

- *Ideal for European 868.35 MHz Transmitters*
- *Very Low Series Resistance*
- *Quartz Stability*
- *Complies with Directive 2002/95/EC (RoHS)*
- *Tape and Reel Standard per ANSI/EIA-481*
- *Moisture Sensitivity Level: 1*
- *AEC-Q200 Qualified*

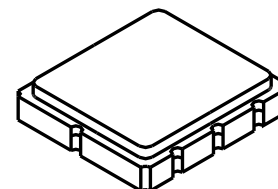
The RO3164C is a true one-port, surface-acoustic-wave (SAW) resonator in a surface-mount ceramic case. It provides reliable, fundamental-mode, quartz frequency stabilization of fixed-frequency transmitters operating at 868.35 MHz.

#### Absolute Maximum Ratings

Rating	Value	Units
Input Power Level	10	dBm
DC Voltage	12	VDC
Storage Temperature	-40 to +85	°C
Operating Temperature	-40 to +85	°C

**RO3164C**

**868.35 MHz  
SAW  
Resonator**



**SM5050-8 Case  
5 X 5**

#### Electrical Characteristics

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Frequency (+25 °C) Nominal Frequency	RO3164C	$f_C$	868.150		868.550	MHz
Tolerance from 868.35 MHz	RO3164C	$\Delta f_C$			$\pm 200$	kHz
Insertion Loss	IL			1.1	2.5	dB
Quality Factor	Unloaded Q	$Q_U$		7000		
	50 $\Omega$ Loaded Q	$Q_L$		671		
Temperature Stability	Turnover Temperature	$T_O$	10	25	40	°C
	Turnover Frequency	$f_O$		$f_C$		kHz
	Frequency Temperature Coefficient	FTC		0.032		ppm/°C <sup>2</sup>
Frequency Aging	Absolute Value during the First Year	fA		< $\pm 10$		ppm/yr
DC Insulation Resistance between Any Two Terminals			1.0			M $\Omega$
RF Equivalent RLC Model	Motional Resistance	$R_M$		10.8		$\Omega$
	Motional Inductance	$L_M$		13.6		$\mu H$
	Motional Capacitance	$C_M$		2.5		fF
	Shunt Static Capacitance	$C_O$		2.1		pF
Test Fixture Shunt Inductance	$L_{TEST}$			16		nH
Lid Symbolization (Y = Year, WW = Week, S = Shift)				799 / YWWS		



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

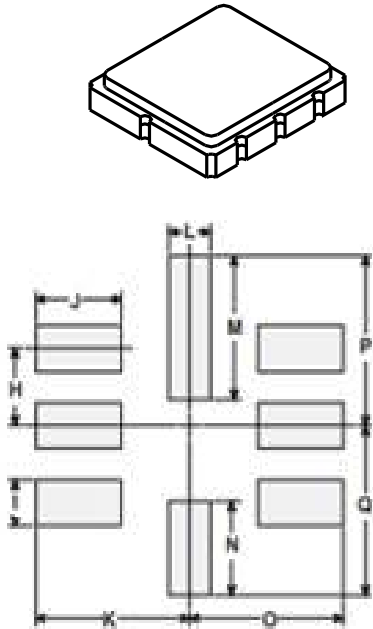
#### NOTES:

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

# SM5050-8 Surface-Mount 8-Terminal Ceramic Case

## 5.0 X 5.0 mm Nominal Footprint

### Case Dimensions



Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	4.80	5.00	5.20	0.189	0.197	0.205
B	4.80	5.00	5.20	0.189	0.197	0.205
C	1.30	1.50	1.70	0.050	0.060	0.067
D	1.98	2.08	2.18	0.078	0.082	0.086
E	1.07	1.17	1.27	0.042	0.046	0.050
F	0.50	0.64	0.70	0.020	0.025	0.028
G	2.39	2.54	2.69	0.094	0.100	0.106
H		1.27			0.050	
I		0.76			0.030	
J		1.55			0.061	
K		2.79			0.110	
L		0.76			0.030	
M		2.36			0.093	
N		1.55			0.061	
O		2.79			0.110	
P		2.79			0.110	
Q		2.79			0.110	

