

# 3.3V, HCMOS, SMD Oscillator



**Model: F4100 SERIES**

**RoHS Compliant / Pb Free**

**Rev. 1/16/2014**

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Sample®

## • PART NUMBER SELECTION

| Part Number         | Model Number | Frequency Stability <sup>1</sup> | Operating Temperature (°C) | Frequency Range (MHz) |
|---------------------|--------------|----------------------------------|----------------------------|-----------------------|
| 116-Frequency-xxxxx | F4100        | ±100PPM                          | -10 ~ +70                  | 0.012 ~ 170.000       |
| 117-Frequency-xxxxx | F4100R       | ±100PPM                          | -40 ~ +85                  | 0.012 ~ 170.000       |
| 124-Frequency-xxxxx | F4105        | ±50PPM                           | -10 ~ +70                  | 0.012 ~ 170.000       |
| 125-Frequency-xxxxx | F4105R       | ±50PPM                           | -40 ~ +85                  | 0.012 ~ 170.000       |
| 126-Frequency-xxxxx | F4106        | ±25PPM                           | -10 ~ +70                  | 0.012 ~ 165.000       |
| 127-Frequency-xxxxx | F4106R       | ±25PPM*                          | -40 ~ +85                  | 0.012 ~ 156.520       |
| 128-Frequency-xxxxx | F4108        | ±20PPM*                          | -10 ~ +70                  | 0.012 ~ 162.000       |

## • ELECTRICAL CHARACTERISTICS

| PARAMETERS                                               | MAX (unless otherwise noted) |
|----------------------------------------------------------|------------------------------|
| Frequency Range (Fo)                                     | 0.012 ~ 170.000 MHz          |
| Storage Temperature Range (T <sub>STG</sub> )            | -55°C ~ +125°C               |
| Supply Voltage (V <sub>DD</sub> )                        | 3.3V ± 10%                   |
| Input Current (I <sub>DD</sub> )                         |                              |
| 0.012 ~ 0.040 MHz                                        | 3mA                          |
| 0.040+ ~ 1.500 MHz                                       | 6mA                          |
| 1.500+ ~ 32.000 MHz                                      | 15mA                         |
| 32.000+ ~ 50.000 MHz                                     | 20mA                         |
| 50.000+ ~ 67.000 MHz                                     | 25mA                         |
| 67.000+ ~ 170.000 MHz                                    | 40mA                         |
| Output Symmetry (50% V <sub>DD</sub> )                   |                              |
| 0.012 ~ 50.000 MHz                                       | 45% ~ 55%                    |
| 50.000+ ~ 170.000 MHz                                    | 40% ~ 60%                    |
| Rise Time (10% ~ 90% V <sub>DD</sub> ) (T <sub>R</sub> ) |                              |
| 0.012 ~ 80.000 MHz                                       | 6nS                          |
| 80.000+ ~ 125.000 MHz                                    | 4nS                          |
| 125.000+ ~ 170.000 MHz                                   | 3nS                          |
| Fall Time (90% ~ 10% V <sub>DD</sub> ) (T <sub>F</sub> ) |                              |
| 0.012 ~ 80.000 MHz                                       | 6nS                          |
| 80.000+ ~ 125.000 MHz                                    | 4nS                          |
| 125.000+ ~ 170.000 MHz                                   | 3nS                          |
| Output Voltage (V <sub>OL</sub> )                        | 10% V <sub>DD</sub>          |
| (V <sub>OH</sub> )                                       | 90% V <sub>DD</sub> Min      |
| Output Current (I <sub>OL</sub> )                        | 2mA Min                      |
| (I <sub>OH</sub> )                                       | -2mA Min                     |
| Output Load (HCMOS)                                      | 15pF                         |
| Standby Current                                          | 10µA                         |
| Start-up Time (T <sub>s</sub> )                          |                              |
| 0.012 ~ 32.000 MHz                                       | 5mS                          |
| 32.000+ ~ 170.000 MHz                                    | 10mS                         |
| Output Disable Time <sup>2</sup>                         | 150nS                        |
| Output Enable Time <sup>2</sup>                          |                              |
| 0.012 ~ 32.000 MHz                                       | 5mS                          |
| 32.000+ ~ 170.000 MHz                                    | 10mS                         |
| Jitter (FO ≥ 100MHz)                                     |                              |
| 12kHz ~ 20MHz                                            | 0.3pS Typ.                   |
| RMS Period                                               | 2.5pS Typ.                   |
| Cycle-to-Cycle                                           | 20pS Typ.                    |

