

Approved by:
Checked by:
Issued by:

# **SPECIFICATION**

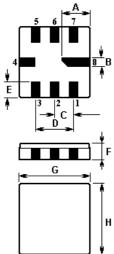
PRODUCT:	SAW RESONATOR		
MODEL:	HR868.3A	QCC8C	

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# HOPE MICROELECTRONICS CO.,LIMITED

The HR868.3A is a true one-port, surface-acoustic-wave (**SAW**) resonator in a surface-mount ceramic **QCC8C** case. It provides reliable, fundamental-mode, quartz frequency stabilization i.e. in transmitters or local oscillators operating at **868.300** MHz.

### 1.Package Dimension (QCC8C)



Pin	Configuration
2	Terminal1
6	Terminal2
4,8	Case Ground
1,3,5,7	Empty

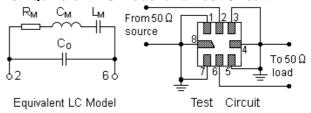
Sign	Data (unit: mm)	Sign	Data (unit: mm)	
Α	2.08	Е	1.2	
В	0.6	F	1.35	
С	1.27	G	5.0	
D	2.54	Н	5.0	

## 2.Marking

### HR868.3A

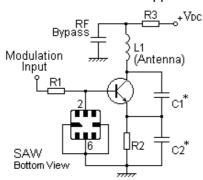
Laser Marking

#### 3. Equivalent LC Model and Test Circuit

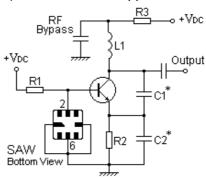


#### 4. Typical Application Circuits

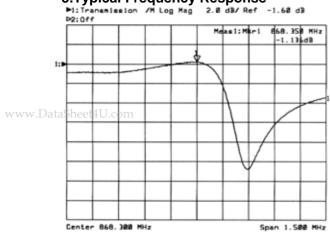
#### 1) Low-Power Transmitter Application



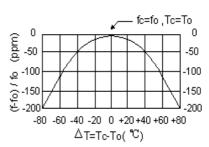
#### 2) Local Oscillator Application



## 5. Typical Frequency Response



#### **6.Temperature Characteristics**



The curve shown above accounts for resonator contribution only and does not include oscillator temperature characteristics.

#### 7.Performance

#### 7-1.Maximum Ratings

Rating		Value	Unit
CW RF Power Dissipation	Р	0	dBm
DC Voltage Between Terminals	$V_{DC}$	± 30	V
Storage Temperature Range	$T_{ m stg}$	-40 to +85	
Operating Temperature Range	$T_{A}$	-10 to +60	

#### 7-2. Electronic Characteristics

	Characteristic	Sym	Minimum	Typical	Maximum	Unit
Center Frequency (+25 )	Absolute Frequency	f <sub>C</sub>	868.150		868.450	MHz
	Tolerance from 868.300 MHz	$\Delta f_{C}$		± 150		kHz
Insertion Loss		IL		1.5	2.2	dB
Quality Factor	Unloaded Q	Q <sub>U</sub>		10,020		
	50 Ω Loaded Q	$Q_L$		1,600		
Temperature Stability	Turnover Temperature	T <sub>0</sub>	25		55	
	Turnover Frequency	$f_0$		f <sub>C</sub>		kHz
	Frequency Temperature Coefficient	FTC		0.032		ppm/ <sup>2</sup>
Frequency Aging Absolute Value during the First Year		fA		10		ppm/yr
DC Insulation Resis	tance Between Any Two Terminals		1.0		M	
RF Equivalent RLC Model	Motional Resistance	$R_{M}$		19	29	Ω
	Motional Inductance	L <sub>M</sub>		34.9170		μН
	Motional Capacitance	См		0.96317		fF
	Shunt Static Capacitance	C <sub>0</sub>	2.20	2.50	2.80	pF

(i) CAUTION: Electrostatic Sensitive Device. Observe precautions for handling!

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- 1. The center frequency, f<sub>C</sub>, is measured at the minimum IL point with the resonator in the 50 test system.
- Unless noted otherwise, case temperature T<sub>C</sub> = +25°C±2°C.
- Frequency aging is the change in f<sub>C</sub> with time and is specified at +65°C or less. Aging may exceed the specification for prolonged temperatures above +65°C. Typically, aging is greatest the first year after manufacture, decreasing in subsequent years.
- 4. Turnover temperature,  $T_0$ , is the temperature of maximum (or turnover) frequency,  $f_0$ . The nominal frequency at any case temperature,  $T_C$ , may be calculated from:  $f = f_0 [1 FTC (T_0 T_C)^2]$ .
- 5. This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only. The capacitance C<sub>0</sub> is the measured static (nonmotional) capacitance between the two terminals. The measurement includes case parasitic capacitance.
- 6. Derived mathematically from one or more of the following directly measured parameters: f<sub>c</sub>, IL, 3 dB bandwidth, www.DataShe.f<sub>c</sub>;versus T<sub>c</sub>, and C<sub>0</sub>.
  - The specifications of this device are based on the test circuit shown above and subject to change or obsolescence without notice.
  - 8. Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
  - Our liability is only assumed for the Surface Acoustic Wave (SAW) component(s) per se, not for applications, processes and circuits implemented within components or assemblies.
  - 10. For questions on technology, prices and delivery, please contact our sales offices or e-mail sales@hoperf.com.