max												
<b>Disable Current</b>	20 µA max												
<b>Temperature Ranges</b>													
<b>Operating</b>	See Part Number Guide Below												
<b>Storage</b>	-50°C to +100°C												
<b>Supply Voltage / Supply Current</b>													
	<table border="1"> <thead> <tr> <th>Option</th> <th>Supply Voltage(Vcc)</th> <th>Current</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>+1.80 VDC</td> <td>3.0 mA typ., 5.0 mA max.</td> </tr> <tr> <td>6</td> <td>+2.50 VDC</td> <td>4.7 mA typ., 7.0 mA max.</td> </tr> <tr> <td>3</td> <td>+3.30 VDC</td> <td>7.0 mA typ., 10.0 mA max.</td> </tr> </tbody> </table>	Option	Supply Voltage(Vcc)	Current	1	+1.80 VDC	3.0 mA typ., 5.0 mA max.	6	+2.50 VDC	4.7 mA typ., 7.0 mA max.	3	+3.30 VDC	7.0 mA typ., 10.0 mA max.
Option	Supply Voltage(Vcc)	Current											
1	+1.80 VDC	3.0 mA typ., 5.0 mA max.											
6	+2.50 VDC	4.7 mA typ., 7.0 mA max.											
3	+3.30 VDC	7.0 mA typ., 10.0 mA max.											
<b>RMS Phase Jitter at 49.152 MHz (12 kHz to 20.0 MHz)</b>	48 fSec typ. At +3.30 VDC 118 fSec typ. At +1.80 VDC												
<b>Notes:</b>													
1.	It is recommended that a 0.01 µF bypass capacitor be connected between Vdd (Pin 4) and Ground (Pin 2) to minimize power supply noise												



### Part Number Guide

Package	Operating Temperature	Temperature Stability	Supply Voltage	Frequency
ISM43-	1 = 0°C to +70°C	A = ±25 ppm	1 = +1.80 VDC	-Frequency
	6 = -10°C to +70°C	B = ±50 ppm	6 = +2.50 VDC	
	3 = -20°C to +70°C	C = ±100 ppm	3 = +3.30 VDC	
	2 = -40°C to +85°C			
Sample Part Number: <b>ISM43-1B1-16.000000MHz</b> This a 2.5 X 3.2 SMD Oscillator with an operating frequency of 16.000000 MHz with a temperature stability of ±50 ppm thru a temperature range of 0°C to +70°C . The supply voltage is +1.80 VDC.				
<b>Notes:</b>				
1. Not all options are available at all frequencies and temperature ranges.				
2. Please consult with sales department for any other parameters or options.				
3. Oscillator specification subject to change without notice.				

Phase Noise



49.152 MHz at +3.30 VDC

49.152 MHz at +1.80 VDC

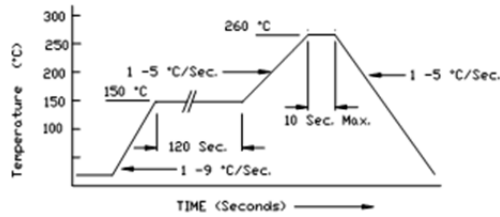
Offset	Phase Noise
10 Hz	-91 dBc/Hz typ.
100 Hz	-126 dBc/Hz typ.
1.0 kHz	-141 dBc/Hz typ.
10 kHz	-153 dBc/Hz typ.
100 kHz	-166 dBc/Hz typ.
1.0 Mhz	-171 dBc/Hz typ.
10 Mhz	-172 dBc/Hz typ.
20 Mhz	-174 dBc/Hz typ.

Offset	Phase Noise
10 Hz	-97 dBc/Hz typ.
100 Hz	-126 dBc/Hz typ.
1.0 kHz	-132 dBc/Hz typ.
10 kHz	-146 dBc/Hz typ.
100 kHz	-159 dBc/Hz typ.
1.0 Mhz	-164 dBc/Hz typ.
10 Mhz	-164 dBc/Hz typ.
20 Mhz	-165 dBc/Hz typ.

# Ultra-Low Noise 2.5 x 3.2 SMD Oscillator

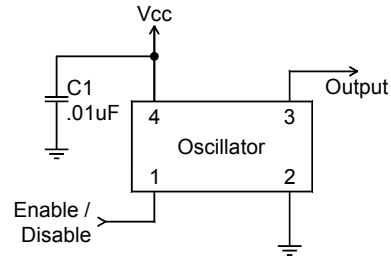
ISM43 Series

## Pb Free Solder Reflow Profile:



Units are backward compatible with 240C reflow processes

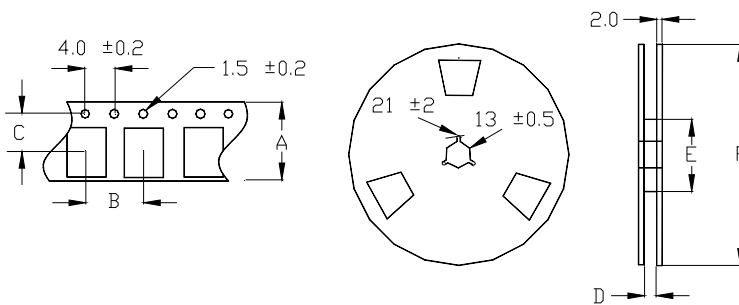
## Typical Application:



## Package Information:

MSL = N.A. (package does not contain plastic; storage life is unlimited under normal room conditions).  
Termination = e4 (Au over Ni over W base metallization).

## Tape and Reel Information:



Quantity per Reel	1000 or 3000
A	8.0 ±0.2
B	4.0 ±0.1
C	3.5 ±0.2
D	9.0 ±0.3
E	60 / 80
F	180 / 250

## Environmental Specifications:

Thermal Shock	MIL-STD-883, Method 1011, Condition A
Moisture Resistance	MIL-STD-883, Method 1004
Mechanical Shock	MIL-STD-883, Method 2002, Condition B
Mechanical Vibration	MIL-STD-883, Method 2007, Condition A
Resistance to Soldering Heat	J-STD-020C, Table 5-2 Pb-free devices (except 2 cycles max)
Hazardous Substance	Pb-Free / RoHS / Green Compliant
Solderability	JESD22-B102-D Method 2 (Preconditioning E)
Gross Leak	MIL-STD-883, Method 1014, Condition C
Fine Leak	MIL-STD-883, Method 1014, Condition A2, R1=2x10 <sup>-8</sup> atm cc/s
Solvent Resistance	MIL-STD-202, Method 215

## Marking:

Line 1: I-Date Code (yyww)  
Line 2: Frequency