

# APPROVAL SHEET

Approval Specification	Customer's Approval Certificate
TO:	Checked & Approved by:
Part No.:	Date:
Customer's Part No.:	Please return this copy as a certification of your approval

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Part No.	:	SFR310D
Pages	:	4
Date	:	2016/8/1
Revision	:	2.0

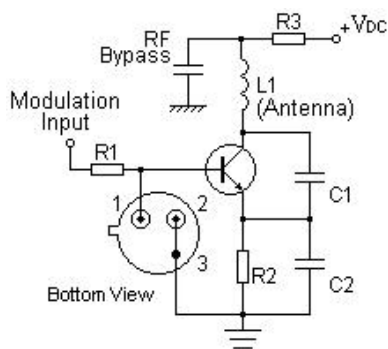
**Features**

- 1-port Resonator
- Metal Case for TO-39
- RoHS compatible
- Package Code TO-39
- Electrostatic Sensitive Device(ESD)

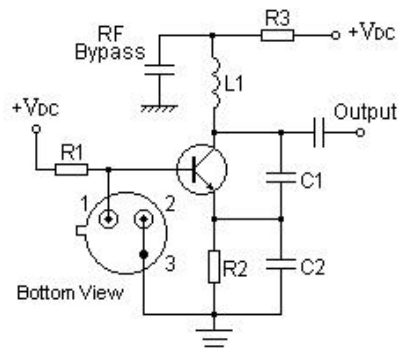


**Application**

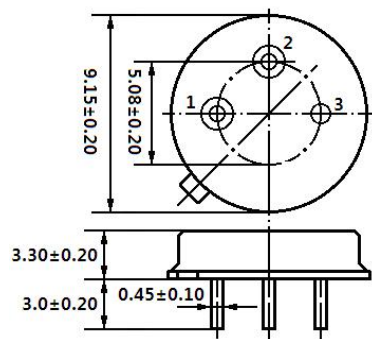
Typical Low-Power Transmitter Application



Typical Local Oscillator Application



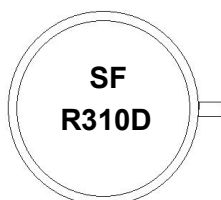
**Package Dimensions (TO-39)**



**Pin Configuration**

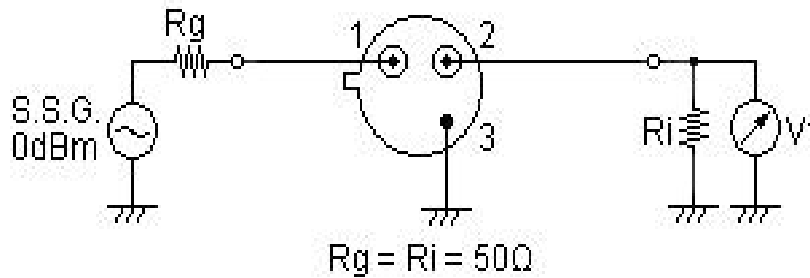
<b>1</b>	Input/ Output
<b>2</b>	Output/ Input
<b>3</b>	Case Ground

**Marking**

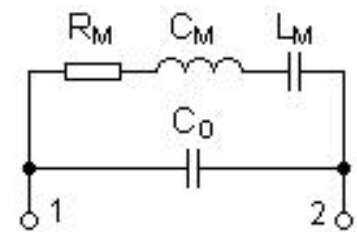


<b>SF</b>	Trademark
<b>R</b>	SAW Resonator
<b>310D</b>	Part number

## Test Circuit



## Equivalent LC Model



## Performance

## Maximum Rating

Item		Value	Unit
DC Voltage	$V_{DC}$	$\pm 30$	V
Operation Temperature	T	-40 ~ +85	$^{\circ}C$
Storage Temperature	$T_{stg}$	-40 ~ +85	$^{\circ}C$
RF Power Dissipation	P	25	dBm

