

Product Specification

Abundance Enterprise Co.

Original Date

12/04/2008

PN:

SR433.92-75-TO39

**AEC**[®]

Abundance Enterprise Co.

PRODUCT SPECIFICATION**SAW RESONATOR****AEC PART NUMBER / SPEC. NO:** SR433.92-75-TO39

This model is ROHS/PB-free compliance according to the
ROHS directive 2002/95/EC

Customer's Name	Schukat electronic Vertriebs GmbH
Production Name	SAW RESONATOR
Frequency	433.92MHz
Model No	TO39
Issue Date	15 th Oct, 2013

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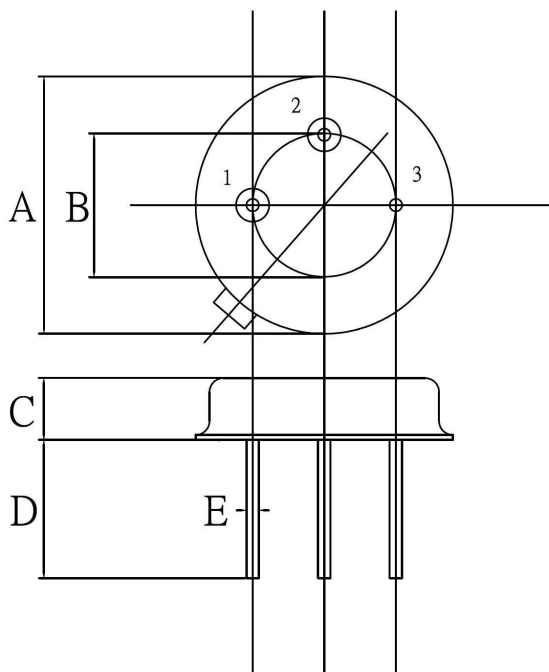
Prepared	Inspection	Approved
<i>Nathan</i>	<i>Andy</i>	<i>Henkie</i>

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1. GENERAL PROVISION

The SR433.92 is a true one- port , surface- acoustic- wave(SAW) resonator in a low- profile TO-39 case. It provides reliable , fundamental- mode , quartz frequency stabilization of fixed- frequency transmitters operating at 433.92 MHz.

2. DIMENSION

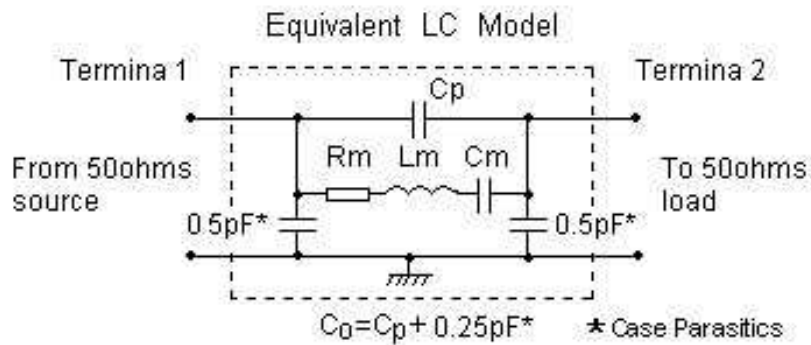


Pin	Connection
1	Terminal 1
2	Terminal 2
3	Case Ground

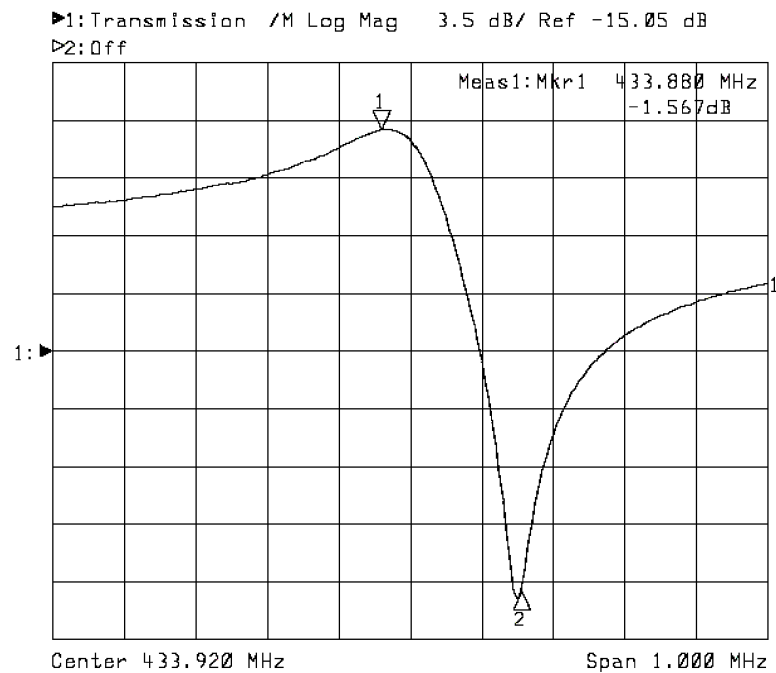
Dimensions	Data (Unit: mm)
A	9.30±0.20
B	5.08±0.10
C	3.40±0.20
D	3±0.20
E	0.45±0.20

