




**SPECIFICATION SHEET**

<b>SPECIFICATION SHEET NO.</b>	Q0531-SAR423M220S032
<b>DATE</b>	May 31, 2023
<b>REVISION</b>	A0
<b>DESCRIPTION</b>	SMD SAW Resonator L5.0*W5.0*H1.5mm 5050 Type 8 Pads SAR Series 423.2200MHz, Insertion Loss: 2.0 dB Max. Tolerance: +/-75KHz Operating Temp. Range -40°C ~+85°C Reflow Profile Condition 260 °C Max. Tape/Reel, 1000pcs/Reel RoHS/RoHS III compliant
<b>CUSTOMER</b>	
<b>CUSTOMER PART NUMBER</b>	
<b>CROSS REF. PART NUMBER</b>	
<b>ORIGINAL PART NUMBER</b>	TGS SAR 423.22MA TLF
<b>PART CODE</b>	SAR423M220S032

<b>VENDOR APPROVE</b>			
Issued/Checked/Approved			
DATE: May 31, 2023			

<b>CUSTOMER APPROVE</b>	
DATE:	

5/31/2023

**SMD SAW RESONATOR 5050 TYPE SAR SERIES**

**MAIN FEATURE**

- SMD SAW Resonator L5.0\*W5.0\*H1.5mm 5050 Type 8 Pads
- Package Code QCC8C
- One Port SAW Resonator
- Electrostatic Sensitive Device (ESD)
- Low-loss and Short Lead time
- Cross more competitors part
- RoHS/RoHS III compliant



**APPLICATION**

- Bluetooth, wireless communication set
- Communication Electronics

**PART CODE GUIDE**

**RFQ**  
Request For Quotation

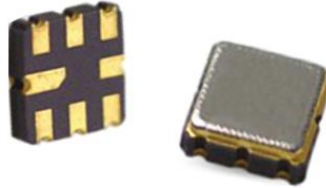
<b>SAR</b>	<b>423M220</b>	<b>S</b>	<b>032</b>
1	2	3	4

- 1) SAR: Series Code, SMD SAW Resonator L5.0\*W5.0\*H1.5mm 5050 Type 8 Pads
- 2) 423M220: Frequency range code for 423.220000MHz
- 3) S: SMD type, Package Tape/Reel
- 4) 032: Internal code (A~Z or 1~9 or Blank)

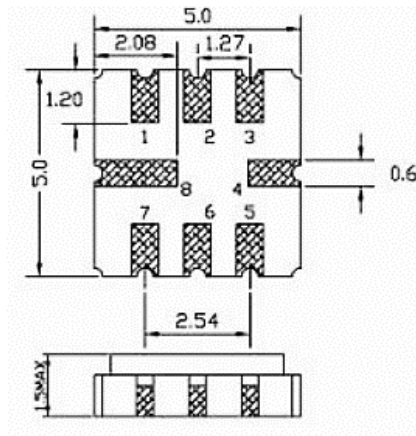
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**DIMENSION (Unit: mm)**

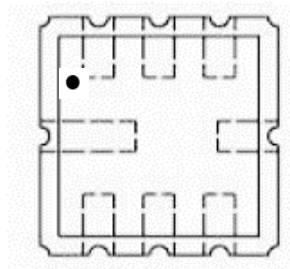
Image for reference



SAR series,  
 Package Code QCC8C  
 L5.0\*W5.0\*H1.5mm  
 5050 Type



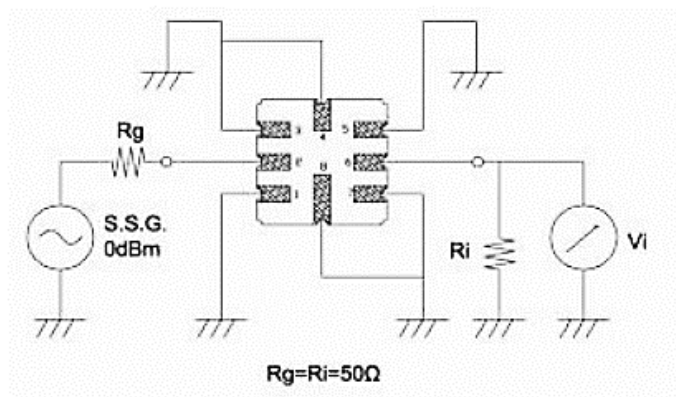
Pin	Configuration
2	Input
6	Output
1, 3, 5, 7	To be Grounded
4, 8	Case Ground



