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|---|---|---|
| SPECIFICATION SHEET NO. | S0317 - SDR303M825S012 | |
| ORIGINAL MFG/PART NO. | TGS Crystals/SDR 303.825MA TLF/R303.825S12 | |
| NEXTGEN PART CODE | SDR303M825S012 | Indicate This Code For RFQ /Order |
| DATE | Mar. 17, 2025 | |
| REVISION | A2 | Updated With Most Recent Data |
| DESCRIPTION AND MAIN PARBMETRICS | <p>SMD SAW Resonator, 6 Pads, 3030 Type, SDR Series</p> <p>Dimension L3.0*W3.0*H1.25mm</p> <p>Center Frequency 303.825MHz; Frequency Tolerance ± 75KHz</p> <p>Insertion Loss: 1.1dB Typical, 1.8dB Max.</p> <p>Operating Temp. Range -40°C ~ +85°C</p> <p>Reflow Profile Condition 260°C Max.</p> <p>Package in Tape/Reel, 3000pcs/Reel</p> <p>REACH/RoHS/RoHS III Compliant</p> | |
| CUSTOMER | | |
| CUSTOMER PART NUMBER | | |
| CROSS REF. PART NUMBER | | |
| MEMO | | |

| |
|---|
| VENDOR APPROVE |
| <div> <div>Issued/Checked/Approved</div> <div>    </div> </div> |
| Effective Date: Mar. 17, 2025 |

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|--------------------------------------|
| CUSTOMER APPROVE |
| <div> <div></div> <div></div> </div> |
| Date: |

MAIN FEATURE

- SMD SAW Resonator 3030 Type 6 Pads
- Dimension L3.0*W3.0*H1.25mm
- Low-loss SAW Resonator
- One Port SAW Resonator
- 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 SDR303M825S012 For RFQ and Order.

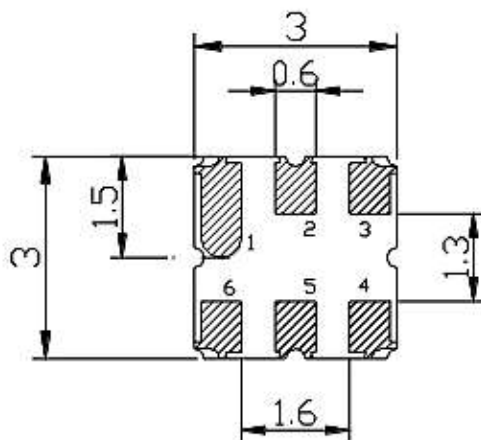
PART CODE GUIDE

RFQ
[Request For Quotation](#)

| CODE | NAME | KEY SPECIFICATION OPTION |
|---------|-----------------------------------|---|
| SDR | Series Code | SMD SAW Resonator, 6 Pads, 3030 Type Dimension L3.0*W3.0*H1.25mm |
| 303M825 | Frequency Range Code | 303M825: 303.825MHz |
| S012 | 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 |

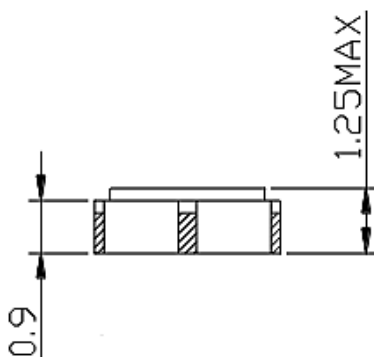
DIMENSION - Unit: mm, L3.0*W3.0*H1.25mm

Bottom View



| PIN | CONFIGURATION |
|------------|---------------|
| 2 | Input/Output |
| 5 | Output/Input |
| 1, 3, 4, 6 | Case Ground |

Side View



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

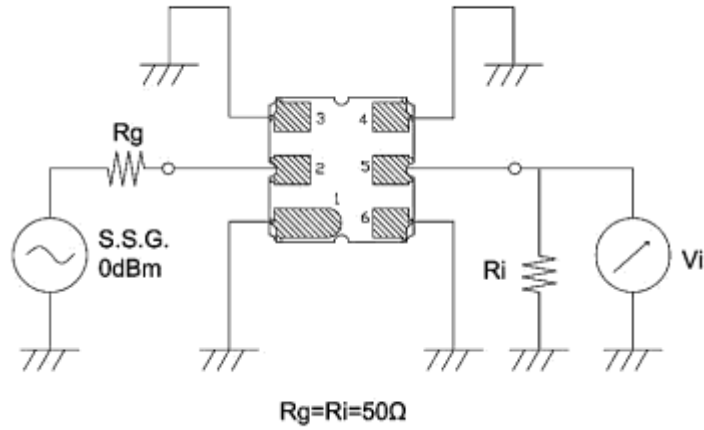
| PARAMETER | SYMBOLS | VALUE | UNITS |
|-----------------------------|------------------|-------------|-------|
| RF Power Level | P | 10 | dBm |
| DC Voltage | V _{DC} | ±30 | V |
| Operating Temperature Range | T _A | -40 to +85 | °C |
| Storage Temperature Range | T _{stg} | -55 to +125 | °C |

