

2.5V CMOS Low Jitter XO



Actual Size = 3.2 x 2.5mm



Product Features

- Very low jitter with non-PLL clock circuit
- 2.5V CMOS compatible logic levels
- Pin-compatible with standard 3.2x2.5mm packages
- Designed for standard reflow and washing techniques
- Low power standby mode
- Pb-free and RoHS/Green compliant

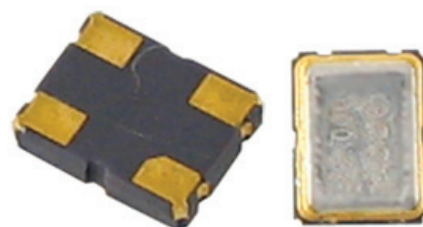
Product Description

The FK Series includes a 2.5V crystal clock oscillator that achieves superb stability and low power consumption over a broad range of operating conditions and frequencies. The low jitter output clock signal, generated internally with a non-PLL oscillator design, is compatible with LVCMOS logic levels. The device, available on tape and reel, is contained in a 3.2x2.5mm surface-mount ceramic package.

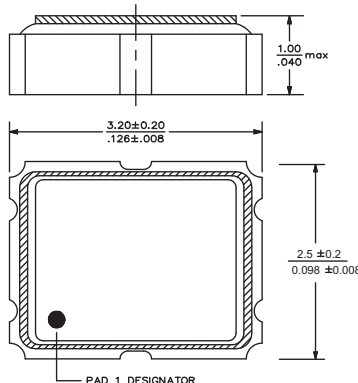
Applications

The FK Series is an ideal reference clock for compact, high-density applications requiring low power or tight stability, including:

- Network adapter cards
- Portable Multimedia Devices
- Hard Disk Drives
- GPS/Navigation
- Bluetooth
- 802.11a/b/g WiFi



Packaging Outline



Pin Functions

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

New Part Number Example

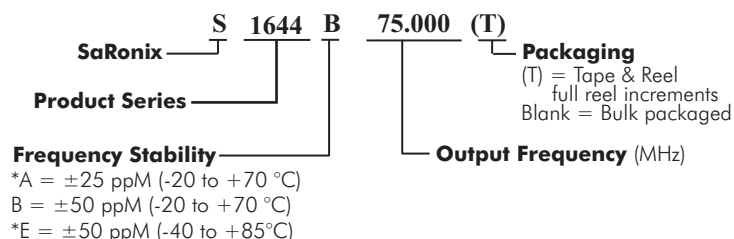
FK 750 0001

 (A) (B) (C)

A = Product Family
 B = Frequency Code
 C = Specification Code

Note: After July 1, 2007, a Saronix - eCera part number following the above format will be assigned upon confirmation of exact customer requirements.

Legacy Ordering Information (for reference only)



Electrical Performance

Parameter	Min.	Typ.	Max.	Units	Notes
Output frequency	1.8432		80	MHz	As specified
Supply voltage	+2.375	+2.5	+2.625	V	
Supply current, output enabled			8	mA	1.8432 to 50 MHz
			18		>50 MHz
Supply current, standby mode			10	μA	Output Hi-Z
Frequency stability			±25 to ±50	ppM	See Note 1 below
Operating temperature	-40		+85	°C	As specified
Output logic 0, VOL			10% V _{DD}	V	I _{OL} = 4mA min
Output logic 1, VOH	90% V _{DD}			V	I _{OH} = -4mA max
Output load			15	pF	
Duty cycle	45		55	%	-40 to +85°C measured 50%VDD
Rise and fall time			5	ns	measured 10/90% of waveform
Jitter, Phase	up to 75 MHz		1.5	ps RMS (1-σ)	10kHz to 20 MHz frequency band
	75 to 100 MHz		1		
Jitter, Accumulated	up to <75 MHz		5	ps RMS (1-σ)	20.000 adjacent periods
	75 to 100 MHz		3		
Jitter, Total	up to <75 MHz		50	ps pk-pk	100.000 random periods
	75 to 100 MHz		30		

Notes:

- As specified. 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.
- Note: For specifications other than those listed, please contact sales.

