3.3V HCMOS Surface Mount Crystal Clock Oscillator 7113, 7123, 7133, 7443

CONNOR WINFIELD

XO

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Description

The Connor-Winfield models 7113, 7123, 7133 and 7443 are a 5 x 3.2mm, 3.3V HCMOS, Surface Mount, Fixed Frequency Crystal Oscillators (XO) designed for use in all applictions requiring precision clocks. These oscillators feature low stand-by current (10uA) when output is disabled. The RoHS compliant, surface mount package is designed for high-density mounting and is optimum for mass production.

Features:

- 1.8 to 160 MHz
- 3.3V Operation
- Tri-State Enable / Disable Function
- Overall Frequency Tolerance:
  7113 ± 25 ppm; 7123 ± 50 ppm;
  7133 ± 100 ppm; 7443 ± 20 ppm
- Temperature Ranges: 0 to 70°C; -20 to 70°C
- Power Saving Function: 10uA When Disabled
- Ceramic Surface Mount Package
- Tape and Reel Packaging
- RoHS Compliant

Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	125	°C	
Supply Voltage (Vcc)	-0.5	-	7.0	Vdc	

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Frequency Range (Fo)	1.8	-	160	MHz	
Frequency Tolerance				ppm	1
7113	-25	-	25		
7123	-50	-	50		
7133	-100	-	100		
7443	-20		20		
Operating Temp Range					
71xx models	0	-	70	°C	
74xx models	-20	-	70	°C	
Supply Voltage (Vdd)	3.0	3.3	3.6	Vdc	
Supply Current (Icc)					
1.5 to 49.999 MHz	-	-	20	mA	
50 to 79.999 MHz	-	-	30	mA	
80 to 124.999 MHz	-	-	40	mA	
125 to 160.999 MHz		-	50	mA	

Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Enable Voltage - (Vih)	≥ 70% Vdd	-	-	Vdc	2
Disable Voltage - (Vil)	-	-	≤ 30% Vdd	Vdc	
Enable Time	-	-	10	mS	
Disable Time	-	-	150	nS	
Output Disable Current (Icc)	-	-	10	uA	

HCMOS Output Characteristics

Parameter		Minimum	Nominal	Maximum	Units	Notes
Load		-	-	15	pF	
Voltage	High (Voh)	2.70	-	-	Vdc	
	Low (Vol)	-	-	0.36		
Current	High (Ioh)	-2	-	-	mA	
	Low (Iol)	-	-	2		
Duty Cycle	1.5 to 49.999 MHz	45	50	55	%	3
	50 to 160 MHz	40	50	60		3
Rise / Fall Time	1.5 to 79.999 Mhz	-	-	6	nS	4
	80 to 124.999 Mhz	-	-	4	nS	4
	125 to 160 MHz	-	-	3	nS	4
Start-Up Time		-	-	10	mS	
Jitter		-	-	5	pS RMS	

Notes:

1. *Inclusive of calibration @ 25°C , frequency vs temperature stability, supply voltage change, load change, shock and vibration, 10 years aging.*
2. *.. Oscillator output is enabled with no connection on pad 1*
3. *Duty Cycle measured at 50% of Vcc.*
4. *Rise and Fall times measured from 10% to 90%.*

RoHS COMPLIANT

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Package Characteristics

Package	Hermetically sealed ceramic package and metal cover

Environmental Characteristics

Temperature Cycle:	The specimen shall meet electrical characteristics after tested 5 cycles of -55°C / 30 minutes and +125°C / 30 minutes
Hermetical:	No bubbles appear in Flourinert (FC-43) at 125°C ±5°C for 5 minutes
Solvent Resistance:	Marking will withstand immersion in Isopropyl Alcohol or Trichloroethylene

Soldering

General Conditions	260°C max x 10 sec max x 2 times max or 230°C max x 180 sec max x 1 time
Typical Operation Data	(Vapor phase reflow) 20 to 100 sec up to 215°C, 50 sec at 215°C, then down to room temperature per 1 to 5°C / sec

Mechanical Characteristics

Free Drop:	The specimen shall meet electrical characteristics after tested 3 times, Free Drop testing on the hard wooden board from a height of 75 cm.
Vibration:	The specimen shall meet electrical characteristics after tested by the following conditions: 10-55Hz 1.5mm Amplitude, 55-2000 Hz 20 G's, 2 hours for each plane
Thermal Shock:	After applied Thermal Shock of 260°C max x 10 sec max x 2 times, or 230°C max x 180 sec max, the specimen shall meet electrical characteristics
Solderability:	(EIAJ-RCX-0102.101 Condition 1a)

