

# 3.3V, HCMOS, SMD Oscillator



Model: F4100 SERIES

RoHS Compliant / Pb Free

Rev. 2/26/2008

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Xpresso® Equivalent

[http://www.foxonline.com/need\\_a\\_sample.htm](http://www.foxonline.com/need_a_sample.htm)

FXO-HC73

Why Xpresso?

Lower Cost, Faster Delivery, Low Jitter!



## • PART NUMBER SELECTION [Learn More](#) - Internet Required

| 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       |

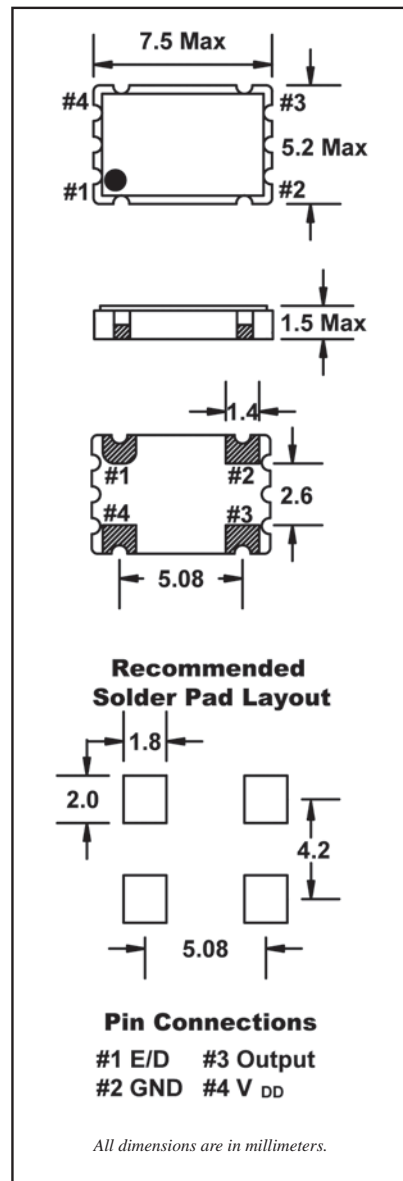
## • ELECTRICAL CHARACTERISTICS

| 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   |                              |
| 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.

| • 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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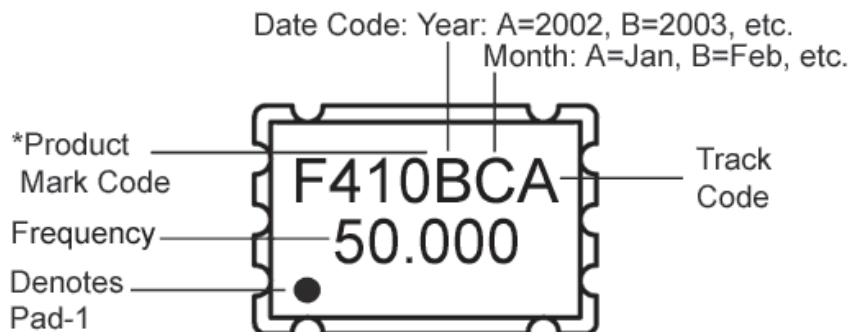
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## F4100 Series Marking Identification

Models: F4100, F4100R, F4105, F4105R, F4106, F4106R, F4108



- A 2002 A Jan
- B 2003 B Feb
- C 2004 C Mar
- D 2005 D Apr
- E 2006 E May
- F 2007 F Jun
- G 2008 G Jul
- H 2009 H Aug
- J 2010 J Sep
- K 2011 K Oct
- L 2012 L Nov
- M 2013 M Dec

\*F410 product marking code used for all F4100 model numbers. Frequency stability and operating temperature will not be identified from marking. External packaging labels and receiving invoice will correctly identify ordered Fox part number.

pm\_F4100.gif, Rev 01

### • TAPE SPECIFICATIONS (millimeters)

| MODEL        | A    | B   | C   | D   | E    | F    | STD Reel QTY |
|--------------|------|-----|-----|-----|------|------|--------------|
| F4100 Series | ∅1.5 | 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 | ∅13 | ∅21 | ∅80 | ∅255 | 17.5 | 2.0 |

