

# APPROVAL SHEET

Approval Specification	Customer's Approval Certificate
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Part No.:	Date:
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:	R316A
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:	2016/8/1
:	2.0
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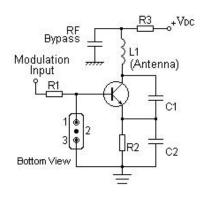
#### **Features**

- 1-port Resonator
- Metal Case for **D11**
- Package size 8.36x3.45x3.00 mm³
- RoHS compatible
- Electrostatic Sensitive Device(ESD)

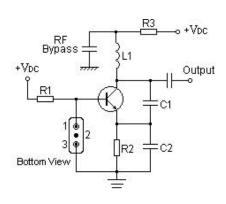


# **Application**

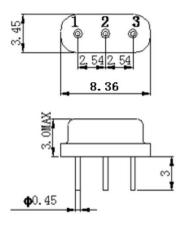
Typical Low-Power Transmitter Application



#### Typical Local Oscillator Application



#### Package Dimensions (D11)



# **Pin Configuration**

1	Input/Output	
3	Output/Input	
2	Case Ground	

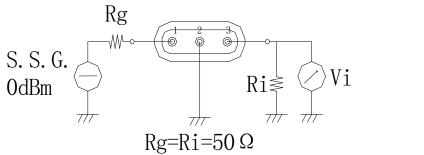
# Marking

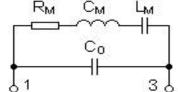


R	SAW Resonator	
316A	Part number	

#### **Test Circuit**

# **Equivalent LC Model**





### **Performance**

#### **Maximum Rating**

Item		Value	Unit
DC Voltage	V <sub>DC</sub>	±30	V
Operation Temperature	Т	-40 ~ +85	$^{\circ}$
Storage Temperature	$T_{stg}$	-40 ~ +85	$^{\circ}$
RF Power Dissipation	Р	25	dBm

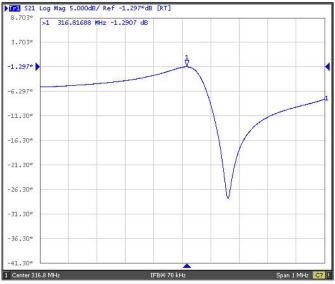
#### **Electronic Characteristics**

Test Temperature: 25°C±2°C

Terminating source impedance:  $50\Omega$ Terminating load impedance:  $50\Omega$ 

	Item		Minlmum	Typical	Maximum	Unit
Center Frequency	Absolute Frequency	fc		316.80		MHz
	Tolerance from 316.80MHz	$\triangle f_c$		±75		KHz
Insertion Loss(n	oss(min) IL 1.4 2.0		dB			
Quality Factor	Unloaded Q	Qυ		14833		
	50Ω Loaded Q	$Q_L$		1676		
Frequency Aging	Absolute Value during the First Year   f <sub>A</sub>    ≤10			ppm/yr		
DC Insulation Resistance between Any Two Pins			1.0			ΜΩ
RF Equivalent RLC Model	Motional Resistance	R <sub>M</sub>		12.7	18.0	Ω
	Motional Inductance	L <sub>M</sub>		94.97		μH
	Motional Capacitance	См		2.65		fF
	Static Capacitance	C <sub>0</sub>	3.0	3.2	3.4	pF

# **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℃±2℃ , 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: 3.0s5.0s  Depth: DIP2/3 , SMD1/5	
7	Resistance to Soldering Heat	(1)Thickness of PCB:1mm , Solder condition: $260^\circ\text{C}\pm5^\circ\text{C}$ , Duration: $10\pm1\text{s}$ (2)Temperature of Soldering Iron: $350^\circ\text{C}\pm10^\circ\text{C}$ , Duration: $3\sim4\text{s}$ , Recovery time : $2\pm0.5\text{h}$	

#### Notes

- 1. 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.
- 2. **Static voltage** between signal load and ground may cause deterioration and destruction of the component. Please avoid static voltage.
- 3. **Ultrasonic cleaning** may cause deterioration and destruction of the component. Please avoid ultrasonic cleaning.
- 4. Only leads of component may **be soldered**. Please avoid soldering another part of component.
- 5. 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.

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