

# **MOBICON**

## **Electronic Components**

### **PRODUCT SPECIFICATION**

#### **MEC**

#### **FREQUENCY COMPONENTS**

#### **SAW RESONATOR SPECIFICATION**

<b>MOBICON HOLDINGS LTD.</b>		
<b>Prepared By</b>	<b>Sign.</b>	<b>Approved By</b>
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**[www.mobicon.com](http://www.mobicon.com)**

## AUKR310A 310.00MHz One-Port SAW Resonator

- Ideal for "310.00" MHz AM Transmitters used in Automotive-Keyless-Entry Applications, Operating in the USA under FCC Part 15, in Canada under DoC RSS-210, and in Italy
- Very Low Series Resistance
- Quartz Stability
- Rugged, Hermetic, Low-Profile TO-39 Case



### Absolute Maximum Rating

Rating	Value	Units
CW RF Power Dissipation	+0	dbm
DC Voltage between Any Two Pins	±0	V
Case Temperature	-40 to +85	

TO39-3 Case

### Electrical Characteristics

Characteristic		Sym.	Min.	Typ.	Max.	Unit
Center Frequency (25 °C)	Absolute Frequency	$f_c$	309.925		310.075	MHz
	Tolerance from 310.00MHz	$f_c$		±5		kHz
Insertion Loss		IL		1.0	2.0	dB
Quality Factor	Unloaded Q	$Q_U$		11800		
	50 Ω loaded Q	$Q_L$		2000		
Temperature Stability	Turnover Temperature	$T_O$	37	52	67	
	Turnover Frequency	$f_O$		$f_c + 8.4$		kHz
	Frequency Temperature Coefficient	FTC		0.037		ppm/°C <sup>2</sup>
Frequency Aging (Value during the First Year)		$f_A$			10	ppm/yr
RF Equivalent RLC Model	Motional Resistance	$R_M$		43	78	
	Motional Inductance	$L_M$		260.26		μH
	Motional Capacitance	$C_M$		1.0124		pF
	Pin 1 to Pin2 Static Capacitance	$C_O$	2.0	2.5	3.0	pF
	Transducer Static Capacitance	$C_P$		2.2		pF
DC Insulation Resistance between Any Two Pins			1.0			M

### NOTES:

1. Test Fixture Shunt Inductance  $L_{TEST}$  2, 7 83 nH  
Unless noted otherwise, case temperature  $T_c = +25 \pm 0.5$  °C.
2. The center frequency  $f_c$  is measured at the minimum insertion loss point,  $IL_{Min}$ , with the resonator in the 50 Ω test system (VSWR = 1.2:1). The shunt inductance,  $L_{test}$ , is tuned for parallel resonance with  $C_o$  at  $f_c$ . Typically,  $f_{OSCILLATOR}$  or  $f_{TRANSMITTER}$  is approximately equal to the resonator  $f_c$ .
3. Turnover temperature,  $T_o$ , is the temperature of maximum (or turnover) frequency,  $f_o$ . The nominal frequency at any case temperature,  $T_c$ , may be calculated from:  $f = f_o(1 - FTC(T_o - T_c)^2)$ . Typically oscillator  $T_o$  is 20 °C less than the specified resonator  $T_o$ .
4. Frequency aging is the change in  $f_c$  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.
5. This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only. The capacitance  $C_o$  is the static (nonmotional) capacitance between pin1 and pin2 measured at low frequency (10MHz) with a capacitance meter. 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 0.25pF to  $C_o$ .
6. Derived mathematically from one or more of the following directly measured parameters:  $f_c$ , IL, 3dB bandwidth,  $f_c$  versus  $T_c$  and  $C_o$ .
7. Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
8. Electrostatic Sensitive Device, observe precautions for handling.

# MEC

## REVIEW OF SPECIFICATIONS

- 1) When something get doubtful with this specifications, we shall jointly work to get an agreement.
- 2) This specification limits the quality of the components as a single unit. Please insure the component is thoroughly evaluated in your application circuit.
- 3) Please do not use this component in any application that deviates from its intended use as noted within the specification. It may cause any mishaps.
- 4) Please return one of this specification after your signature of acceptance. In case of no return within 3 months from submission date. This specification should be treated as accepted.

### **When using our products, the following precautions should be taken.**

- (1) Safety designing of apparatus or a system allowing for failures of electronic components used in the system  

In general, failures will occur in electronic components at a certain probability. MOBICON HOLDINGS LTD makes every effort to improve the quality and reliability of electronic component products. However, it is impossible to completely eliminate the probability of failures. Therefore, when using MOBICON HOLDINGS LTD electronic component products, systems should be carefully designed to ensure redundancy in the event of an accident which would result in injury or death, fire, or social damage, to ensure the prevention of the spread of fire, and the prevention of faulty operation.
- (2) Quality Level of various kinds of parts, and equipment in which the parts can be utilized  

Electronic components have a standard quality level unless otherwise specified.
- (3) This specifications is subject to change without notice.  

The contents of this specifications are based on data which is correct as of 2002, and they may be changed without notice. If our products are used for mass-production design, please enquire consult with a member of our company's sales staff by way of precaution.
- (4) Reprinting and copying of this specifications without prior written permission from MOBICON HOLDINGS LTD are not permitted.
- (5) Industrial Property Problems  

In the event any problems associated with industrial property of a third party arising as a result of the use of our products. MOBICON HOLDINGS LTD assumes no responsibility for problems other than problems directly associated with the constitution and manufacturing method of the products.



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