

# Preliminary

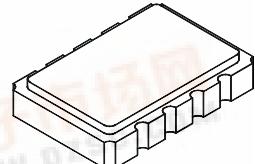


- Quartz SAW Frequency Stability
- Fundamental Fixed Frequency
- Very Low Jitter and Power Consumption
- Rugged, Miniature, Surface-Mount Case
- Low-Voltage Power Supply (3.3 VDC)

This digital clock is designed for use with high-speed CPUs and digitizers. Fundamental-mode oscillation is made possible by surface-acoustic-wave (SAW) technology. The design results in low jitter, compact size, and low power consumption. Differential outputs provide a sine wave that is capable of driving 50  $\Omega$  loads.

## SC3015B

### 550.0 MHz Differential Sine-Wave Clock



SMC-8B Case

Rating	Value	Units
Power Supply Voltage ( $V_{CC}$ at Terminal 1)	0 to +4.0	VDC
Input Voltage (ENABLE at Terminal 8)	0 to +4.0	VDC
Case Temperature (Powered or Storage)	-40 to +85	°C

#### Electrical Characteristics

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Output Frequency	$f_O$	1, 2	549.89	550.0	550.11	MHz
	$\Delta f_O$				$\pm 200$	ppm
Q and Q Output	$V_O$	1, 3	0.60		1.1	V <sub>P-P</sub>
					2:1	
		3, 4, 5	49		51	%
		3, 4, 6			-30	dBc
					-60	dBc
Q and Q Period Jitter		3, 4, 6, 7		15	30	ps <sub>P-P</sub>
		3, 4, 7, 8			35	ps <sub>P-P</sub>
Output (Disabled)		3, 9			75	mV <sub>P-P</sub>
Output DC Resistance (between Q & $\bar{Q}$ )		3	50			k $\Omega$
ENABLE (Terminal 14)	$V_{IH}$	3, 9	$V_{CC}-0.1$	$V_{CC}$	$V_{CC}+0.1$	V
	$V_{IL}$		0.0		0.20	V
	$I_{IH}$			3	5	mA
	$I_{IL}$				-1	mA
	$t_{PD}$				1	ms
DC Power Supply	$V_{CC}$	1, 3	+3.13	+3.30	+3.47	VDC
	$I_{CC}$			20	40	mA
Operating Ambient Temperature	$T_A$	1, 3	0		+70	°C
Lid Symbolization (YY = Year, WW = Week)				RFM SC3015B 550.00 MHz YYWW		

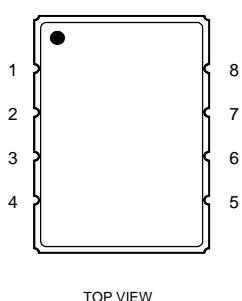
 **CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**  
**NOTES:**

- Unless otherwise noted, all specifications include any combination of load VSWR,  $V_{CC}$ , and  $T_A$ . In addition, Q and  $\bar{Q}$  are terminated into 50  $\Omega$  loads to ground. (See: Typical Test Circuit.)
- One or more of the following United States patents apply: 4,616,197; 4,670,681; 4,760,352.
- The design, manufacturing process, and specifications of this device are subject to change without notice.
- Only under the nominal conditions of 50  $\Omega$  load impedance with VSWR  $\leq 1.2$  and nominal power supply voltage.
- Symmetry is defined as the pulse width (in percent of total period) measured at the 50% points of Q or  $\bar{Q}$ . (See: Timing Definitions.)
- Jitter and other spurious outputs induced by externally generated electrical noise on  $V_{CC}$  or mechanical vibration are not included. Dedicated external voltage regulation and careful PCB layout are recommended for optimum performance. Applies to period jitter of Q and  $\bar{Q}$ . Measurements are made with the Tektronix CSA803 signal analyzer with at least 1000 samples.
- Period jitter measured with a 200 mV<sub>P-P</sub> sine wave swept from 1 MHz to one-half of  $f_O$  at the  $V_{CC}$  power supply terminal.
- The outputs are enabled when Terminal 8 is at logic HIGH. Propagation delay is defined as the time from the 50% point on the rising edge of ENABLE to the 90% point on the rising edge of the output amplitude or as the fall time from the 50% point to the 10% point. (SEE: Timing Definitions.)

