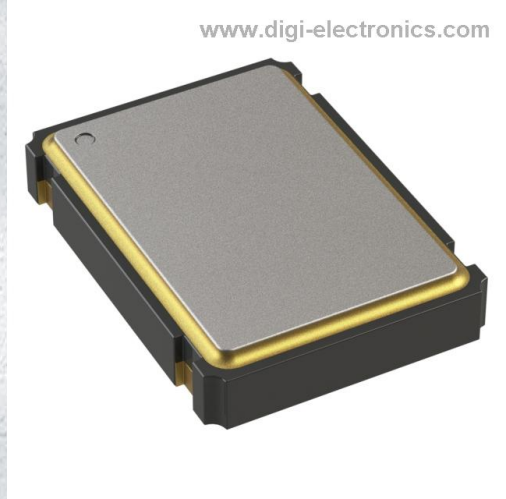
FN2940027 Datasheet



DiGi Electronics Part Number	FN2940027-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	FN2940027
Description	XTAL OSC XO 29.4910MHZ CMOS SMD
Detailed Description	29.491 MHz XO (Standard) CMOS Oscillator 3.3V Enable/Disable 4-SMD, No Lead

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Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
FN2940027	Diodes Incorporated
Series:	Product Status:
SaRonix-eCera™ FN	Active
Base Resonator:	Type:
Crystal	XO (Standard)
Frequency:	Function:
29.491 MHz	Enable/Disable
Output:	Voltage - Supply:
CMOS	3.3V
Frequency Stability:	Absolute Pull Range (APR):
±50ppm	-
Operating Temperature:	Current - Supply (Max):
-20°C ~ 70°C	15mA
Ratings:	Mounting Type:
-	Surface Mount
Package / Case:	Size / Dimension:
4-SMD, No Lead	0.276" L x 0.197" W (7.00mm x 5.00mm)
Height - Seated (Max):	Current - Supply (Disable) (Max):
0.071" (1.80mm)	10µA

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8542.39.0001	

SaRonix-eCera™

FN Series Crystal Clock Oscillator (XO)
Legacy S1613 Series
7.0 x 5.0mm

3.3V CMOS Low Jitter XO

FN

7.0 x 5.0mm Ceramic SMD

Product Features

- 1 to 166 MHz Frequency Range
- <1 ps RMS jitter
- 3.3V CMOS/TTL compatible logic levels
- Pin-compatible with standard 7.0 x 5.0mm packages
- Designed for standard reflow and washing techniques
- Low power standby mode
- Pb-free and RoHS/Green compliant

Product Description

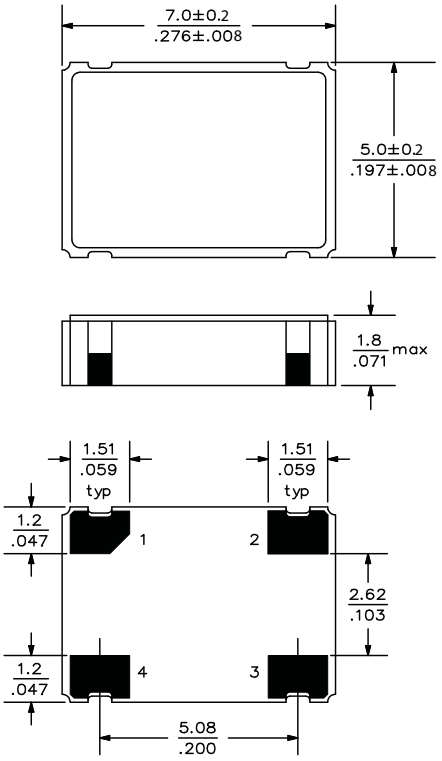
The FN Series 3.3V crystal clock oscillator achieves superb jitter and stability over a broad range of operating conditions and frequencies. The output clock signal, generated internally with a non-PLL oscillator design, is compatible with LVCMOS/LVTTL logic levels. The device, available on tape and reel, is contained in a 7.0 x 5.0mm surface-mount ceramic package.