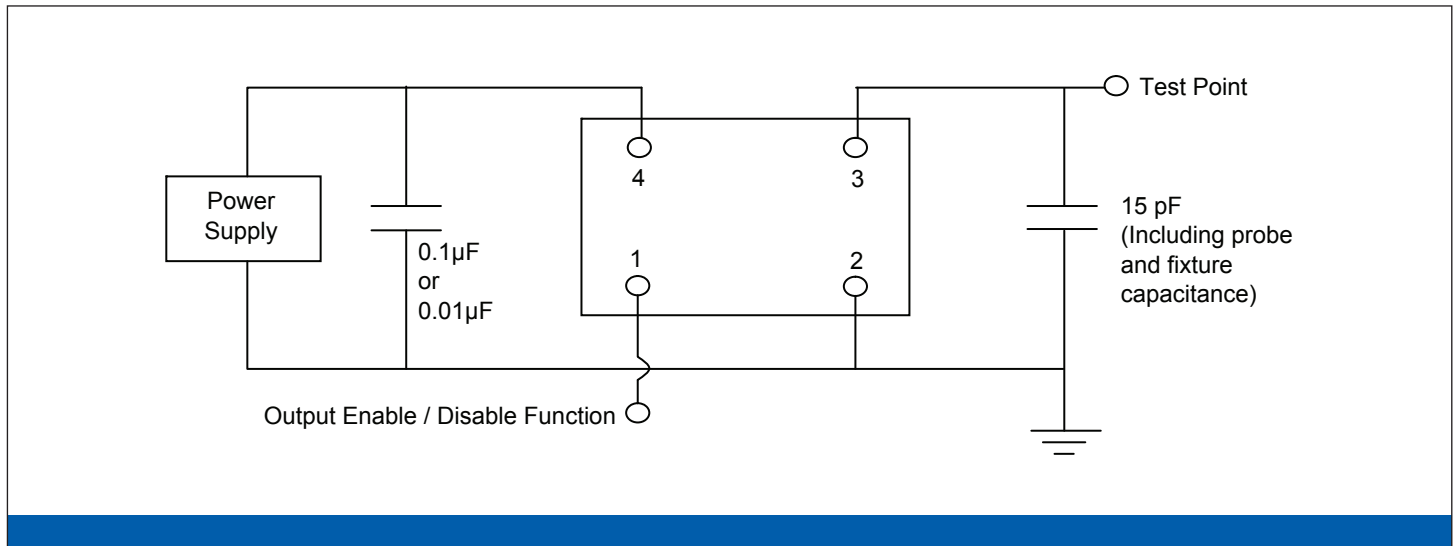
Output Enable / Disable Function

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (pin 1), Output Enable	0.7V _{DD}			V	or open
Input voltage (pin 1), Output Disable (low power standby)			0.3V _{DD}	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	

Test Circuit

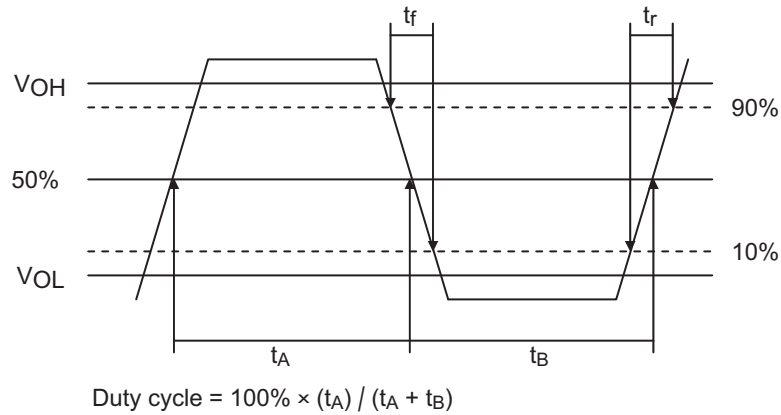


Reliability Test Ratings

This product is rated to meet the following test conditions:

