Space Level Clock Oscillator

8.89L x 7.37W x 4.32H (mm)

Wi2Wi's *JS4 Series*, utilizing a premium swept quartz crystal resonator, is designed for low-to-mid orbit applications and manufactured in Wi2Wi's own MIL-PRF-55310/QPL certified manufacturing facility.
(Higher Orbits available upon request)

ex) **JS4—T—25000X—O—C—D—3—J—EM—X***

* - for standard or assigned for customization.

ENABLE
T = Tri-State
X = No Connect

FREQUENCY
00750X-99999X = 750.000KHz – 99.000MHz
C10000-C20000 = 100.000MHz – 200.000MHz

OUTPUT
O = LVCMOS

FREQUENCY STABILITY
B = +/-25.0 (Temp B)
U = +/-35.0 (Temp B+D)
C = +/-50.0
V = +/-65.0
S = Special

OPERATING TEMPERATURE
B = -20 to +70°C
D = -40 to +85°C
E = -55 to +125°C
S = Special

SUPPLY VOLTAGE
3 = +3.3V

LEAD FORM
J = J Lead
G = Gull Wing
X = Thru Hole

GRADE
EB = Eng. Bread Bd.
EM = Eng. Model
FM = Flight Model

Parameter		Supply Voltage (±10%)	Units
		3.3	V
Frequency Range*1		750KHz to 200MHz	
Frequency Stability*1	All Causes (Maximum)*2	Per Option	ppm
Temperature Range*1	Operating	Per Option	°C
	Storage	- 55 to +125	°C
Supply Current (Maximum)	0.750000 to 23.999999 MHz	15	mA
	24.000000 to 49.999999 MHz	20	
	50.000000 to 69.999999 MHz	30	
	70.000000 to 200.000000 MHz	45	
Output Drive Current (Low Drive)	**Ioh:** Voh = Vdd-0.4V, Vdd = 3.3V	10.0 (Minimum)	mA
	Iol: Vol = 0.4V, Vdd = 3.3V		
Output Drive Current (High Drive)	**Ioh:** Voh = Vdd-0.4V, Vdd = 3.3V	30.0 (Minimum)	mA
	Iol: Vol = 0.4V, Vdd = 3.3V		
Output		LVCMOS	
Load		15pF	
Duty Cycle (at 50% Vcc)		40% to 60% (45% to 55% option)	
Rise/Fall Times (Maximum) (10% to 90% Vcc)	0.750000 to 23.999999 MHz	10	nS
	24.000000 to 49.999999 MHz	7	
	50.000000 to 69.999999 MHz	4	
	70.000000 to 200.000000 MHz	3	
Start up Time (Maximum)		10	mS
Output Voltage Levels	**Voh:** High (Minimum)	90	% Vcc
	Vol: Low (Maximum)	10	
Pin 1 (Tri-State) (Option)	**Vih:** High or Open (Enabled)	80	% Vcc
	Vil: Low or Ground (Disabled)*3	20	% Vcc
	Disable Current (Maximum)*3	10	µA
	Disable Delay Time (Maximum)	150	nS

*1 - Not all Frequency/Temperature/Voltage combinations are available.
*2 - Inclusive of Tolerance @25°C, Operating Temperature, Supply Voltage, Load, 1st Year Aging, Shock and Vibration.
*3 - Internal crystal oscillation halted.

Absolute Maximum Ratings

PARAMETER	SYM	MIN	MAX	UNIT
Frequency Range		.750	200	MHz
Supply Voltage	Vdd		4.6	V
Input Voltage	VI	-0.5	Vdd+0.5 V	
Output Voltage	VO	-0.5	Vdd+0.5 V	
Storage Temperature	TS	-55	+125	°C
Ambient Operating Temperature	TA	-55	+125	°C
Junction Temperature	TJ		+125	°C
ESD Protection Human Body Model			2	kV
Radiation, Total Ionized Dose	TID		100	Krad
Single Event Latch Up Immunity	SEL		64	MeV-cm²/mg

