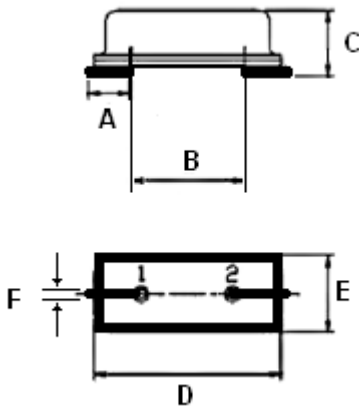


## APPLICATION

Wireless Remote Control & Alarm  
 Consumer Electronics  
 Communication

The SJK315AS is a true one- port, surface- acoustic- wave( SAW) resonator in a low- profile SMD HC-49S case. It provides reliable, fundamental- mode, quartz frequency stabilization of fixed- frequency transmitters operating at 315.00 MHz.

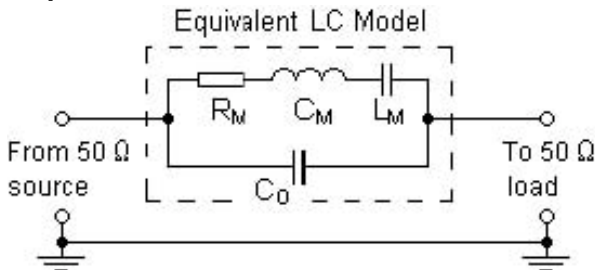
### 1. Package Dimension (SMD HC-49S)



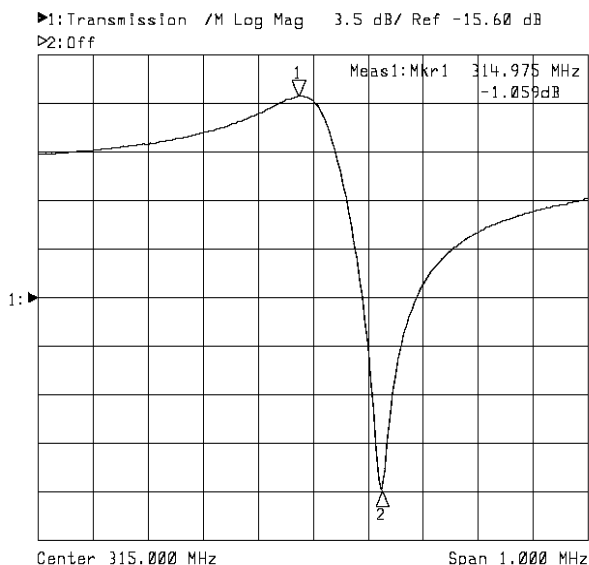
Pin	Connection
1	Input
2	Output

Dimension	Data (unit: mm)
A	3.70±0.20
B	4.88±0.20
C	3.20 max
D	11.50max
E	4.70max
F	0.70±0.20

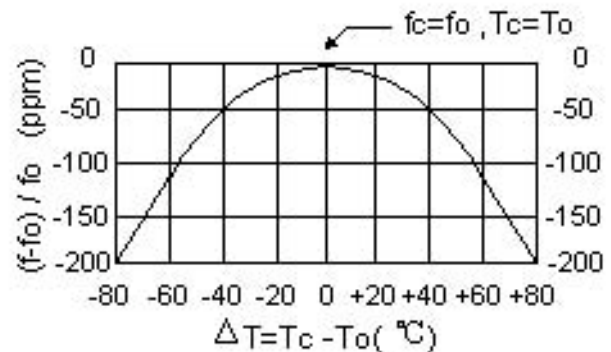
### 2. Equivalent LC Model and Test Circuit



### 3. Typical Frequency Response



### 4. Temperature Characteristics



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



# SAW RESONATOR

# 315MHZ/HC-49SMD

## 5. Performance

### 5-1. Maximum Rating

Rating	Value	Units
CW RF Power Dissipation	+10	dBm
DC Voltage Between Any Two Pins	±30V	VDC
Case Temperature	-40 to +85	°C

### 5-2. Electronic Characteristics

Characteristic		Sym	Minimum	Typical	Maximum	Units
Center Frequency (+25°C)	Absolute Frequency	$f_c$	314.925		315.075	MHz
	Tolerance from 315.000MHz	$\Delta f_c$		±75		kHz
Insertion Loss		IL		1.1	1.5	dB
Quality Factor	Unloaded Q	$Q_u$		8407		
	50 Ω Loaded Q	$Q_L$		1,000		
Temperature Stability	Turnover Temperature	$T_o$	5	20	35	°C
	Turnover Frequency	$f_o$		fc		kHz
	Frequency Temperature Coefficient	FTC		0.037		ppm/°C <sup>2</sup>
Frequency Aging Absolute Value during the First Year		$ f_a $		≤10		ppm/yr
DC Insulation Resistance Between Any Two Pins			1.0			MΩ
RF Equivalent RLC Model	Motional Resistance	$R_M$		13.5	19	Ω
	Motional Inductance	$L_M$		57.346		μH
	Motional Capacitance	$C_M$		4.4516		fF
	Pin 1 to Pin 2 Static Capacitance	$C_o$	2.3	2.6	2.9	pF

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

### NOTES:

1. 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.
2. The center frequency,  $f_c$ , is the frequency of minimum IL with the resonator in the specified test fixture in a 50 Ω test system with VSWR ≤ 1.2: 1. Typically,  $f_{oscillator}$  or  $f_{transmitter}$  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  $T_c = +25°C ± 2°C$ .
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  $C_o$ .
7. Turnover temperature,  $T_o$ , is the temperature of maximum (or turnover) frequency,  $f_o$ . The nominal center 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  $T_o$ .
8. This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only. The capacitance  $C_o$  is the measured static (nonmotional) 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  $C_o$ .