Applications

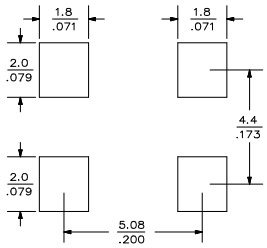
Ideal for low jitter or tight stability applications:

- Ethernet
- Fibre Channel
- SONET/SDH linecards
- T1/E1, T3/E3 linecards
- Serial Attached SCSI (SAS)
- Server & Storage platforms
- 802.11a/b/g WiFi
- EPON
- DSLAM

Package:



Recommended Land Pattern:



Pin Functions:

Pin	Function
1	OE Function
2	Ground
3	Clock Output
4	V_{DD}

Part Ordering Information:

FN XXX YYYY

Ⓐ Ⓑ Ⓒ

A: Product Family
B: XXX = Frequency Code
C: YYYY = Specification Code

Following the above format, Saronix-eCera part numbers will be assigned upon confirmation of exact customer requirements.

Legacy Ordering Information - For Reference Only:

S 1613 B - 75.0000 (T)

SaRonix
Product Series
Frequency Stability
AA = ±20 ppm (-10 to +70 °C)
A = ±25 ppm (-10 to +70 °C)
B = ±50 ppm (-10 to +70 °C)
E = ±50 ppm (-40 to +85°C)

Output Frequency (MHz)

Packaging
(T) = Tape & Reel
full reel increments
Blank = Bulk packaged

SaRonix-eCera™

FN Series Crystal Clock Oscillator (XO)
Legacy S1613 Series | 7.0 x 5.0mm

Electrical Performance

Parameter		Min.	Typ.	Max.	Units	Notes
Output Frequency		1		166	MHz	As specified
Supply Voltage		+2.97	+3.3	+3.63	V	
Supply Current, Output Enabled				15	mA	1 to 32 MHz
				25		32 to 50 MHz
				40		50 to 80 MHz
				55		80 to 166 MHz
Supply Current, Standby Mode				10	µA	1 to 36 MHz, 100 to 166 MHz
				100	µA	36 to 70 MHz
Frequency Stability				±20 to ±50	ppm	See Note 1 below
Operating Temperature Range		-20		+70	°C	Commercial (standard)
		-40		+85		Industrial (standard)
Output Logic 0, V_{OL}				10% V_{DD}	V	
Output Logic 1, V_{OH}		90% V_{DD}			V	
Output Load				15	pF	
Duty Cycle		45		55	%	Measured 50% V_{DD}
Rise and Fall Time	up to 50 MHz			7	ns	Measured 20/80% of waveform
	50 to 80 MHz			5		
	80 to 124 MHz			3		
	125 to 166 MHz			2.5		
Jitter, Phase	1 to 166 MHz			1	ps RMS (1-σ)	10kHz to 20 MHz frequency band
Jitter, Accumulated	up to 80 MHz			5	ps RMS (1-σ)	20.000 adjacent periods
	80 to 166 MHz			3		
Jitter, Total	up to 80 MHz			50	ps pk-pk	100.000 random periods
	80 to 166 MHz			30		

Notes:
1. Stability includes all combinations of operating temperature, load changes, rated input (supply) voltage changes, initial calibration tolerance (25°C), aging (1 year at 25°C average effective ambient temperature), shock and vibration.
2. For specifications othere than those listed, please contact sales.

Output Enable / Disable Function

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (pin 1), Output Enable	2.0			V	or open
Input Voltage (pin 1), Output Disable (low power standby)			0.5	V	Output is Hi-Z
Internal Pullup Resistance	50			kΩ	
Output Disable Delay			100	ns	
Output Enable Delay			10	ms	