## Electronic Characteristics

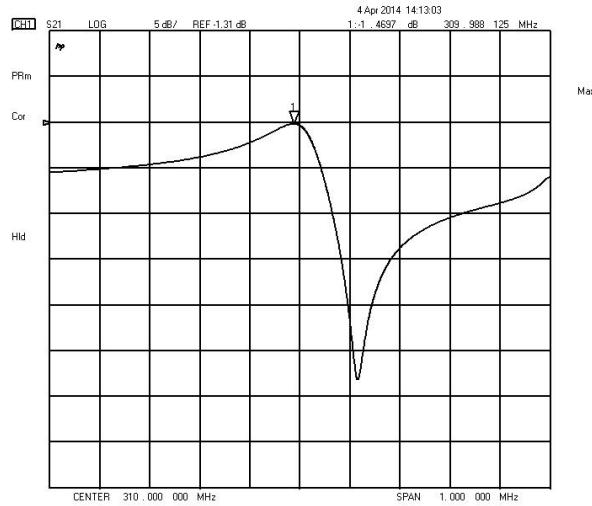
Test Temperature:  $25^{\circ}C \pm 2^{\circ}C$

Terminating source impedance:  $50\Omega$

Terminating load impedance:  $50\Omega$

Item		Minimum	Typical	Maximum	Unit
Center Frequency	Absolute Frequency	$f_c$	310.00		MHz
	Tolerance from 310.00MHz	$\Delta f_c$	$\pm 75$		KHz
Insertion Loss(min)			1.5	2.0	dB
Quality Factor	Unloaded Q	$Q_U$	12310		
	$50\Omega$ Loaded Q	$Q_L$	1405		
Frequency Aging	Absolute Value during the First Year	$ f_A $	$\leq 10$		ppm/yr
DC Insulation Resistance between Any Two Pins		1.0			M $\Omega$
RF Equivalent RLC Model	Motional Resistance	$R_M$	14.5	18.0	$\Omega$
	Motional Inductance	$L_M$	81.2		$\mu H$
	Motional Capacitance	$C_M$	3.2		fF
	Static Capacitance	$C_0$	4.2	4.5	4.8

## Frequency Response



## Reliability (The SAW components shall remain electrical performance after tests)

No.	Test item	Test condition
1	Temperature Storage	(1) Temperature: 85°C±2°C , Duration: 250h , Recovery time: 2h±0.5h (2) Temperature: -40°C±3°C , Duration: 250h , Recovery time: 2h±0.5h
2	Humidity Test	Conditions: 60°C±2°C , 90~95% RH                      Duration: 250h
3	Thermal Shock	Heat cycle conditions: TA=-40°C±3°C, TB=85°C±2°C, t1=t2=30min, Switch time: ≤3min , Cycle time: 100 times , Recovery time : 2h±0.5h.
4	Vibration Fatigue	Frequency of vibration: 10~55Hz                      Amplitude:1.5mm Directions: X,Y and Z    Duration: 2h
5	Drop Test	Cycle time: 10 times                      Height: 1.0m
6	Solder Ability Test	Temperature: 245°C±5°C                      Duration: 3.0s--5.0s Depth: DIP--2/3 , SMD--1/5
7	Resistance to Soldering Heat	(1) Thickness of PCB:1mm , Solder condition: 260°C±5°C , Duration: 10±1s (2) Temperature of Soldering Iron: 350°C±10°C , Duration: 3~4s , Recovery time : 2 ± 0.5h

## Notes

- As a result of the particularity of inner structure of SAW products, it easy to be breakdown by electrostatic, so we should pay attention to **ESD protect** in the test.
- Static voltage** between signal load and ground may cause deterioration and destruction of the component. Please avoid static voltage.
- Ultrasonic cleaning** may cause deterioration and destruction of the component. Please avoid ultrasonic cleaning.
- Only leads of component may **be soldered**. Please avoid soldering another part of component.
- There is a close relationship between the device's performance and **matching network**. The specifications of this device are based on the test circuit shown above. L and C values may change depending on board layout. Values shown are intended as a guide only.