<div>AEC[®]</div> <div>Abundance Enterprise Co.</div>		NO.	Revised DATE	MODIFY CONTENTS		
		1	2006.12.15	NEW UPDATE		
DIMENTION	mm					
SCALE		PART NAME		SAW RESONATOR		
TOLERANCE	±0.2	MODEL		TO39		
DRAWING NO.				APPV'D BY	CHECK BY	DRAWN BY
433.92-TO39				Henkie	Andy	Nathan

3. EQUIVALENT LC MODEL AND TEST CIRCUIT



4. FREQUENCY RESPONSE



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5. ELECTRICAL SPECIFICATION

5-1.Maximum Rating

Rating	Value	Units
CW RF Power Dissipation	+10	dBm
DC Voltage Between Any Two Pins	$\pm 30V$	VDC
Case Temperature	-40 to +85	$^{\circ}C$

5-2.Electronic Characteristic

Reference temperature: $T_A = 25^{\circ}C$

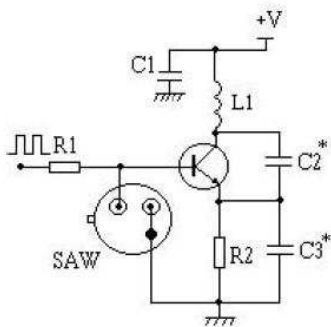
Terminating source impedance: $Z_s = 50\Omega$ and matching network

Terminating load impedance: $Z_L = 50\Omega$ and matching network

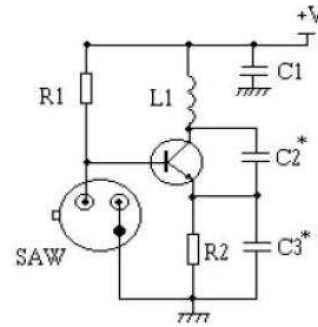
Characteristic		Sym	Minimum	Typical	Maximum	Units
Center Frequency (+25 $^{\circ}C$)	Absolute Frequency	f_c	433.845		433.995	MHz
	Tolerance from 433.92 MHz	Δf_c		± 75		kHz
Insertion Loss		IL		1.5		dB
Quality Factor	Unloaded Q	Q_U		11,274		
	50 Ω Loaded Q	Q_L		1,800		
Temperature Stability	Turnover Temperature	T_o	25	40	55	$^{\circ}C$
	Turnover Frequency	f_o		fc		kHz
	Frequency Temperature	FTC		0.037		ppm/ $^{\circ}C$
Frequency Aging Absolute Value during the First		$ f_A $		≤ 10		ppm/yr
DC Insulation Resistance Between Any Two Pins			1.0			M Ω
RF Equivalent RLC Model	Motional Resistance	R_M		19	23	Ω
	Motional Inductance	L_M		78.605		μH
	Motional Capacitance	C_M		1.7132		fF
	Pin 1 to Pin 2 Static Capacitance	C_O		1.9		pF

6. TYPICAL APPLICATION CIRCUIT

1) Typical Low-Power Transmitter Application



2) Typical Local Oscillator Application



8. REMARKS

1. Frequency aging is the change in f_c with time and is specified at $+65^\circ\text{C}$ or less. Aging may exceed the specification for prolonged temperatures above $+65^\circ\text{C}$. Typically, aging is greatest the first year after manufacture, decreasing in subsequent years.
2. The center frequency, f_c , is the frequency of minimum IL with the resonator in the specified test fixture in a $50\ \Omega$ test system with $\text{VSWR} \leq 1.2 : 1$. Typically, $f_{\text{oscillator}}$ or $f_{\text{transmitter}}$ is less than the resonator f_c .
3. Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
4. Unless noted otherwise, case temperature $T_c = +25^\circ\text{C} \pm 2^\circ\text{C}$.
5. The design, manufacturing process, and specifications of this device are subject to change without notice.
6. Derived mathematically from one or more of the following directly measured parameters: f_c , IL, 3 dB bandwidth, f_c versus T_c , and C_0 .
7. Turnover temperature, T_0 , is the temperature of maximum (or turnover) frequency, f_0 . The nominal center frequency at any case temperature, T_c , may be calculated from $f = f_0 [1 - \text{FTC} (T_0 - T_c)^2]$. Typically, oscillator T_0 is 20°C less than the specified resonator T_0 .
8. This equivalent RLC model approximates resonator performance near the resonant

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frequency and is provided for reference only. The capacitance C_O is the measured static (non motional) capacitance between either pin 1 and ground or pin 2 and ground. The measurement includes case parasitic capacitance with a floating case. For usual grounded case applications (with ground connected to either pin 1 or pin 2 and to the case), add approximately 0.25 pF to C_O .