

SPECIFICATION SHEET NO.	S0318 - SIR433M420S042	
ORIGINAL MFG/PART NO.	TGS Crystals/SIR 433.42MA TLF/R433.42S42	
NEXTGEN PART CODE	SIR433M420S042	Indicate This Code For RFQ /Order
DATE	Mar. 18, 2025	
REVISION	A2	Updated With Most Recent Data
DESCRIPTION AND MAIN PARBMETRICS	SMD SAW Resonator, 4 Pads, 5035 Type, SIR Series Case Code QCC4A, Dimension L5.0*W3.5*H1.5mm Center Frequency 433.420MHz; Frequency Tolerance $\pm 75\text{KHz}$ Insertion Loss: 1.7dB Typical, 2.0dB Max. Operating Temp. Range -40°C ~ +85°C Reflow Profile Condition 260°C Max. Package in Tape/Reel, 1000pcs/Reel REACH/RoHS/RoHS III Compliant	
CUSTOMER		
CUSTOMER PART NUMBER		
CROSS REF. PART NUMBER		
MEMO		

VENDOR APPROVE
Issued/Checked/Approved   
Effective Date: Mar. 18, 2025

CUSTOMER APPROVE
Date:

MAIN FEATURE

- SMD SAW Resonator 5035 Type 4 Pads
- Ceramic Case Dimension L5.0*W3.5*H1.5mm
- Low-loss SAW Resonator
- One Port SAW Resonator
- Package Code QCC4A
- Ceramic Package For Surface Mounted Technology (SMT)
- Electrostatic Sensitive Device (ESD)
- Moisture Sensitivity Level (MSL) 1
- Short Lead time
- Cross Competitors Parts and More
- REACH/RoHS/RoHS III Compliant



Image shown is a representation only. Exact specifications should be obtained from the product dimension.



APPLICATION

- Bluetooth, Wireless Communication Set
- Communication Electronics

ELECTRICAL CHARBCTERISTICS

- See Page 5
- All Products Parameters are Subject To NextGen Components' Final Confirmation.

HOW TO ORDER

- Please Follow Up Part Code Guide And Indicate NextGen Part Code SIR433M420S042 For RFQ and Order.

PART CODE GUIDE

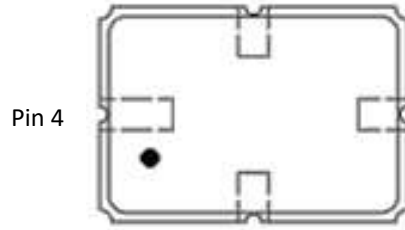
RFQ

[Request For Quotation](#)

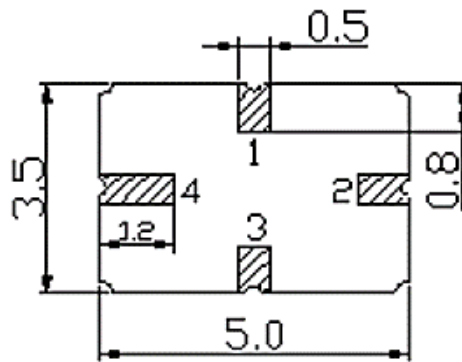
CODE	NAME	KEY SPECIFICATION OPTION
SIR	Series Code	SMD SAW Resonator, 4 Pads, 5035 Type, Case Code QCC4A, Case Dimension L5.0*W3.5*H1.5mm
433M42	Frequency Range Code	433M42: 433.420MHz
0S042	Internal Control Code	Letter A~Z, a~z or Digits (1-9)
XX	Special/Custom Parameters Code	Blank: N/A XX: Letter A~Z, a~z or Digits (0~9) for Special/Custom Parameters

DIMENSION - Unit: mm, L5.0*W3.5*H1.5mm, Case code QCC4A, 5035 Type

Top View: ● Pin 4

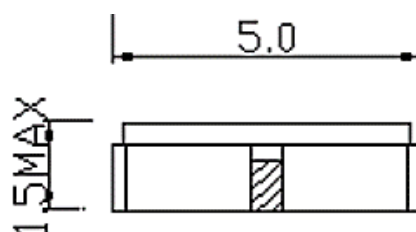


Bottom View



PIN NO.	CONFIGURATION
1	Input/Output
3	Output/Input
2, 4	Case Ground

Side View



MAX. RATING & CHARACTERISTICS - At 25±2°C Ambient Temperature Unless Otherwise Specified.

