

SAW Resonator UNIT

AW D-11 Series



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SPECIFICATION

SJK PN : D-11-SR315.00

深圳市晶科鑫实业有限公司

SHENZHEN CRYSTAL TECHNOLOGY INDUSTRIAL CO., LTD.

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Features

- 1-port Resonator
- Metal Case for D11
- Package size 8.36x3.45x3.00 mm³
- RoHS compatible

Performance

Maximum Rating

Item		Value	Unit
DC Voltage	V _{DC}	±30	V
Operation Temperature	T	-40 ~ +85	°C
Storage Temperature	T _{stg}	-55 ~ +125	°C
RF Power Dissipation	P	10	dBm

Electronic Characteristics

Test Temperature: 25°C ±2°C

Terminating source impedance: 50Ω

Terminating load impedance: 50Ω

Item			Minimum	Typical	Maximum	Unit
Center Frequency	Absolute Frequency	f _c		3150.00		MHz
	Tolerance from 315.00MHz	Δf _c		±75		KHz
Insertion Loss(min)		IL		1.2	1.8	dB
Quality Factor	Unloaded Q	Q _U		16060		
	50Ω Loaded Q	Q _L		1844		
Temperature Stability	Turnover Temperature	T ₀	10	25	40	°C
	Turnover Frequency	f ₀		f _c		KHz
	Frequency Temperature Coefficient	FTC		0.032		ppm/°C
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	22	Ω
	Motional Inductance	L _M		105.3		μH
	Motional Capacitance	C _M		2.43		fF
	Static Capacitance	C ₀	2.8	3.1	3.4	pF

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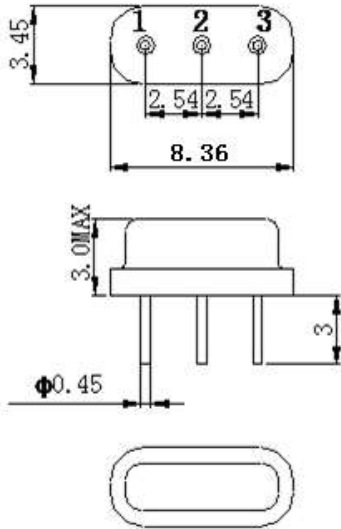
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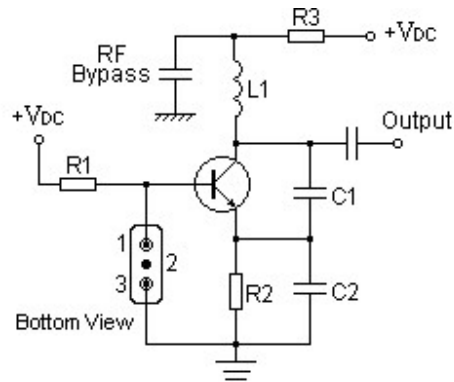
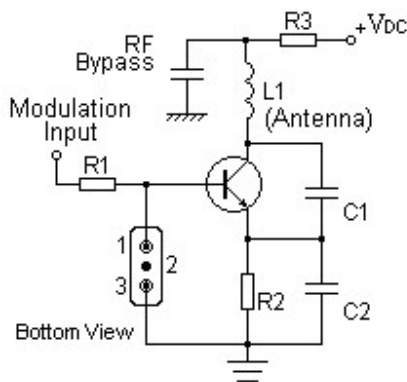
Package Dimension (D11)

Pin Configuration



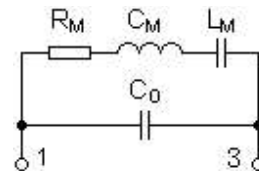
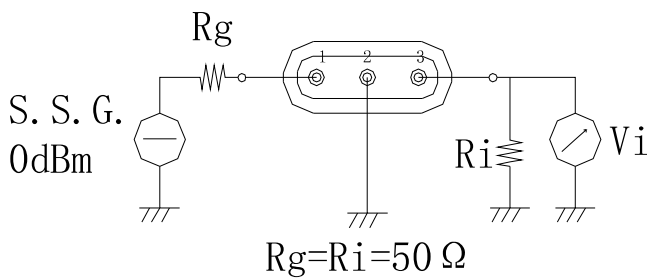
1	Input
3	Output
2	Ground

