

# APPROVAL SHEET

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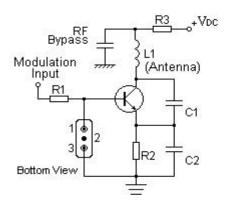
**Features** 



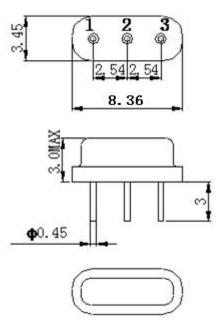
- 1-port Resonator
- Metal Case for **D11**
- Package size 8.36x3.45x3.00 mm³
- RoHS compatible
- Electrostatic Sensitive Device(ESD)

#### **Application**

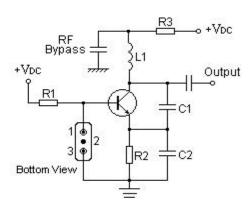
Typical Low-Power Transmitter Application



#### Package Dimensions (D11)



#### Typical Local Oscillator Application



#### **Pin Configuration**

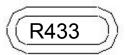
1	Input/output		
3	Output/Input		
2	Case Ground		

R	SAW Resonator
11	OAW Nesonator

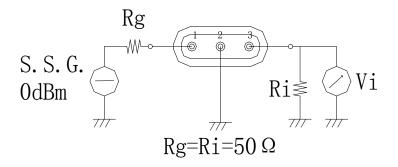
Marking

433

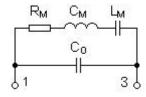
Part number



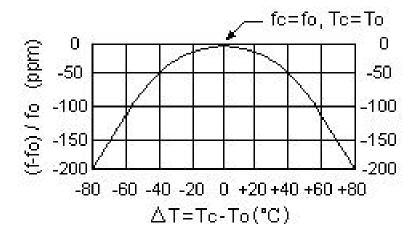
#### **Test Circuit**



#### **Equivalent LC Model**



#### **Temperature Characteristics**



The curve shown above accounts for resonator contribution only and does not include LC component temperature contributions.

#### **Performance**

#### **Maximum Rating**

ltem		Value	Unit
DC Voltage	V <sub>DC</sub>	±30	V
Operation Temperature	Т	-40 ~ +85	$^{\circ}$
Storage Temperature	T <sub>stg</sub>	-55 ~ +125	${\mathbb C}$
RF Power Dissipation	Р	10	dBm

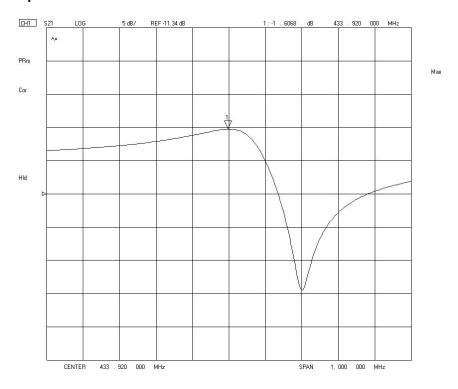
#### **Electronic Characteristics**

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	Absolute Frequency	fc		433.92		MHz
Frequency	Tolerance from 433.92MHz	△fc		±75		KHz
Insertion Loss(r	nin)	IL		1.4	2.0	dB
Quality Factor	Unloaded Q	Qu		14215		
Quality Factor	50Ω Loaded Q	QL		1791		
	Turnover Temperature	T <sub>0</sub>	10	25	40	$^{\circ}$
Temperature Stability	Turnover Frequency	f <sub>0</sub>		f <sub>c</sub>		KHz
-	Frequency Temperature Coefficient	FTC		0.032		ppm/℃
Frequency Aging				≤10		ppm/yr
DC Insulation R	esistance between Any Two Pins		1.0			ΜΩ
RF Equivalent	Motional Resistance	R <sub>M</sub>		15	26	Ω
	Motional Inductance	L <sub>M</sub>		98.9		μН
RLC Model	Motional Capacitance	См		2.35		fF
	Static Capacitance	C <sub>0</sub>	2.8	3.1	3.4	pF

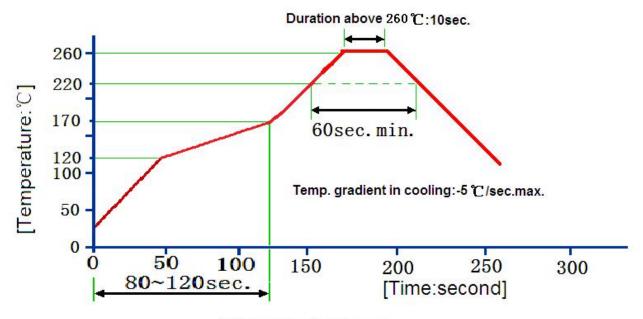
## **Frequency Response**



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

No.	Test item	Test condition		
1	Temperature Storage	(1) Temperature: 85℃±2℃, Duration: 250h, Recovery time: 2h±0.5h (2) Temperature: -40℃±3℃, 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 ℃ ±5 ℃ Duration: 3.0s5.0s  Depth: DIP2/3 , SMD1/5		
7	Resistance to Soldering Heat	(1)Thickness of PCB:1mm , Solder condition: $260^\circ\!$		

#### **Recommended Reflow Soldering Diagram**



#### Reflow cycles:3 cycles max.

#### **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.

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- 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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