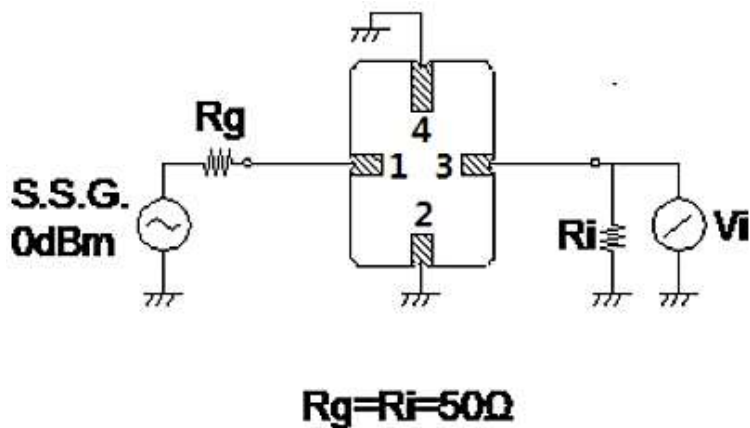
PARAMETER	SYMBOLS	VALUE	UNITS
RF Power Level	P	10	dBm
DC Voltage	V _{dc}	±30	V
Operating Temperature Range	T _A	-40 to +85	°C
Storage Temperature Range	T _{stg}	-55 to +125	°C

ELECTRONICAL CHARACTERISTICS

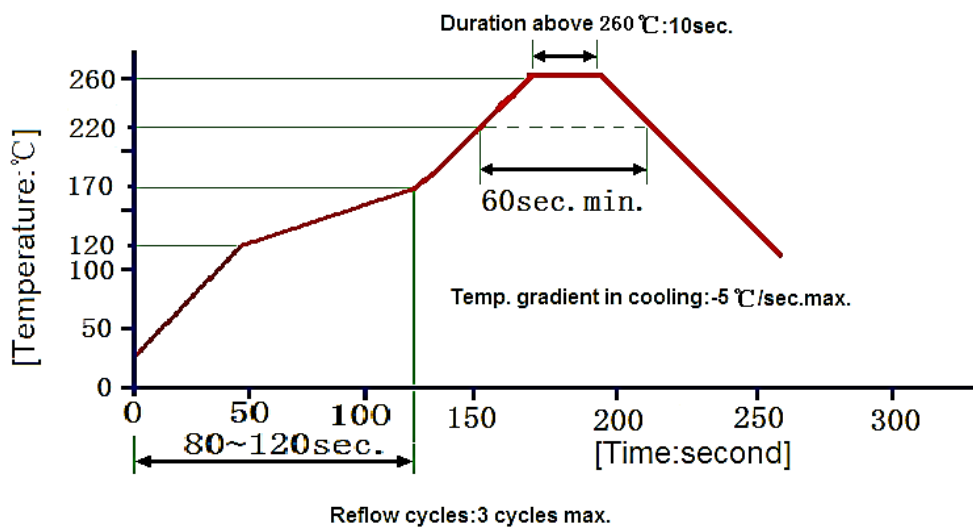
1) Test Temperature: 25°C±2°C 2) Terminating source impedance: 50Ω 3) Terminating load impedance: 50Ω .

PARAMETER		SYMBOLS	CHARACTERISTICS			
			MIN.	TYPICAL	MAX.	UNIT
Center Frequency- Absolute Frequency		FC	-	433.420	-	MHz
Frequency Tolerance from 433.420MHz		Δfc	-	± 75	-	KHz
Insertion Loss		IL	-	1.7	2.0	dB
Quality	Unloaded Q	Q _U	-	12366	-	
Factor	50Ω Loaded Q	Q _L	-	1642	-	
Temperature	Turnover Temperature	T ₀	25	40	55	°C
Stability	Frequency Temp. Coefficient	FTC		0.032		ppm/°C
Frequency Aging	Absolute Value during the 1 st Year	fA	-	≤10	-	ppm/yr
DC Insulation Resistance between Any Two Pins			1.0	-	-	MΩ
RF Equivalent RLC Model	Motional Resistance	RM	-	17	25	Ω
	Motional Inductance	LM	-	69.5	-	μH
	Motional Capacitance	CM	-	1.94	-	fF
	Static Capacitance	C ₀	2.0	2.3	2.6	pF

