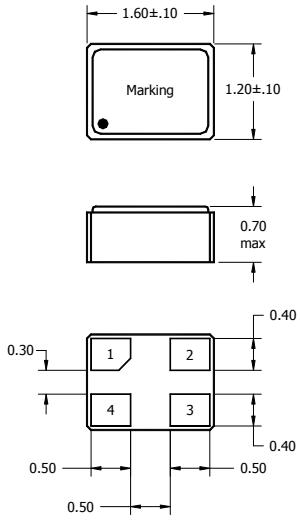
1.6 mm x 1.2 mm 4 Pads SMD Oscillator

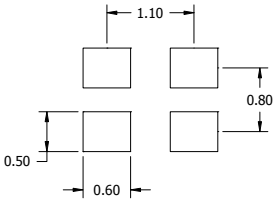
ISM16 Series

Product Features:
Low Jitter, Non-PLL Based Output
CMOS Output
Wide Range of Supply Voltage (+1.8V to +3.3 V)
Stand-by Function on Pin 1
RoHS Compliant
Compatible with Leadfree Processing

Applications:
Fibre Channel
Server & Storage
Sonet / SDH
802.11 / Wifi
T1/E1, T3/E3

Frequency	1.000000 MHz to 80.000000 MHz
Output Level CMOS	Logic "0" = 0.4 V max Logic "1" = Vcc – 0.4 V min
Duty Cycle	See Duty Cycle Table in Part Number Guide
Rise / Fall Time	4.5 nSec max (10% to 90% of waveform)
Output Load	15pF max
Frequency Stability	See Frequency Stability Table in Part Number Guide (Note 1)
Start-up time	2.0 mSec max with Vcc = +3.30 VDC 5.0 mSec max with Vcc = +1.80 VDC
Stand By Terminal Function (Pin 1)	0.7 Vcc min = Output enable 0.3 Vcc max = Oscillation stop and High impedance output
Supply Voltage (Vcc)	See Input Voltage Table in Part Number Guide (Tolerance = ±10%)
Current **During Standby** **During Operation**	 10 µA max 2.5 typ., 3.5 mA max (1.8 V, 15 pF load @ 50.000MHz) 3.5 typ., 5.0 mA max (1.8 V, 15 pF load @ 80.000MHz) 4.2 typ., 6.0 mA max (3.3 V, 15 pF load @ 50.000MHz) 6.0 typ., 8.5 mA max (3.3 V, 15 pF load @ 80.000MHz)
Aging	± 3.0 ppm max @ +25ºC First Year
Temperature Range **Operating** **Storage**	 See Operating Temperature Table in Part Number Guide -40ºC to +105ºC
Random Jitter (RJ)	2.9 pSec typ
Total Jitter (TJ)	40.0 pSec typ TJ = n x RJ were n ≈ 14.1, BER = 10^{-12}
Phase Jitter	1.0 pSec max Offset frequency = 12 kHz to 5.000MHZ





Suggested
Land Patterns

Pin Connections	
Pin 1	Stand-by
Pin 2	Ground
Pin 3	Output
Pin 4	Supply Voltage (Vcc)

Dimensions: mm

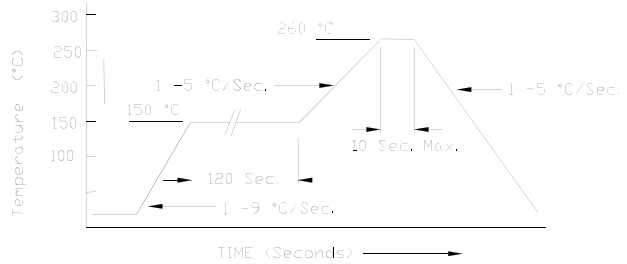
Notes:
1. Includes room temperature tolerance and stability over operating temperature.
2. A 0.01 µF bypass capacitor is recommended between Vcc (Pin 4) and GND (Pin 2) to minimize power supply noise.

Part Number Guide: Sample Part Number: ISM16-3153A-20.0000

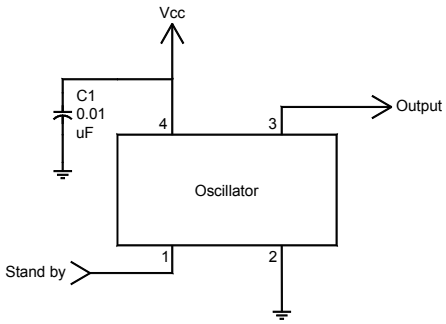
Package	Input Voltage	Operating Temperature	Duty Cycle (Symmetry)	Output	Stability (in ppm)	Frequency
ISM16	1 = +1.8V	1 = 0ºC to +70ºC	5 = 45/55 max	3 = 15 pF	A = ±25*	-20.0000
	3 = +3.3V	2 = -40ºC to +85ºC	6 = 40/60 max		B = ±50	
	6 = +2.5V	3 = -20ºC to +70ºC			C = ±100	
		5 = -30ºC to +85ºC			F = ±20*	

*Not available for all temperature ranges

Pb Free Solder Reflow Profile:



Typical Application:

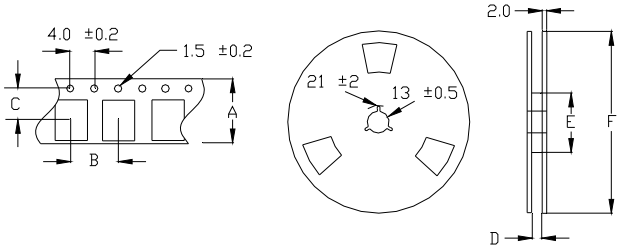


Units are backward compatible with 240ºC reflow process.

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	3000
A	8.0 ±0.2
B	4.0 ±0.1
C	3.5 ±0.05
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)
Terminal Strength	MIL-STD-883, Method 2004, Test Condition D
Gross Leak	MIL-STD-883, Method 1014, Condition C
Fine Leak	MIL-STD-883, Method 1014, Condition A2, R1=2x10-8 atm cc/s
Solvent Resistance	MIL-STD-202, Method 215

Marking:

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