# HCMOS 2.5x2mm 3.3V Oscillator

**Model: F230 SERIES** | **RoHS Compliant / Pb Free** | **Rev. 12/2/2010**



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## FEATURES

- 3.3V Operation
- Standby Function
- Tape and Reel (3,000 pcs. STD)

## • PART NUMBER SELECTION

Learn More - Internet Required

| Part Number | Model Number | Frequency Stability[1] | Operating Temperature (ºC) | Frequency Range (MHz) |
|---|---|---|---|---|
| 781-Frequency-xxxxx | F230 | ±100PPM | -20 ~ +70 | 0.750 ~ 50.000 |
| 781R-Frequency-xxxxx | F230R | ±100PPM | -40 ~ +85 | 0.750 ~ 50.000 |
| 782-Frequency-xxxxx | F235 | ±50PPM | -20 ~ +70 | 0.750 ~ 50.000 |
| 782R-Frequency-xxxxx | F235R | ±50PPM | -40 ~ +85 | 0.750 ~ 50.000 |
| 783-Frequency-xxxxx | F236 | ±25PPM | -20 ~ +70 | 0.750 ~ 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) | 3.3V ± 5% |
| Input Current (IDD) | |
| 0.750 ~ 19.999 MHz | 7mA |
| 19.999+ ~ 39.999 MHz | 13mA |
| 39.999+ ~ 50.000 MHz | 19mA |
| Output Symmetry (50% VDD) | 45% ~ 55% |
| Rise Time (10% ~ 90% VDD) (TR) | 10nS |
| Fall Time (90% ~ 10% VDD) (TF) | 10nS |
| Output Voltage (VOL) | 10% VDD |
| (VOH) | 90% VDD Min |
| Output Current (IOL) | 5mA Min |
| (IOH) | -5mA Min |
| Output Load (HCMOS) | 15pF |
| Standby Current | 5µA |
| Start-up Time (Ts) | 10mS |
| Output Disable Time [2] | 150nS |
| Output Enable Time [2] | 10mS |
| Aging (Ta=25ºC: per year) | ± 5 PPM |
| Reflow Soldering Temp | 260ºC / 10 Seconds |
| Moisture Sensitivity Level (MSL) | 1 |
| Termination Finish | Au |

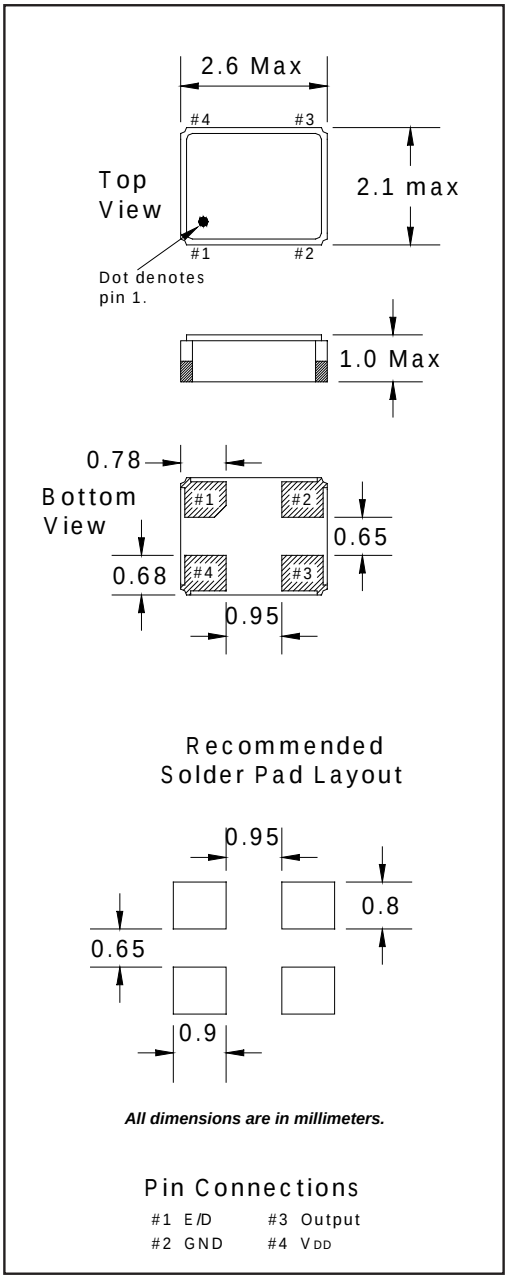
[1] Inclusive of 25ºC tolerance, operating temperature range, input voltage change, load change, shock, and vibration.

[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. All specifications subject to change without notice.

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

| INH (Pin 1) | OUTPUT (Pin 3) |
|---|---|
| OPEN | ACTIVE |
| '1' Level VIH ≥ 80% VDD | ACTIVE |
| '0' Level VIL ≤ 20% VDD | High Z |

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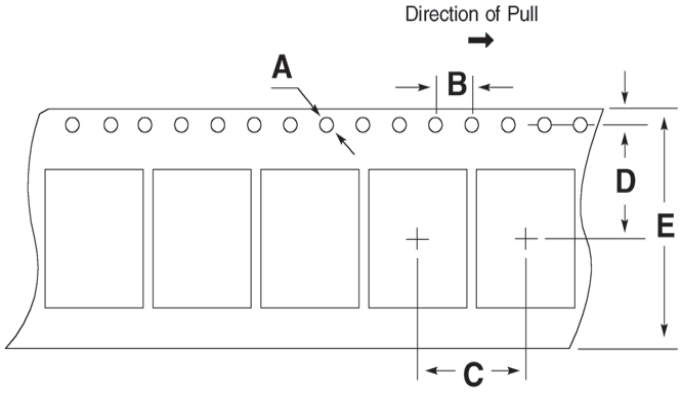
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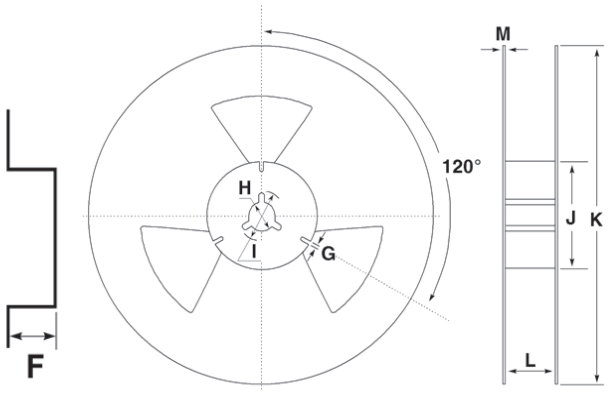
## • TAPE SPECIFICATIONS (millimeters)

| MODEL | A | B | C | D | E | F | STD Reel QTY |
|---|---|---|---|---|---|---|---|
| F230 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 |
|---|---|---|---|---|---|---|---|
| F230 Series | 2.0 | ∅13 | ∅21 | ∅60 | ∅180 | 9.0 | 2.0 |






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