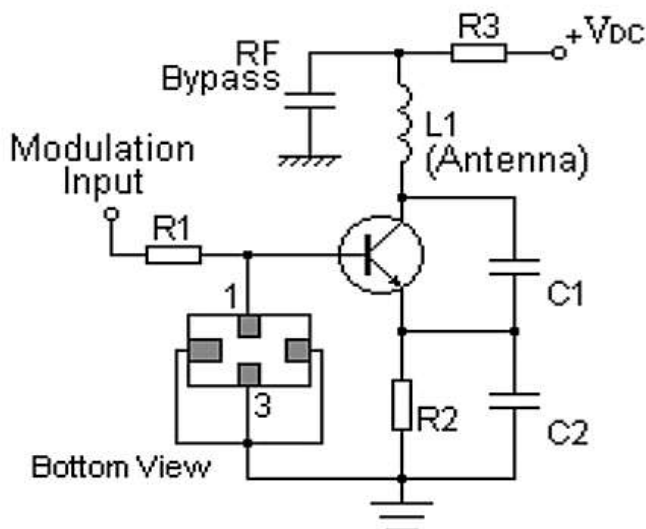
MEASUREMENT CIRCUIT – FOR REFERENCE ONLY



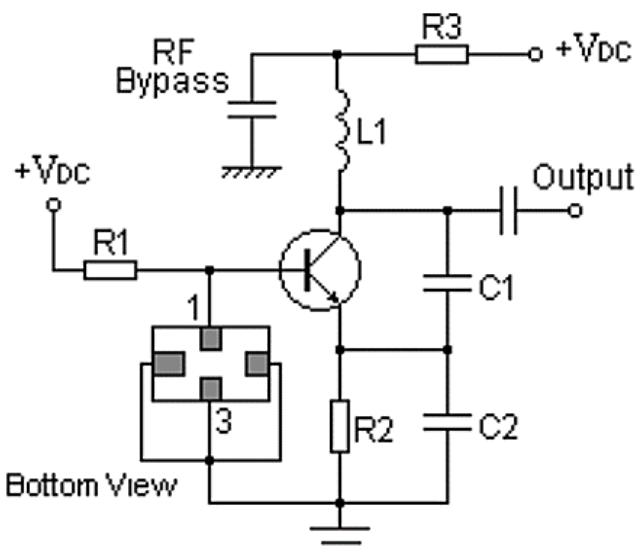
RECOMMENDED SOLDERING PROFILE – FOR REFERENCE ONLY



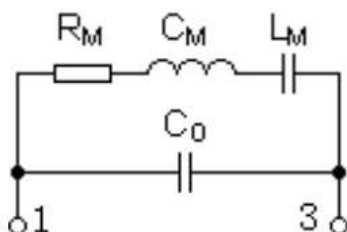
TYPICAL LOW-POWER TRANSMITTER APPLICATION – FOE REFERENCE ONLY



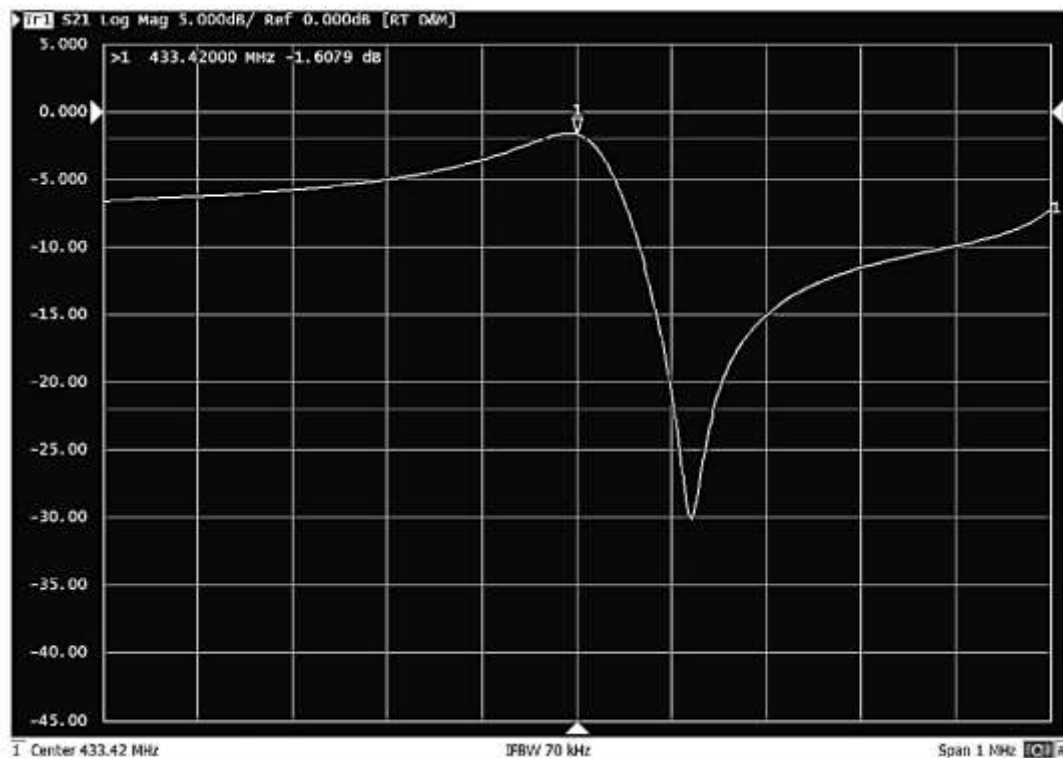
TYPICAL LOCAL OSCILLATOR APPLICATION – FOE REFERENCE ONLY