**Marking:**

Standard + ● : Pin 1

**Test Circuit**



**SMD SAW RESONATOR 5050 TYPE SAR SERIES**
**ELECTRICAL PARAMETERS**

Parameter	Part No. Symbol	Units	Value		
			Min.	Typical	Max.
Original Manufacturer	TGS		TGS Crystals		
Holder Type	SAR		SMD SAW Resonator L5.0*W5.0*H1.5mm 5050 Type 8 Pads		
Frequency Range (f0)	423.22M	MHz	423.220000		
Frequency Tolerance	A	KHz		±75	
Operation Temperature		°C	-40		+85
Storage Temperature		°C	-40		+85
DC Voltage		V		±30	
RF Power Dissipation		dBm		15	
Insertion Loss		dB		1.4	2.0
Quality Factor (Q) @Unload				13850	
Quality Factor (Q) @50 Ω Loaded				1871	
Turnover Temperature		°C			
Frequency Temp. Coefficient		ppm/°C			
Aging (Absolute Value during the First Year)		ppm/Year		≤±10	
DC Insulation Resistance		MΩ	1.0		
RF Equivalent RLC Model @Motional Resistance		Ω		15.6	25.0
RF Equivalent RLC Model @Motional Inductance		μH		81.35	120
RF Equivalent RLC Model @Motional Capacitance		fF		1.6	
Static Capacitance		pF	2.2	2.5	2.8
Package		T		Tape/Reel	
RoHS Status	LF		RoHS III compliant		
Add Value			Blank: N/A		
Internal Control Code			Blank: N/A		

Note: 1) Test Temperature: 25°C±2°C, Terminating source impedance: 50Ω Terminating load impedance: 50Ω

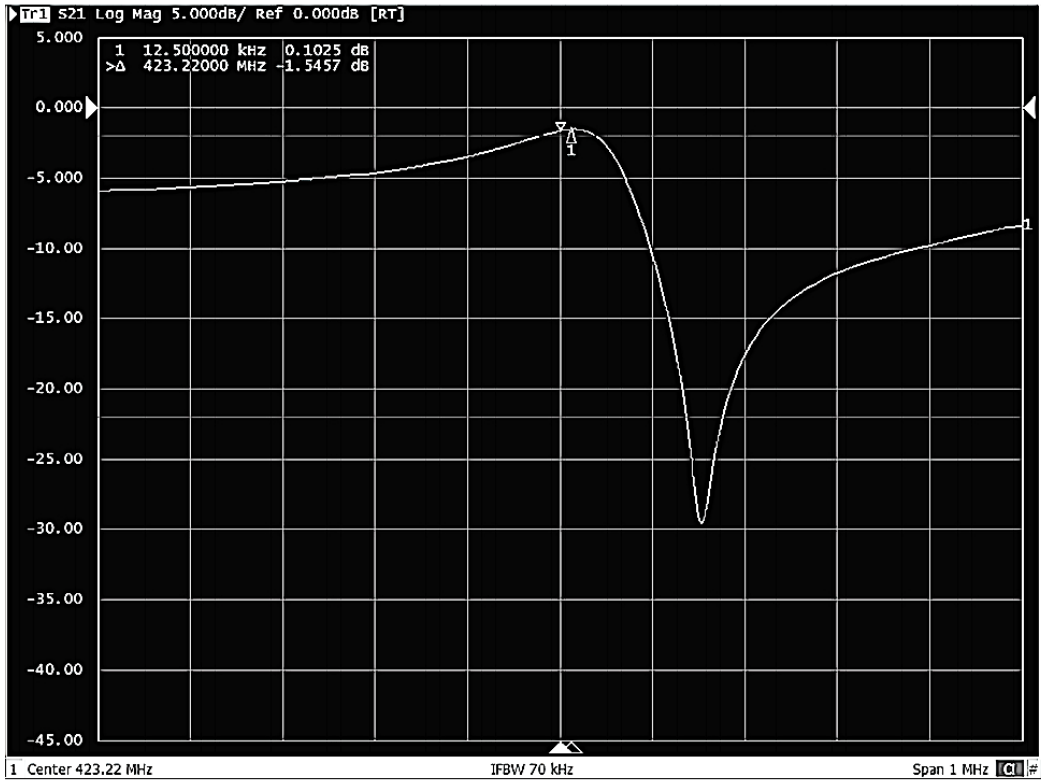
2) Original Part Number: TGS SAR 423.22MA TLF

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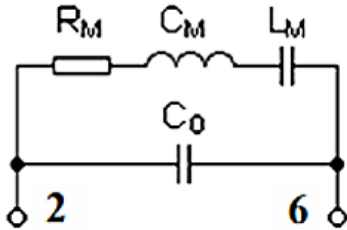
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**FREQUENCY RESPONSE**

