



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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1.8V CMOS Low Jitter XO

FD



5.0 x 3.2mm Ceramic SMD

Product Features

- 1 to 133 MHz Frequency Range
- <1 ps RMS jitter with fundamental or overtone design
- Low power standby mode
- Pb-free and RoHS/Green compliant

Product Description

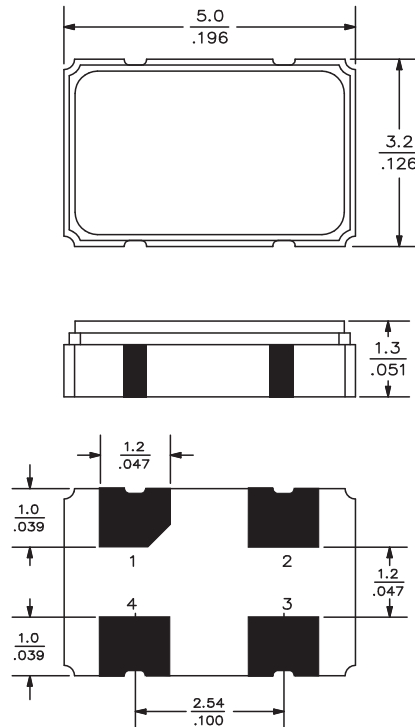
The FD Series 1.8V crystal clock oscillator achieves superb jitter and stability over a broad range of operating conditions and frequencies. The output clock signal, generated internally with a non-PLL oscillator design, is compatible with LVCMOS/LVTTL logic levels. The device, available on tape and reel, is contained in a 5.0 x 3.2mm surface-mount ceramic package.

Applications

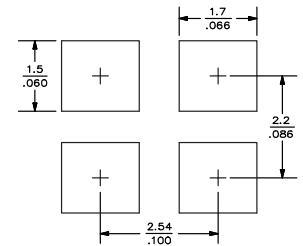
The FD Series is ideal for compact, high-density applications requiring low jitter or tight stability, including:

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

Package:



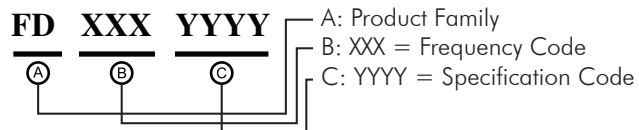
Recommended Land Pattern:



Pin Functions:

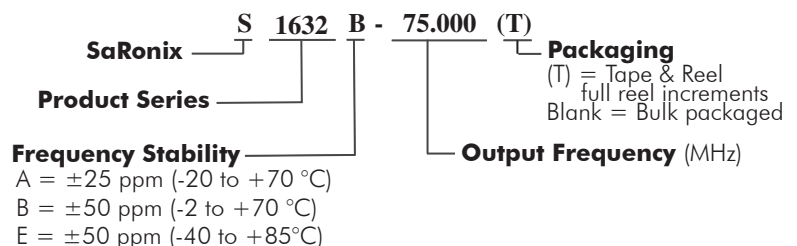
| Pin | Function |
|-----|-----------------|
| 1 | OE Function |
| 2 | Ground |
| 3 | Clock Output |
| 4 | V _{DD} |

Part Ordering Information:



Following the above format, Saronix-eCera part numbers 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 | | 133 | MHz | As specified |
| Supply Voltage | 1.62 | 1.80 | 1.98 | V | |
| Supply Current, Output Enabled | | | 15 | mA | 1 to 32 MHz |
| | | | 25 | | 32 to 50 MHz |
| | | | 35 | | 50 to 133 MHz |
| Supply Current, Standby Mode | | | 10 | μA | Output Hi-Z |
| 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 | See Note 2 below |
| Duty Cycle | 45 | | 55 | % | Measured 50% V _{DD} |
| Rise and Fall Time | up to 32 MHz | | 7 | ns | Measured 20/80% of waveform |
| | 32 to 70 MHz | | 5 | | |
| | 70 to 133 MHz | | 2.5 | | |
| Jitter, Phase | 1 to 133 MHz | | 1 | ps RMS (1-σ) | 10kHz to 20 MHz frequency band |
| Jitter, Accumulated | up to 70 MHz | | 5 | ps RMS (1-σ) | 20.000 adjacent periods |
| | 70 to 133 MHz | | 3 | | |
| Jitter, Total | up to 70 MHz | | 50 | ps pk-pk | 100.000 random periods |
| | 70 to 133 MHz | | 30 | | |

Notes:

- 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.
- For specifications other than those listed, please contact sales.

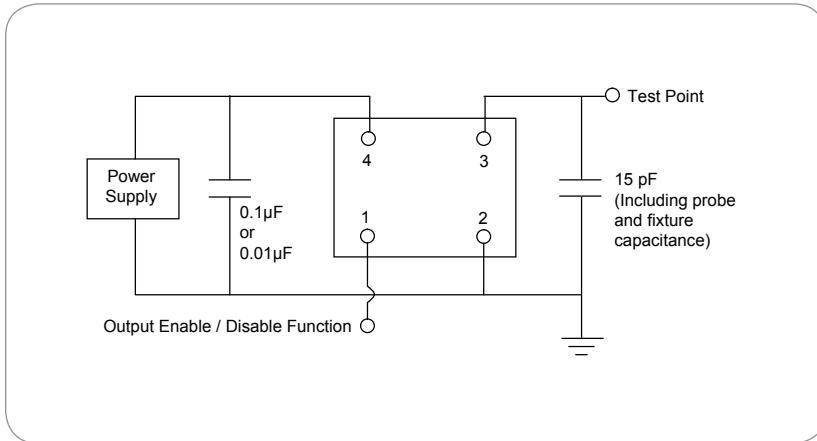
Output Enable / Disable Function

| Parameter | Min. | Typ. | Max. | Units | Notes |
|---|------|------|------|-------|----------------|
| Input Voltage (pin 1), Output Enable | 0.7 | | | V | or open |
| Input Voltage (pin 1), Output Disable (low power standby) | | | 0.3 | V | Output is Hi-Z |
| Internal Pullup Resistance | 50 | | | kΩ | |
| Output Disable Delay | | | 100 | ns | |
| Output Enable Delay | | | 10 | ms | |

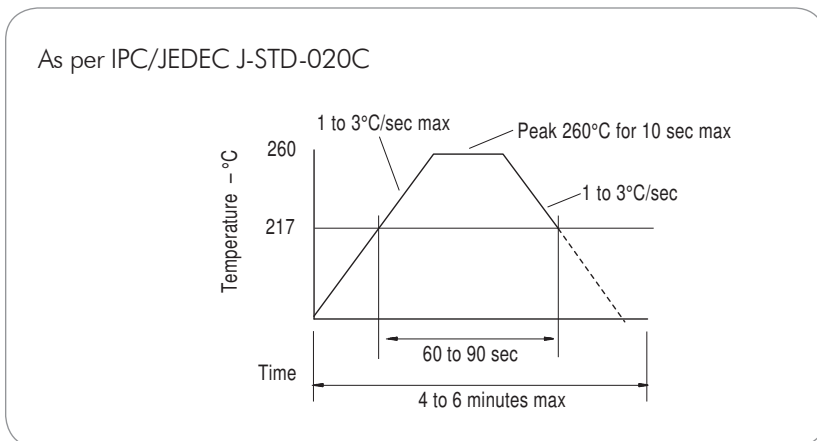
Absolute Maximum Ratings

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

Test Circuit



Reflow Soldering Profile



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) |