PCB Footprint

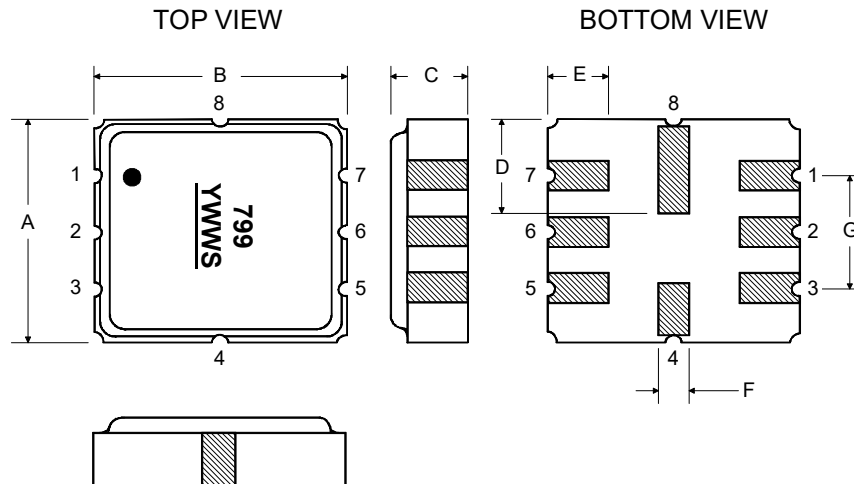
### Case Materials

Materials	
Solder Pad Plating	0.3 to 1.0 $\mu\text{m}$ Gold over 1.27 to 8.89 $\mu\text{m}$ Nickel
Lid Plating	2.0 to 3.0 $\mu\text{m}$ Nickel
Body	$\text{Al}_2\text{O}_3$ Ceramic

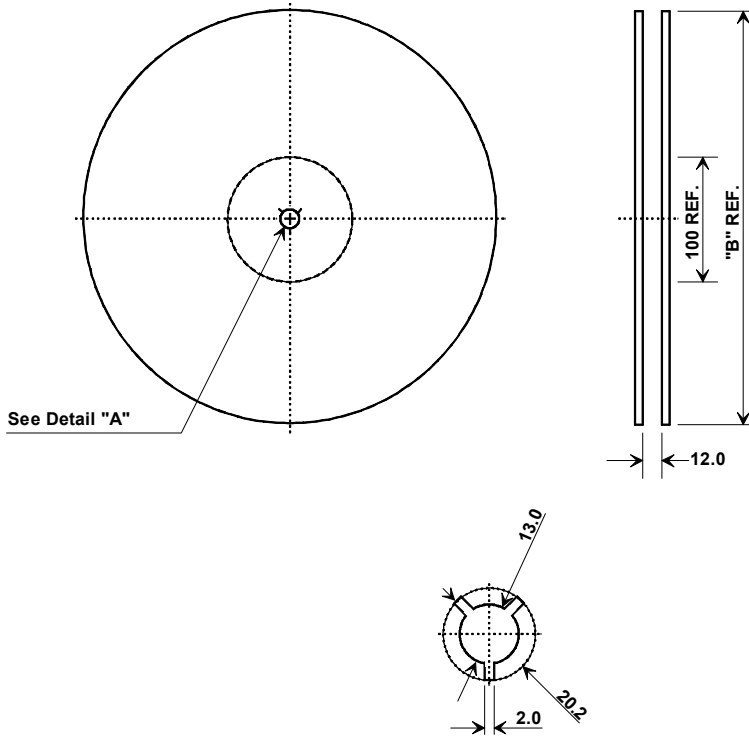
### Electrical Connections

Connection		Terminals
Port 1	Input	2
Port 2	Output	6
	Ground	All others

Dot indicates Pin 1



## Tape and Reel Specifications

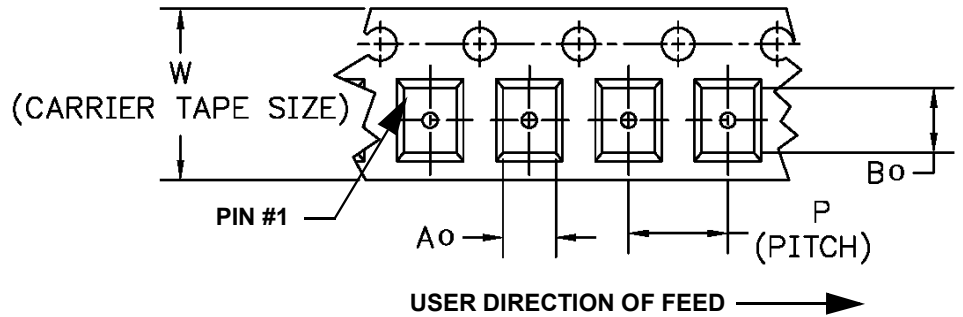
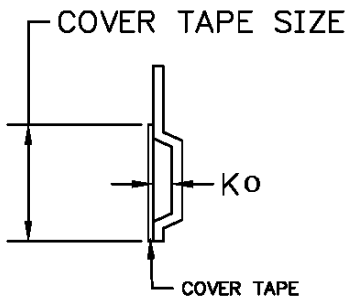


Tape and Reel Standard per ANSI/EIA-481

"B"		Quantity Per Reel
Nominal Size		
Inches	millimeters	
7	178	500
13	330	3000

### COMPONENT ORIENTATION and DIMENSIONS

Carrier Tape Dimensions	
A <sub>0</sub>	5.3 mm
B <sub>0</sub>	5.3 mm
K <sub>0</sub>	2.0 mm
Pitch	8.0 mm
W	12.0 mm



## Recommended Reflow Profile

1. Preheating shall be fixed at 150~180°C for 60~90 seconds.
2. Ascending time to preheating temperature 150°C shall be 30 seconds min.
3. Heating shall be fixed at 220°C for 50~80 seconds and at 260°C +0/-5°C peak (10 seconds).
4. Time: 5 times maximum.