Typical Low-Power Transmitter Application Typical Local Oscillator Application



Equivalent LC Model

Test Circuit



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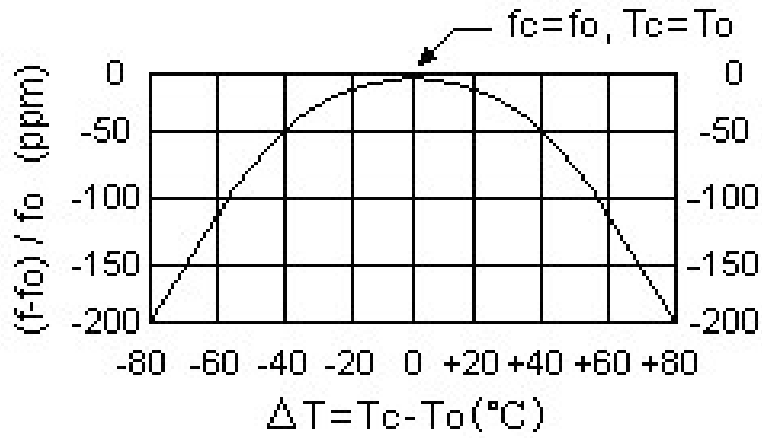
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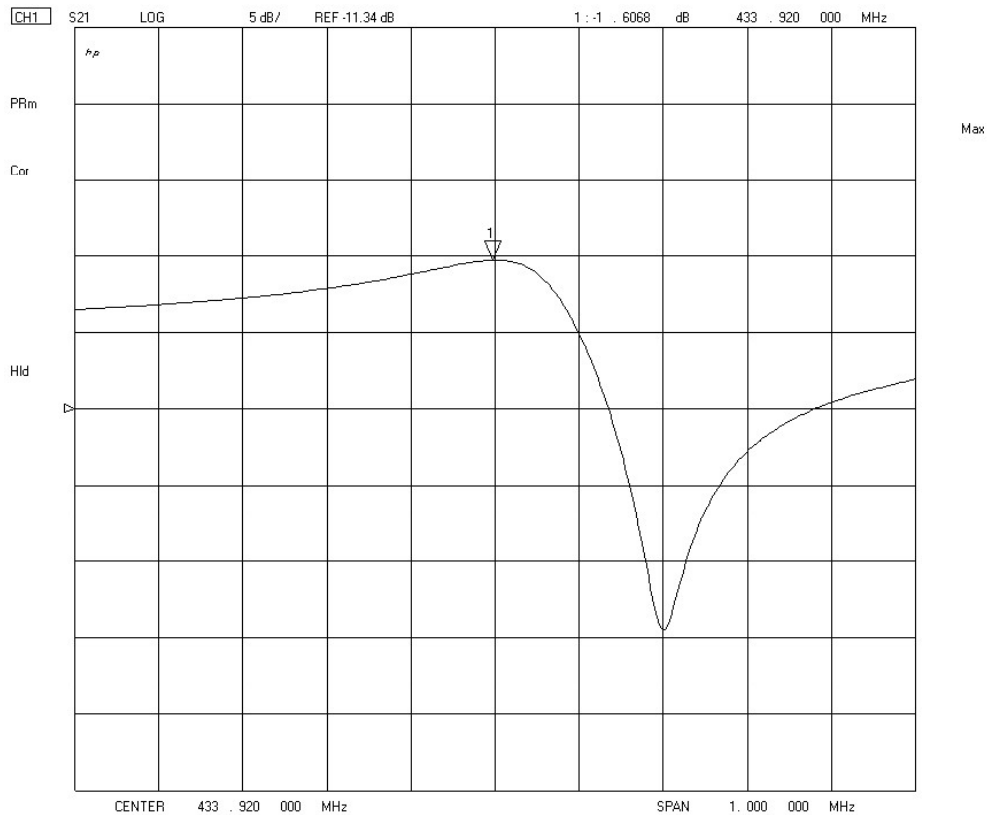


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Temperature Characteristics



Frequency Response



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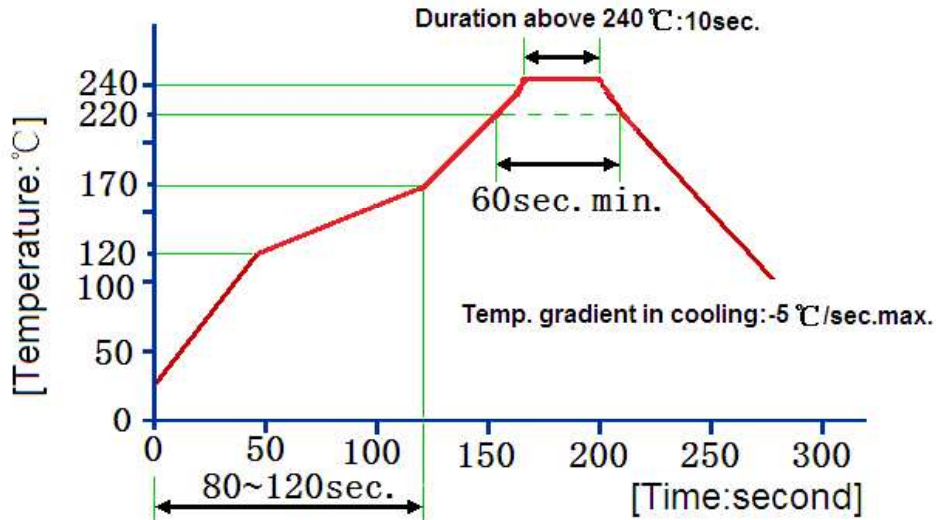
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Recommended Reflow Soldering Diagram



Reflow cycles: 3 cycles max.

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

No.	Test item	Test condition
1	Temperature Storage	(1) Temperature: $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$, Duration: 250h , Recovery time: $2\text{h} \pm 0.5\text{h}$ (2) Temperature: $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$, Duration: 250h , Recovery time: $2\text{h} \pm 0.5\text{h}$
2	Humidity Test	Conditions: $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$, 90~95% RH Duration: 250h
3	Thermal Shock	Heat cycle conditions: $T_A = -40^{\circ}\text{C} \pm 3^{\circ}\text{C}$, $T_B = 85^{\circ}\text{C} \pm 2^{\circ}\text{C}$, $t_1 = t_2 = 30\text{min}$, Switch time: $\leq 3\text{min}$, Cycle time: 100 times , Recovery time : $2\text{h} \pm 0.5\text{h}$.
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: $245^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Duration: 3.0s--5.0s Depth: DIP--2/3 , SMD--1/5
7	Resistance to Soldering Heat	(1) Thickness of PCB: 1mm , Solder condition: $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$, Duration: $10 \pm 1\text{s}$ (2) Temperature of Soldering Iron: $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$, Duration: 3~4s , Recovery time : $2 \pm 0.5\text{h}$

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NOTES:

1. As a result of the particularity of inner structure of SAW products, it is easy to be broken down 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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