# HCMOS 2.5x2mm 1.8V Oscillator

**Model: F210 SERIES** **RoHS & REACH Compliant** **Rev. 9/17/2012**



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Need a Sample®

## FEATURES

- Standby Function
- Tape and Reel (3,000 pcs. STD)

## • PART NUMBER SELECTION

| Part Number | Model Number | Frequency Stability[1] | Operating Temperature (ºC) | Frequency Range (MHz) |
|---|---|---|---|---|
| 819-Frequency-xxxxx | F210 | ±100PPM | -10 ~ +70 | 0.750 ~ 50.000 |
| 819A-Frequency-xxxxx | F210R | ±100PPM | -40 ~ +85 | 0.750 ~ 50.000 |
| 819B-Frequency-xxxxx | F215 | ±50PPM | -10 ~ +70 | 0.750 ~ 50.000 |
| 819C-Frequency-xxxxx | F215R | ±50PPM | -40 ~ +85 | 0.750 ~ 50.000 |
| 819D-Frequency-xxxxx | F216 | ±25PPM | -10 ~ +70 | 0.750 ~ 50.000 |
| 819E-Frequency-xxxxx | F216R | ±25PPM* | -40 ~ +85 | 1.800 ~ 50.000 |

## • ELECTRICAL CHARACTERISTICS

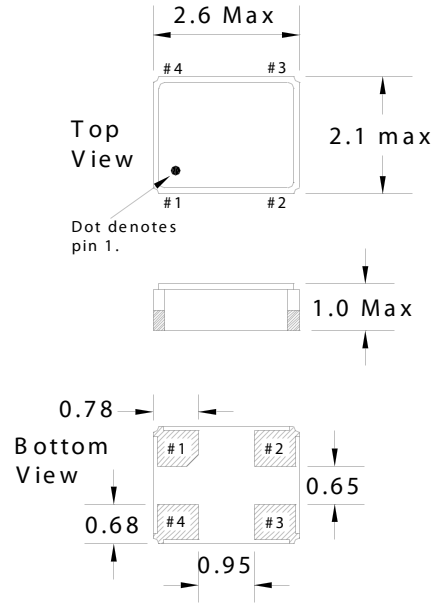
| PARAMETERS | MAX (unless otherwise noted) |
|---|---|
| Frequency Range (Fo) | 0.750 ~ 50.000 MHz |
| Storage Temperature Range (Tstg) | -55ºC ~ +100ºC |
| Supply Voltage (Vdd) | 1.8V ± 5% |
| Input Current (Idd) | |
| 0.750 ~ 10.000 MHz | 2.5mA |
| 10.000+ ~ 20.000 MHz | 3.5mA |
| 20.000+ ~ 30.000 MHz | 4.0mA |
| 30.000+ ~ 40.000 MHz | 4.5mA |
| 40.000+ ~ 50.000 MHz | 5.0mA |
| Output Symmetry (50% Vdd) | 45% ~ 55% |
| Rise Time (10% ~ 90% Vdd) | 10nS |
| Fall Time (90% ~ 10% Vdd) | 10nS |
| Output Voltage (Vol) | 10% Vdd |
| (Voh) | 90% Vdd Min |
| Output Current (Iol) | 2mA Min |
| (Ioh) | -2mA Min |
| Output Load (HCMOS) | 15pF |
| Standby Current | 10µA |
| Start-up Time (Ts) | 10mS |
| Output Disable Time [2] | 10uS |
| Output Enable Time [2] | 10mS |
| Reflow Soldering Temp | 260ºC / 10 Seconds |
| Moisture Sensitivity Level (MSL) | 1 |
| Termination Finish | Au |

[1] Inclusive of 25ºC tolerance, operating temperature range, input voltage change, load change, reflow, and one year aging *Excludes Shock/Vibration.

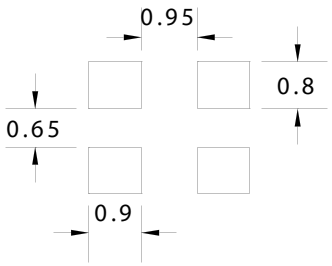
[2] An internal pullup resistor from pin 1 to pin 4 allows active output if pin 1 is left open.

Note: A 0.01µF capacitor should be placed between Vdd (Pin 4) and GND (Pin2) to minimize power supply 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.




Recommended Solder Pad Layout




***All dimensions are in millimeters.***

Pin Connections

| | |
|---|---|
| #1 E/D | #3 Output |
| #2 GND | #4 Vdd |

## • ENABLE / DISABLE FUNCTION

| Pin 1 | OUTPUT (Pin 3) |
|---|---|
| OPEN[2] | ACTIVE |
| '1' Level Vih ≥ 70% Vdd | ACTIVE |
| '0' Level Vil ≤ 30% Vdd | High Z |

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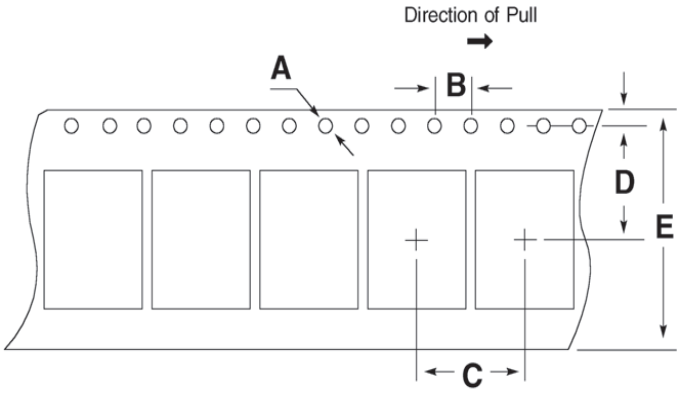
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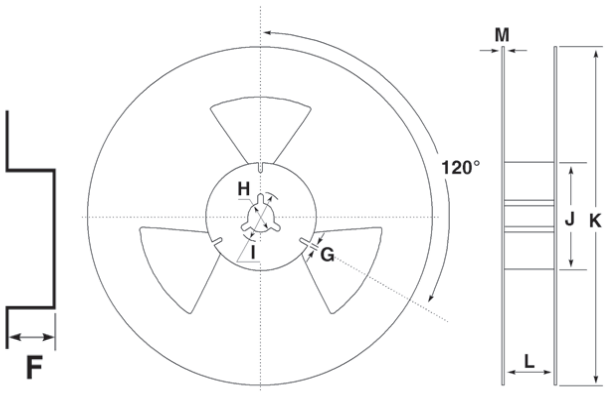
## • TAPE SPECIFICATIONS (millimeters)

| MODEL | A | B | C | D | E | F | STD Reel QTY |
|---|---|---|---|---|---|---|---|
| F210 Series | ∅1.5 | 4.0 | 4.0 | 3.5 | 8.0 | 1.15 | 3,000 |

## • REEL SPECIFICATIONS (millimeters)

| MODEL | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|
| F210 Series | 2.0 | ∅13 | ∅21 | ∅60 | ∅180 | 9.0 | 2.0 |






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