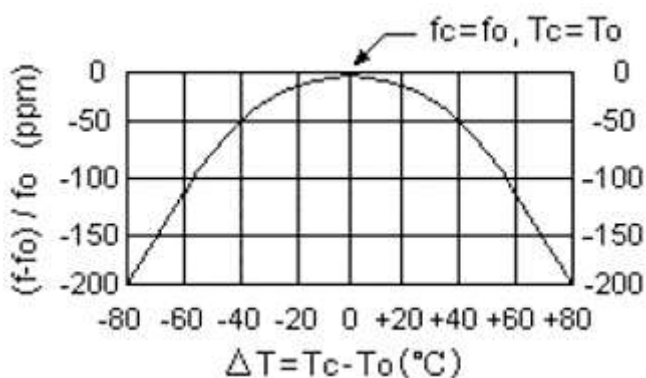
EQUIVALENT LC MODEL – FOR REFERENCE ONLY



FREQUENCY RESPONSE – FOR REFERENCE ONLY



TEMPERATURE CHARACTERISTICS – FOR REFERENCE ONLY

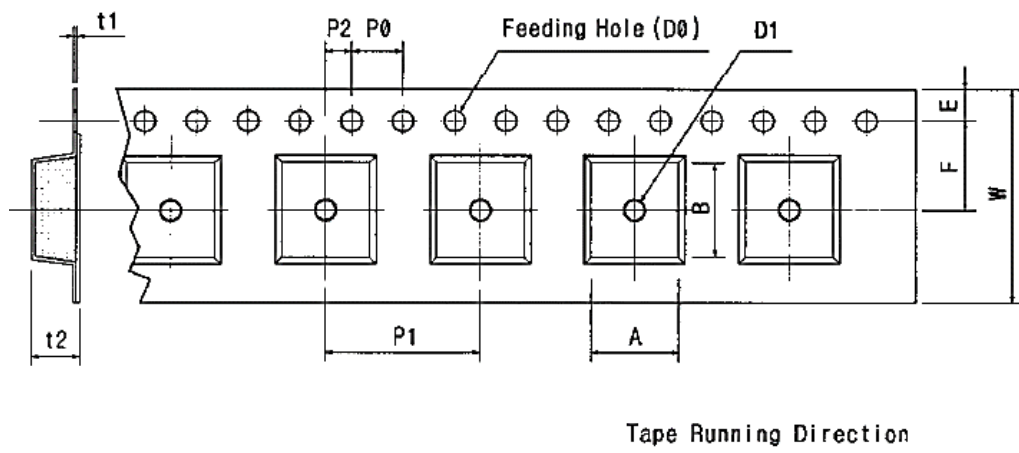


- Note: The curve shown above accounts for resonator contribution only and does not include LC component temperature contributions.