1) Flux: MIL-F-14256 (WW Rosin=25%, Isopropyl Alcohol = 75%)
2) Solder: QQ-S-571 (Sn = 63%, Pb = 37%)
3) Solder bath temperature: 235°C ±5°C
4) Depth of immersion: Up to electrical terminal
5) Immersing time: Within 2 sec ±0.5 sec into solder bath

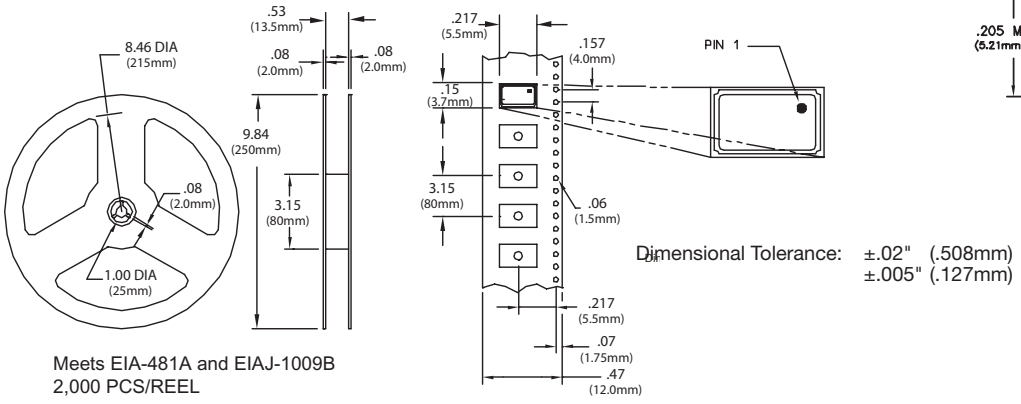
After performing the above procedures, a newly soldered coverage shall be greater than 90%

Ordering Information

7	1	1	3	050.0M
Type Clock 3.2x5.0mm Package	Temperature Range 1 = 0 to 70°C 4 = -20 to 70°C	Frequency Tolerance 1 = ±25 ppm 2 = ±50 ppm 3 = ±100 ppm 4 = ±20 ppm	Supply Voltage 3 = 3.3 Vdc	Output Frequency Frequency Format -xxx.xM Minimum -xxx.xxxxxxM Maximum *Amount of numbers after the decimal point. M = MHz

Example to order a 7113 with an output frequency of:
4 MHz = 7113-004.0M
44.736 MHz = 7113-044.736M
125 MHz = 7113-125.0M

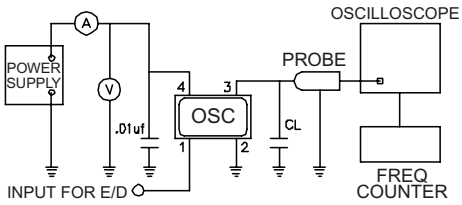
Tape and Reel Dimensions



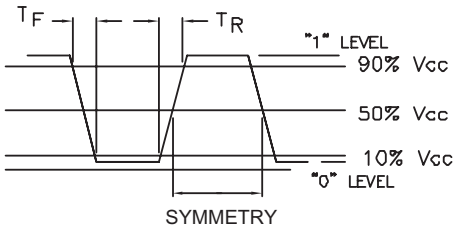
Meets EIA-481A and EIAJ-1009B
2,000 PCS/REEL

Dimensional Tolerance: ±.02" (.508mm)
±.005" (.127mm)

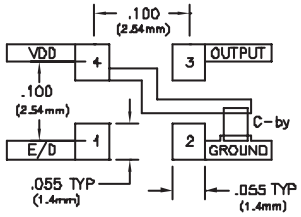
Test Circuit



Output Waveform



Suggested Pad Layout

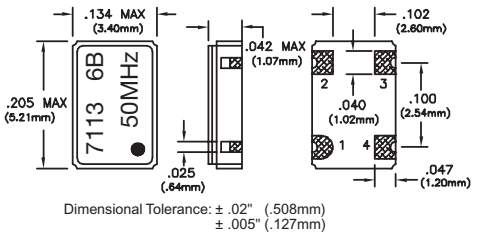


Bypass capacitor, C-by, should be ceramic capacitor ≥ .01uf.

Pad Connections

Pad Connection	
1:	Enable / Disable
2:	Ground
3:	Output
4:	Vcc

Package Outline



Dimensional Tolerance: ± .02" (.508mm)
± .005" (.127mm)

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