MIL-55310 SCREENING

MIL-PRF-55310 Group A & B Screening – Grades EM (Upon Request) & FM Only		
Operation	**Requirements**	**Sample Size**
Screening		
Internal Visual (Pre Cap)	MIL-STD-883, Method 2017 and 2032 NASA-STD-8739.3	100%
Stabilization Bake	MIL-STD-883, Method 1008	100%
Resistance Weld	per this specification 7.5 ML 001 welding process	100%
Seal Test	MIL-STD-202, Method 112, Condition C & D or E	100%
Thermal Shock	MIL-STD-202, Method 107, Test Condition A1	100%
Initial Electrical Test	The electrical parameters with limits to be measured, should be indicated in dedicated tables of a procurement specification. (Per Source Control Drawing)	100%
Burn-In	MIL-STD-883, Method 1015	100%
Electrical Test	The electrical parameters with limits to be measured, should be indicated in dedicated tables of a procurement specification. (Per Source Control Drawing)	100%
Radiographic Inspection	MIL-STD-202, Method 209	100%
Group A		
Electrical Test	The electrical parameters with limits to be measured, should be indicated in dedicated tables of a procurement specification. (Per Source Control Drawing)	100%
Visual & Mechanical Inspection	Per source control drawing	100%
Solderability	MIL-STD-202, Method 208	5 Empty Packages
Group B		
Electrical Testing	The electrical parameters with limits to be measured, should be indicated in dedicated tables of a procurement specification. (Per Source Control Drawing)	100%

MIL-55310 SCREENING

MIL-PRF-55310 Group C Screening – FM Only		
Operation	**Requirements**	**Sample Size**
Group C Inspection MIL-PRF-55310 (Subgroup 1) - 8 Samples		
Vibration	MIL-STD-202, Method 204 (Customer specifies test conditions)	8
Shock	MIL-STD-202, Method 213, Condition C	8
Group C Inspection MIL-PRF-55310 (Subgroup 2) - 4 Samples from Subgroup 1		
Thermal Shock	MIL-STD-202, Method 107, Condition B	4
Ambient Pressure	MIL-PRF-55310, Paragraph 4.8.46.1	4
Storage Temperature	MIL-PRF-55310, Paragraph 4.8.47	4
Radiation Hardness	MIL-PRF-55310, Paragraph 4.8.48	AR
Group C Inspection MIL-PRF-55310 (Subgroup 3) - 2 Samples from Subgroup 1		
Resistance to Soldering Heat	MIL-PRF-55310, Paragraph 4.8.49	X
Moisture Resistance	MIL-STD-202, Method 106 (Omit step 7b)	X
Salt Atmosphere	MIL-STD-883, Method 1009, Condition A (Test not required for class two oscillators if the test was performed on the package level per customer approval)	X
Group C Inspection MIL-PRF-55310 (Subgroup 4) - 2 Samples from Subgroup 1		
Terminal Strength (Lead integrity)	MIL-PRF-55310, Paragraph 4.8.52	X
Resistance to Solvents	MIL-STD-202, Method 215 (Not required for laser marked devices)	AR