RELIABILITY CHARACTERISTICS

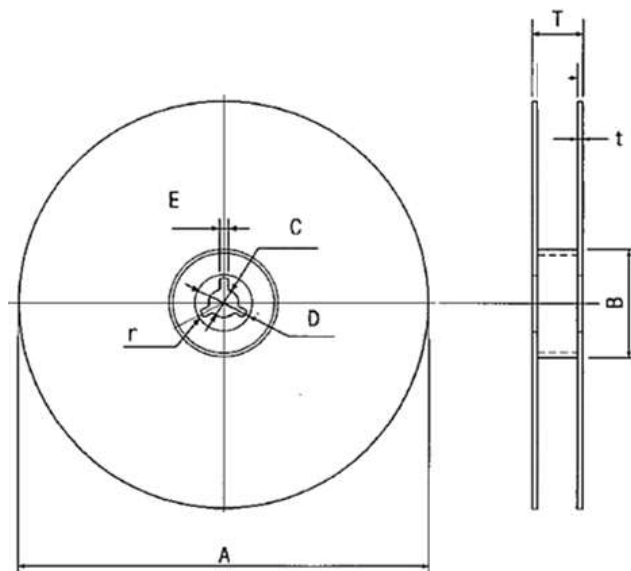
TEST ITEMS	TEST METHOD AND CONDITIONS
Temperature Storage	- Temperature: $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$, Duration: 250h , Recovery time: $2\text{h} \pm 0.5\text{h}$ - Temperature: $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$, Duration: 250h ,Recovery time: $2\text{h} \pm 0.5\text{h}$
Humidity Test	Conditions: $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$, 90~95% RH, Duration: 250h
Thermal Shock	- Heat cycle conditions: $\text{TA} = -40^{\circ}\text{C} \pm 3^{\circ}\text{C}$, $\text{TB} = 85^{\circ}\text{C} \pm 2^{\circ}\text{C}$, $t_1 = t_2 = 30\text{min}$, - Switch time: $\leq 3\text{min}$, Cycle time: 100 times, - Recovery time: $2\text{h} \pm 0.5\text{h}$.
Vibration Fatigue	- Frequency of vibration: 10~55Hz, Amplitude:1.5mm - Directions: X,Y and Z, Duration: 2h
Drop Test	Cycle time: 10 times, Height: 1.0m
Solderability	Temperature: $245^{\circ}\text{C} \pm 5^{\circ}\text{C}$, Duration: 3.0s--5.0s, Depth: DIP--2/3 , SMD--1/5
Resistance to Soldering Heat	- Thickness of PCB:1mm , Solder condition: $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$, Duration: $10 \pm 1\text{s}$ - Temperature of Soldering Iron: $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$, Duration: 3~4s , - Recovery time : $2 \pm 0.5\text{h}$
Remarks	- 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.

TAPE DIMENSION - Unit: mm, All Devices are packed in accordance with EIA standard RS-481-2.



W	F	E	P0	P1	P2	D0	D1	t1	t2	A	B
12.0	5.50	1.75	4.00	8.00	2.00	Ø1.5±	Ø1.5±	0.30	1.90	3.70	5.20
±0.30	±0.10	±0.10	±0.10	±0.10	±0.10	0.10	0.25	±0.01	±0.05	±0.10	±0.10

REEL DIMENSION - Unit: mm, 1000pcs/Reel.



A	B	C	D	E	T	t
Ø178.0±2.0	Ø60.0±0.5	Ø13.0±0.5	Ø21±0.8	2.00±0.5	15.4±1.00	0.31 Max.

IMPORTANT NOTES AND DISCLAIMER

1. **ROHS COMPLIANCE:** The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). RoHS Test Report for this product can be obtained at Download Center.
2. **REACH COMPLIANCE:** REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained at Download Center.
3. All Product parametric performance is indicated in the Electrical Characteristics for the listed herein test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
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8. *NextGen* requires that customers first obtain an RMA (Returned Merchandise Authorization) number prior to returning any products. Returns must be made within 30 days of the date of invoice, be in the original packaging, unused and like-new condition. At the time of quoting or purchasing, a product may say that it is Non-Cancelable/ Non-Returnable (NCNR). These products are not returnable and not refundable.