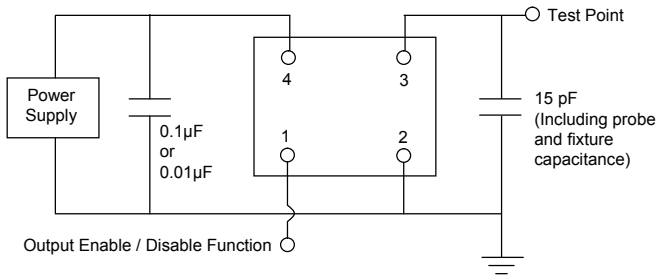
Absolute Maximum Ratings

Parameter	Min.	Typ.	Max.	Units	Notes
Storage Temperature	-55		+125	°C	

saRonix-eCera™

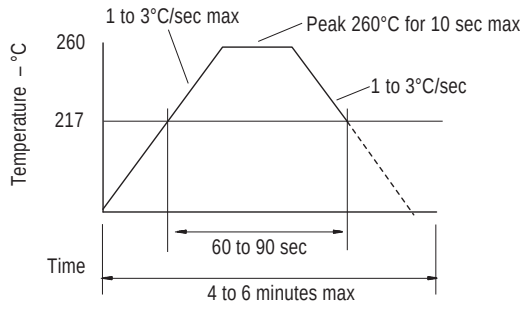
FN Series Crystal Clock Oscillator (XO)
Legacy S1613 Series | 7.0 x 5.0mm

Test Circuit



Reflow Soldering Profile

As per IPC/JEDEC J-STD-020C



Reliability Test Ratings

This product is rated to meet the following test conditions:

Type	Parameter	Test Condition
Mechanical	Shock	MIL-STD-883, Method 2002, Condition B
Mechanical	Solderability	JESD22-B102-D Method 2 (Preconditioning E)
Mechanical	Terminal strength	MIL-STD-883, Method 2004, Condition D
Mechanical	Gross leak	MIL-STD-883, Method 1014, Condition C
Mechanical	Fine leak	MIL-STD-883, Method 1014, Condition A2 ($R_1 = 2x10^{-8}$ atm cc/s)
Mechanical	Solvent resistance	MIL-STD-202, Method 215
Environmental	Thermal shock	MIL-STD-883, Method 1011, Condition A
Environmental	Moisture resistance	MIL-STD-883, Method 1004
Environmental	Vibration	MIL-STD-883, Method 2007, Condition A
Environmental	Resistance to soldering heat	J-STD-020C Table 5-2 Pb-free devices (2 cycles max)

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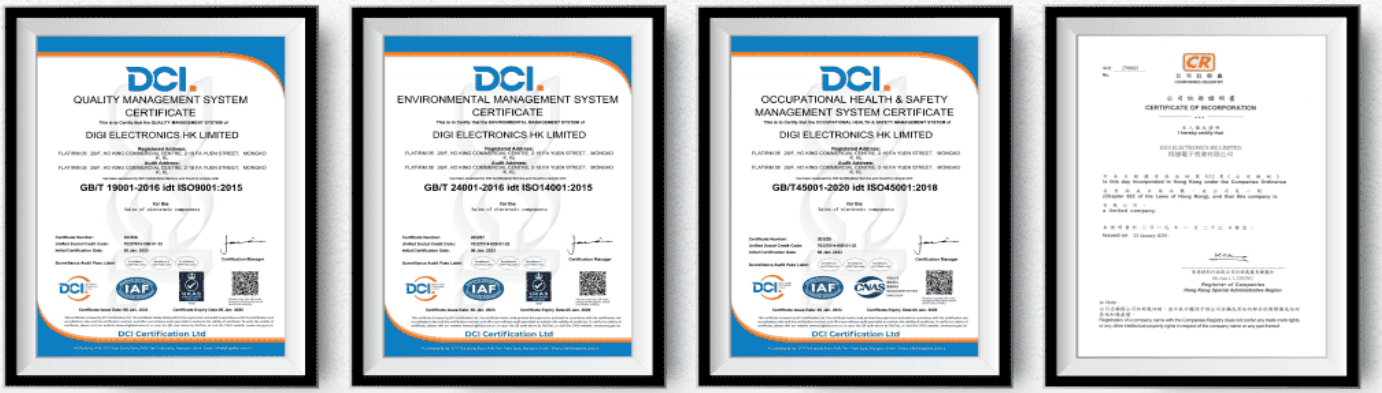

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