

2.5V CMOS Low Jitter XO



Actual Size $= 3.2 \times 2.5 \text{mm}$



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.

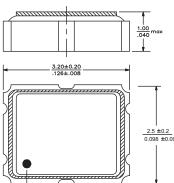
Applications

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

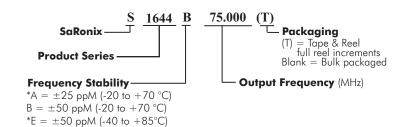
New Part Number Example

PAD 1 DESIGNATOR

FK 750 0001 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)







2.5V CMOS Low Jitter XO FK





FK Series Crystal Clock Oscillator (XO) **Legacy \$1644 Series** 3.2 x 2.5mm

Electrical Performance

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

Output Enable / Disable Function

Parameter	Min.	Тур.	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	



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 othere than those listed, please contact sales.

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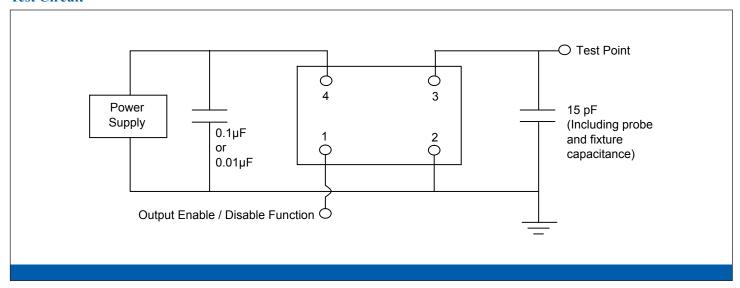


FK Series Crystal Clock Oscillator (XO) **Legacy \$1644 Series** 3.2 x 2.5mm

Absolute Maximum Ratings

Parameter	Min.	Тур.	Max.	Units	Notes
Storage temperature	-55		+125	°C	

Test Circuit



Reliability Test Ratings

This product is rated to meet the following test conditions:

Туре	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)

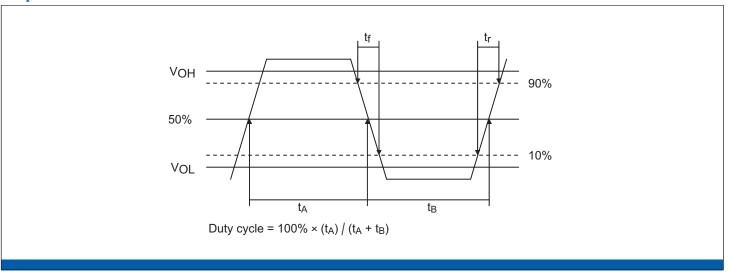




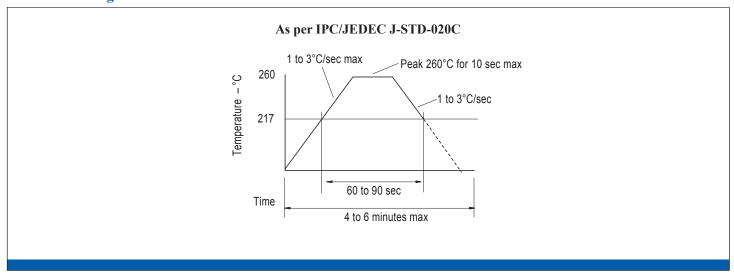


FK Series Crystal Clock Oscillator (XO) Legacy S1644 Series 3.2 x 2.5mm

Output Waveform



Reflow Soldering Profile

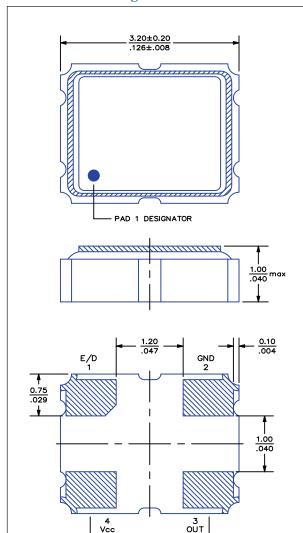




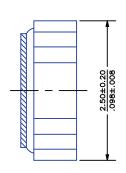


FK Series Crystal Clock Oscillator (XO) **Legacy \$1644 Series** 3.2 x 2.5mm

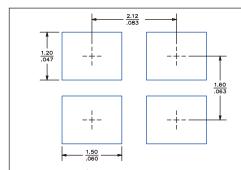
Mechanical Drawings



2.00±0.20



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.

Mouser Electronics

Authorized Distributor

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