

# HCMOS 2.0x1.6mm 1.8V SMD Oscillator



Model: F110 SERIES

RoHS Compliant / Pb Free

Rev. 3/9/2011

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## FEATURES

- 1.8V Operation
- Standby Function
- Tape and Reel (3,000 pcs. STD)

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

Part Number	Model Number	Frequency Stability	Operating Temperature (°C)	Frequency Range (MHz)
836-Frequency-xxxxx	F110	±100PPM <sup>1</sup>	-20 ~ +70	1.000 ~ 80.000
836A-Frequency-xxxxx	F110R	±100PPM <sup>1</sup>	-40 ~ +85	1.000 ~ 80.000
836B-Frequency-xxxxx	F115	±50PPM <sup>1</sup>	-20 ~ +70	1.000 ~ 80.000
836C-Frequency-xxxxx	F115R	±50PPM <sup>1</sup>	-40 ~ +85	1.000 ~ 80.000
836D-Frequency-xxxxx	F116	±25PPM <sup>2</sup>	-10 ~ +60	1.000 ~ 80.000

## • ELECTRICAL CHARACTERISTICS

PARAMETERS	MAX (unless otherwise noted)
Frequency Range (Fo)	1.000~ 80.000 MHz
Storage Temperature Range (TSTG)	-40°C ~ +85°C
Supply Voltage (VDD)	1.8V ± 10%
Input Current (IDD)	
1.000000 ~ 40.000000 MHz	5mA
40.000001 ~ 60.000000 MHz	10mA
60.000001 ~ 80.000000 MHz	15mA
Output Symmetry (50% VDD)	45% ~ 55%
Rise Time (10% ~ 90% VDD)	6nS
Fall Time (90% ~ 10% VDD)	6nS
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)	5mS
Output Disable Time <sup>3</sup>	50uS
Output Enable Time <sup>3</sup>	5mS
Maximum Soldering Temp / Time	260°C / 10 Seconds
Moisture Sensitivity Level (MSL)	1
Termination Finish	Au over Ni

<sup>1</sup> Inclusive of 25°C tolerance, operating temperature range, input voltage change, load change, reflow freq. shift and one year aging.

<sup>2</sup> Inclusive of 25°C tolerance and operating temperature range.

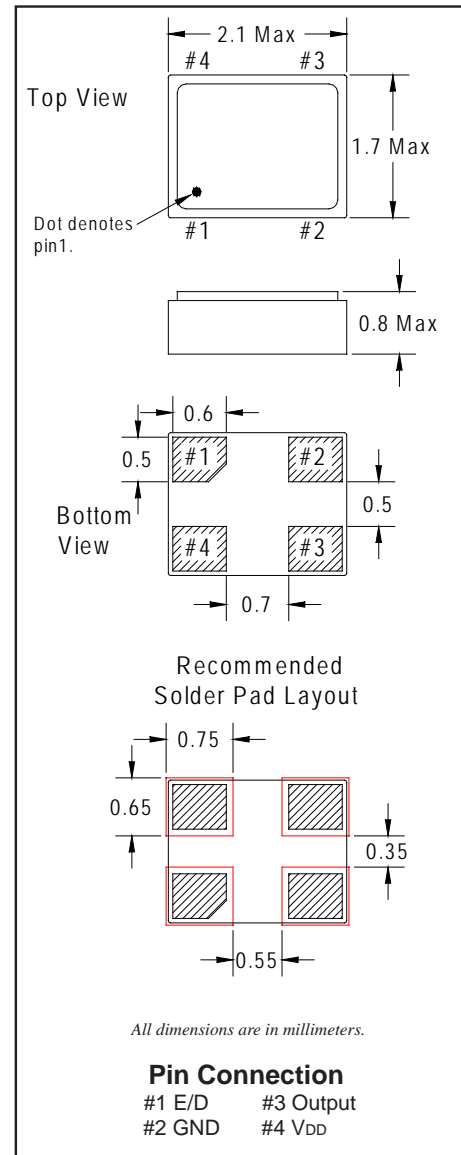
<sup>3</sup> An internal pullup resistor from pin 1 to pin 4 allows active output if pin 1 is left open.

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

Dimensional 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

Pin 1	OUTPUT (Pin 3)
OPEN <sup>3</sup>	ACTIVE
'1' Level $V_{IH} \geq 70\% V_{DD}$	ACTIVE
'0' Level $V_{IL} \leq 30\% V_{DD}$	High Z

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Need a  
Sample<sup>®</sup>

• TAPE SPECIFICATIONS (millimeters)							
MODEL	A	B	C	D	E	F	STD Reel QTY
F110 Series	∅1.5	4.0	4.0	3.5	8.0	0.95	3,000

• REEL SPECIFICATIONS (millimeters)							
MODEL	G	H	I	J	K	L	M
F110 Series	2.0	∅13	∅21	∅60	∅180	9.0	1.7