Laboratory Suitability Certified

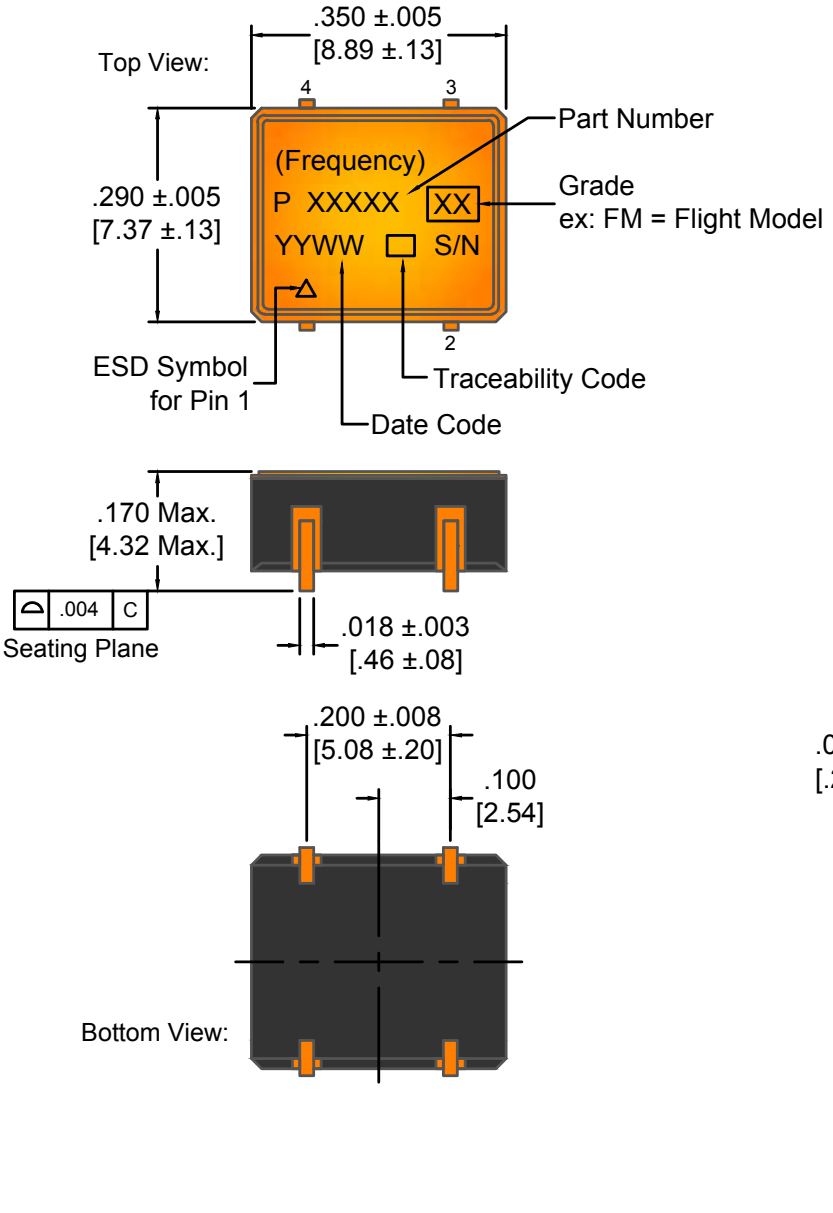
MIL-STD-790 Product Assurance Certified

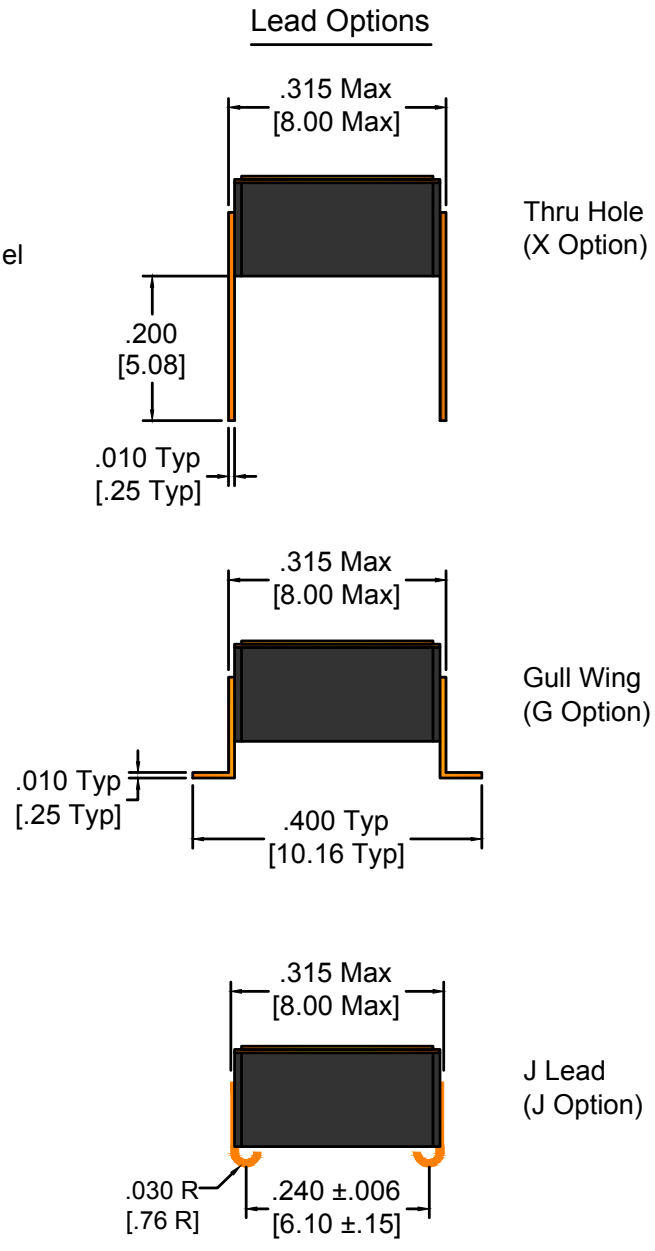
ISO 9001 FM 75597

PACKAGE DIMENSIONS

Tolerance: ±.008 [.20mm] (Unless otherwise specified)

PIN	CONNECTION
1	Tri-State or No Connect
2	Ground/Case
3	Output
4	Supply Voltage





Leads: Electro Au, 11.8 to 40.0 µinches (.30 to 1.0 µm) over Electro Ni, 50 to 350 µinches (1.27 to 8.89 µm)

1. Material: Black Conductive Polystyrene or equivalent.
2. 10 Sprocket Hole pitch cumulative tolerance of ±.008.
3. Camber in compliance with EIA 481.
4. Empty pockets: Trailing end (Minimum) 200 mm. and Leading end (Minimum) 400 mm.
5. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Tape and Reel for **J-Lead** and **Gull Wing** only.