<sup>1</sup> Inclusive of 25°C tolerance, operating temperature range, input voltage change, load change, aging, shock, and vibration. \*Excludes Shock/Vibration

<sup>2</sup> An internal pullup resistor from pin 1 to pin 4 allows active output if pin 1 is left open.

Note: A 0.01µF bypass capacitor should be placed between V<sub>DD</sub> (Pin 4) and GND (Pin 2) to minimize power supply line noise. Drawing is for reference to critical specifications defined by size measurements.

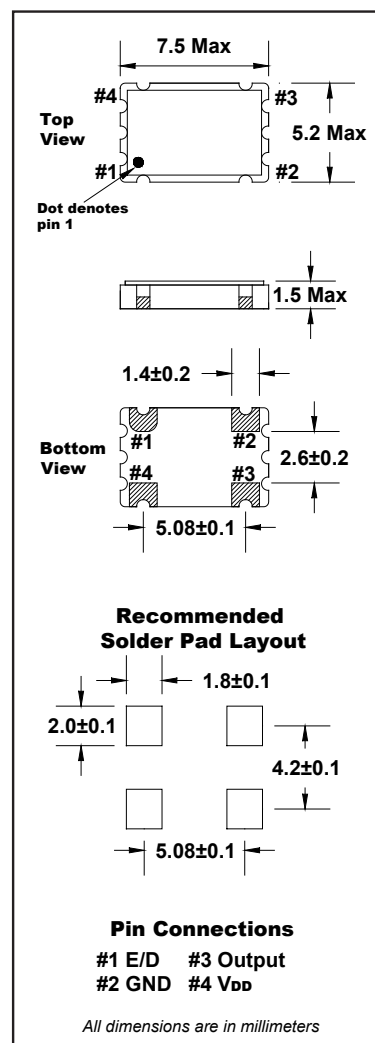
Certain non-critical visual attributes, such as side castellations, reference pin shape, etc. may vary. All specifications subject to change without notice.

XpressO® Equivalent

FXO-HC73

Why XpressO?

Lower Cost, Faster Delivery, Low Jitter!



## • ENABLE / DISABLE FUNCTION<sup>2</sup>

|                                                 |                |
|-------------------------------------------------|----------------|
| INH (Pin 1)                                     | OUTPUT (Pin 3) |
| OPEN <sup>2</sup>                               | ACTIVE         |
| '1' Level V <sub>IH</sub> ≥ 70% V <sub>DD</sub> | ACTIVE         |
| '0' Level V <sub>IL</sub> ≤ 30% V <sub>DD</sub> | High Z         |

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## • TAPE SPECIFICATIONS (millimeters)

| MODEL        | A    | B   | C   | D   | E    | F    | STD Reel QTY |
|--------------|------|-----|-----|-----|------|------|--------------|
| F4100 Series | Ø1.5 | 4.0 | 8.0 | 7.5 | 16.0 | 2.15 | 2,000        |

## • REEL SPECIFICATIONS (millimeters)

| MODEL        | G   | H   | I   | J   | K    | L    | M   |
|--------------|-----|-----|-----|-----|------|------|-----|
| F4100 Series | 2.0 | Ø13 | Ø21 | Ø80 | Ø255 | 17.5 | 2.0 |

