

HCMOS 2.5x2.0mm 3.3V SMD Oscillator



Model: F230 Series

RoHS Compliant / Pb Free

Rev. 6/30/2011

Page 1 of 2

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FEATURES

- Tight Stability
- 3.3V Operation
- HCMOS Output
- 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 (°C)	Frequency Range (MHz)
833H-Frequency-xxxxx	F236R	±25PPM	-40 ~ +85	4.000 ~ 54.000
833-Frequency-xxxxx	F237	±15PPM	-10 ~ +70	4.000 ~ 54.000
833A-Frequency-xxxxx	F237R	±15PPM	-40 ~ +85	4.000 ~ 54.000
833B-Frequency-xxxxx	F239	±10PPM	-10 ~ +70	4.000 ~ 54.000
833C-Frequency-xxxxx	F239R	±10PPM	-40 ~ +85	4.000 ~ 54.000

• ELECTRICAL CHARACTERISTICS

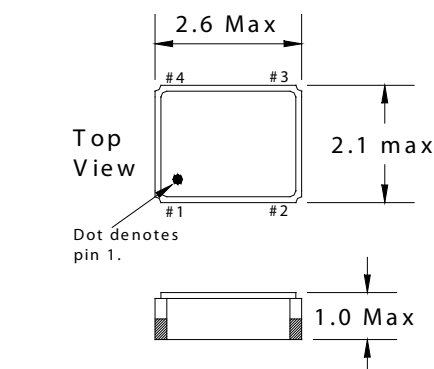
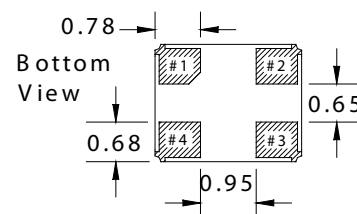
PARAMETERS	MAX (unless otherwise noted)
Frequency Range (Fo)	4.000 ~ 54.000 MHz
Storage Temperature Range	-40°C ~ +85°C
Supply Voltage (VDD)	3.3V ± 10%
Input Current	7mA
Output Symmetry (50% VDD)	45% ~ 55%
Rise Time (10% ~ 90% VDD)	5.0nS
Fall Time (90% ~ 10% VDD)	5.0nS
Output Voltage (VOL)	10% VDD
(VOH)	90% VDD Min
Output Current (IOL)	4mA Min
(IOH)	-4mA Min
Output Load (HCMOS)	15pF
Standby Current	10µA
Start-up Time (Ts)	10mS
Output Disable Time ²	250nS
Output Enable Time ²	10mS
Phase Noise (@ 10kHz offset)	-145dBc/Hz Typ.
Period Jitter	3pS RMS Typ.
Reflow Soldering Temp / Time	260°C / 10 Seconds
Moisture Sensitivity Level (MSL)	1
Termination Finish	Au over Ni

¹ Inclusive of 25°C tolerance, operating temperature range, input voltage change, load change, reflow and one year aging.

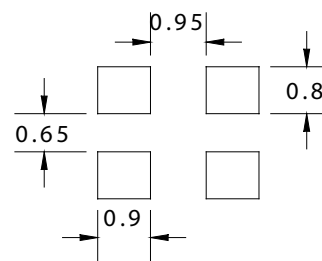
² An internal pullup resistor from pin 1 to pin 4 allows active output if pin 1 is left open.
Note: A 0.01µF bypass capacitor should be placed between VDD (Pin 4) and GND (Pin 2) to minimize power supply line noise.

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.



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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• TAPE SPECIFICATIONS (millimeters)							
MODEL	A	B	C	D	E	F	STD Reel QTY
F230	Ø1.5	4.0	4.0	3.5	8.0	1.15	3,000

• REEL SPECIFICATIONS (millimeters)							
MODEL	G	H	I	J	K	L	M
F230	2.0	Ø13	Ø21	Ø60	Ø180	9.0	2.0