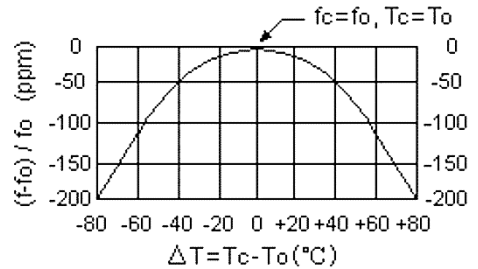


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**EQUIVALENT LC MODEL**



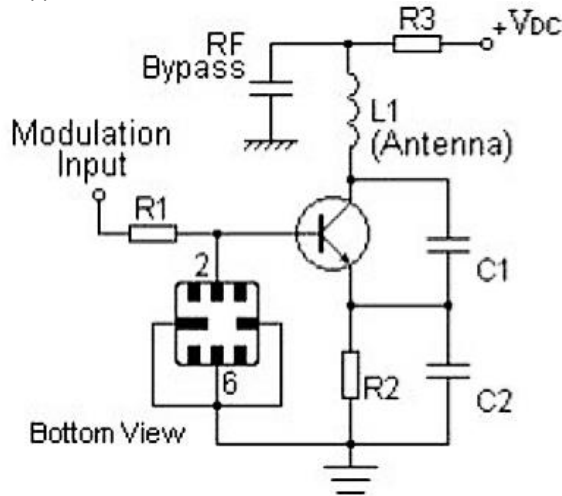
**TEMPERATURE CHARACTERISTICS**



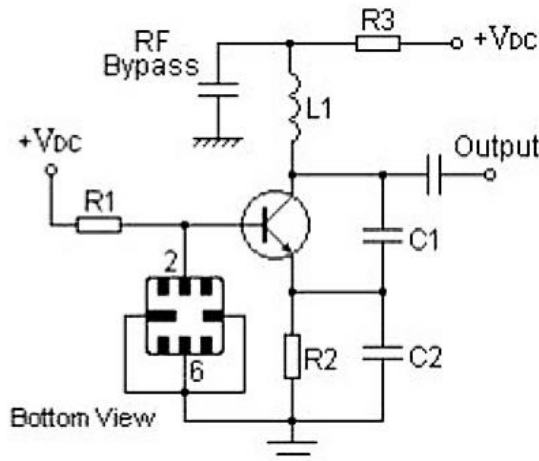
Note: The curve shown above accounts for resonator contribution only and does not include LC component temperature contributions.

**PLICTYPCIAL APATION CIRCUITS**

Typical Low-power Transmitter Application



Typical Local Oscillator Application



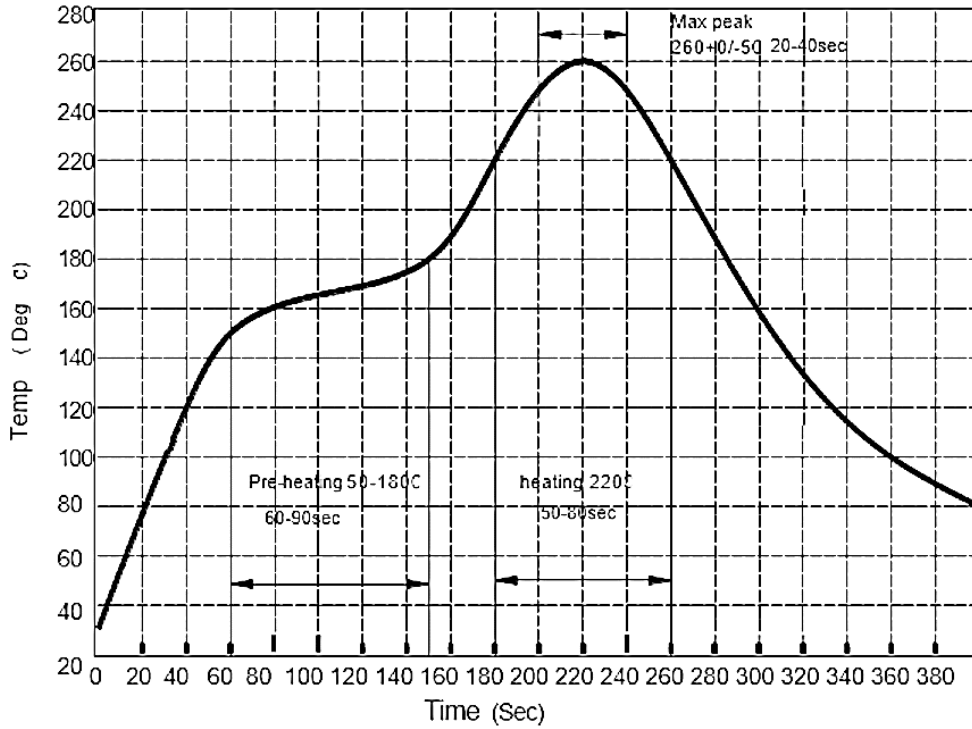
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**RELIABILITY**