# 550.0 MHz

## Electrical Connections

Terminal Number	Connection
1	V <sub>CC</sub>
2	Ground
3	NC or Ground
4	Q Output
5	$\bar{Q}$ Output
6	Ground
7	ENABLE
8	Ground
LID	Ground



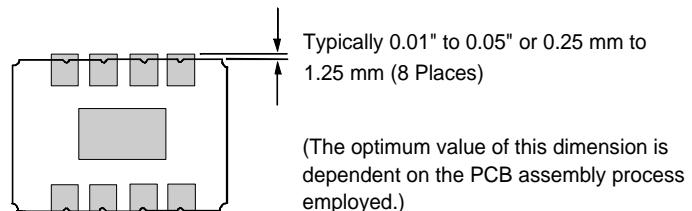
## Footprint

Actual size footprint:



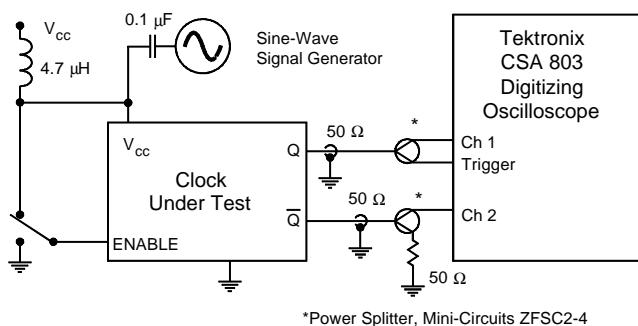
## Typical Printed Circuit Board Land Pattern

A typical land pattern for a circuit board is shown below. Grounding of the metallic center pad is optional.



(The optimum value of this dimension is dependent on the PCB assembly process employed.)

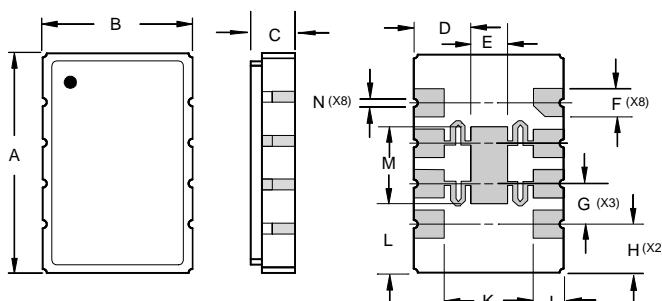
## Typical Test Circuit



## Case Design

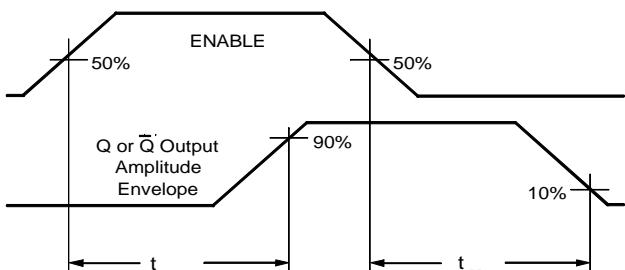
All pads consist of 30 microinches (min) electroless gold on 50 micro-inches (min) electroless nickel over base metal. The metallic center pad was designed for mechanical support. Grounding of this pad is optional.

Lid symbolization, including terminal 1 locator dot, are in contrasting ink. Symbolization varies by model number. For purposes of illustration, only terminal 1 dot is shown.

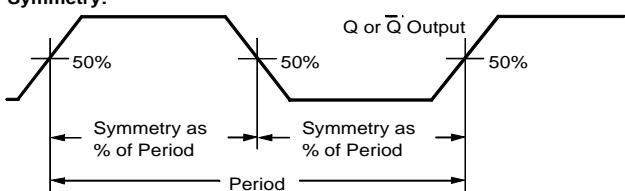


## Timing Definitions

### Propagation Delay:



### Symmetry:



Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A	13.46	13.97	0.530	0.550
B	9.14	9.66	0.360	0.380
C	2.05 Nominal		0.081 Nominal	
D	3.56 Nominal		0.141 Nominal	
E	2.24 Nominal		0.088 Nominal	
F	1.27 Nominal		0.050 Nominal	
G	2.54 Nominal		0.100 Nominal	
H	3.05 Nominal		0.120 Nominal	
J	1.93 Nominal		0.076 Nominal	
K	5.54 Nominal		0.218 Nominal	
L	4.32 Nominal		0.170 Nominal	
M	4.83 Nominal		0.190 Nominal	
N	0.50 Nominal		0.020 Nominal	