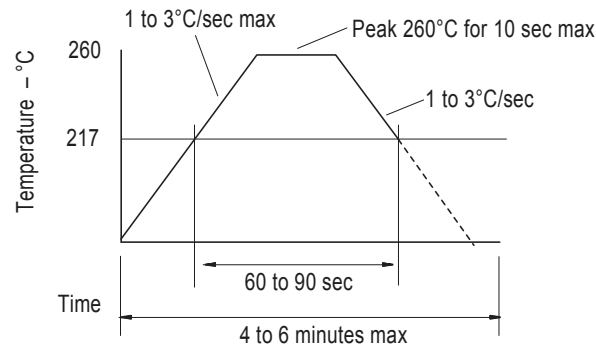
Type	Parameter	Test Condition
Mechanical	Shock	MIL-STD-883, Method 2002, Condition B
Mechanical	Solderability	JESD22-B102-D Method 2 (Preconditioning E)
Mechanical	Terminal strength	MIL-STD-883, Method 2004, Condition D
Mechanical	Gross leak	MIL-STD-883, Method 1014, Condition C
Mechanical	Fine leak	MIL-STD-883, Method 1014, Condition A2 ($R_1 = 2 \times 10^{-8}$ 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)

Output Waveform

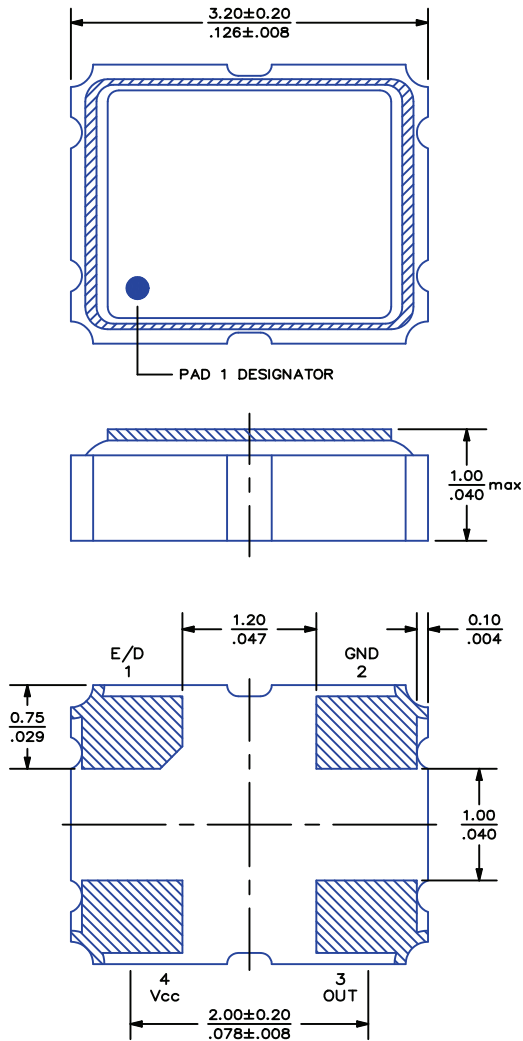


Reflow Soldering Profile

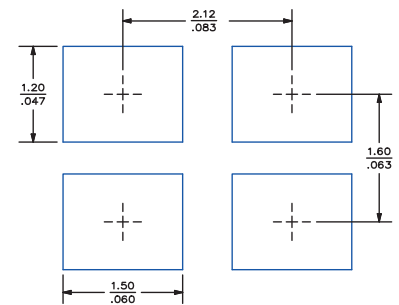
As per IPC/JEDEC J-STD-020C



Mechanical Drawings



Recommended Land Pattern*



*External high-frequency power decoupling is recommended. (see test circuit for minimum recommendation). To ensure optimal performance, do not route traces beneath the package.

Scale: None. Dimensions are in mm/inches.