Test Items	Test Method And Conditions	Requirement
<b>Temperature Storage</b>	(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	It shall remain electrical performance after tests
<b>Humidity Test</b>	Conditions: 60°C±2°C , 90~95% RH      Duration: 250h	
<b>Thermal Shock</b>	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.	
<b>Vibration Fatigue</b>	Frequency of vibration: 10~55Hz      Amplitude:1.5mm Directions: X,Y and Z      Duration: 2h	
<b>Drop Test</b>	Cycle time: 10 times      Height: 1.0m	
<b>Solderability</b>	Temperature: 245°C±5°C      Duration: 3.0s--5.0s Depth: DIP--2/3 , SMD--1/5	
<b>Resistance to Soldering Heat</b>	(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	

**SMD SAW RESONATOR 5050 TYPE SAR SERIES**

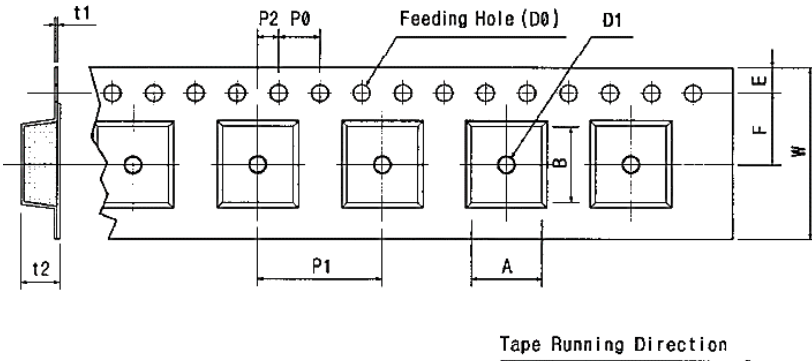
**SUGGESTED REFLOW PROFILE (For Reference Only)**





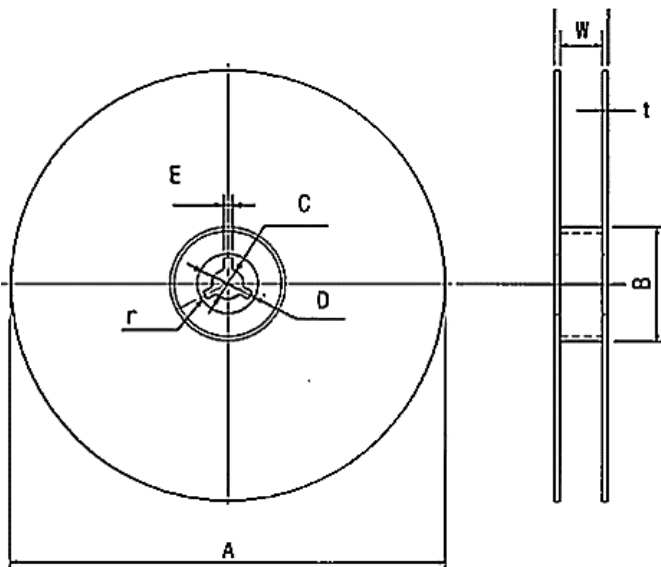
**SMD SAW RESONATOR 5050 TYPE SAR SERIES**

**TAPE DIMENSION (Unit: mm, 1000pcs/Reel)**



Code	Dimension
W	12.0+/-0.30
F	5.50+/-0.10
E	1.75+/-0.10
P 0	4.00+/-0.10
P 1	8.00+/-0.10
P 2	2.00+/-0.10
D 0	Ø1.5+/-0.10
D 1	Ø1.0+/-0.25
t 1	0.30+/-0.01
t 2	2.10+/-0.10
A	6.40+/-0.10
B	5.20+/-0.10

**REEL DIMENSION (Unit: mm)**



Code	Dimension
A	Ø330.0+/-1.0
B	Ø100.0+/-0.5
C	Ø13.0+/-0.5
D	Ø21+/-0.8
E	2.00+/-0.5
W	13.0+/-0.30
t	3.0 Max.
r	1.00 Max.

## SMD SAW RESONATOR 5050 TYPE SAR SERIES

### CAUTION

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.
6. The temperature of manual welding should not exceed 300 °C.
7. The specifications of this device are based on the test circuit shown above and subject to change or obsolescence without notice.
8. All equipment designs utilizing this product must be approved by the appropriate government agency prior to manufacture or sale.
9. Our liability is only assumed for the Surface Acoustic Wave (SAW) component(s) perse, not for applications, processes and circuits implemented within components or assemblies.
10. For questions on technology, prices and delivery, please contact our sales offices or e-mail: [sales@NextGenComponent.com](mailto:sales@NextGenComponent.com).

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