ELECTRONICAL CHARACTERISTICS

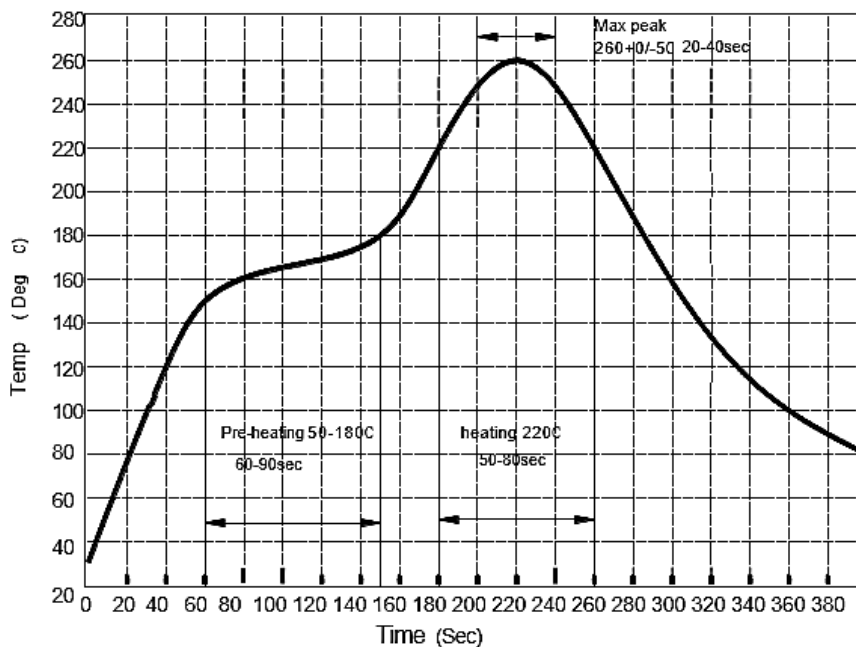
1) Test Temperature: 25°C±2°C 2) Terminating source impedance: 50Ω 3) Terminating load impedance: 50Ω .

| PARAMETER | | SYMBOLS | CHARACTERISTICS | | | |
|---|--|----------------|-----------------|---------|------|--------|
| | | | MIN. | TYPICAL | MAX. | UNIT |
| Center Frequency- Absolute Frequency | | FC | - | 303.825 | - | MHz |
| Frequency Tolerance from 303.825MHz | | Δfc | - | ±75 | - | KHz |
| Insertion Loss | | IL | - | 1.1 | 1.8 | dB |
| Quality | Unloaded Q | Q _U | - | 16411 | - | |
| Factor | 50Ω Loaded Q | Q _L | - | 1986 | - | |
| 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 | - | 13.3 | 18.0 | Ω |
| | Motional Inductance | LM | - | 122.3 | - | μH |
| | Motional Capacitance | CM | - | 2.24 | - | fF |
| | Static Capacitance | C ₀ | 2.6 | 2.8 | 3.0 | pF |

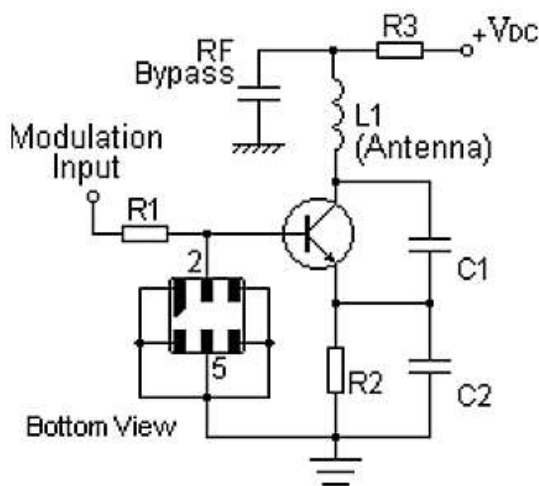
MEASUREMENT CIRCUIT – FOR REFERENCE ONLY



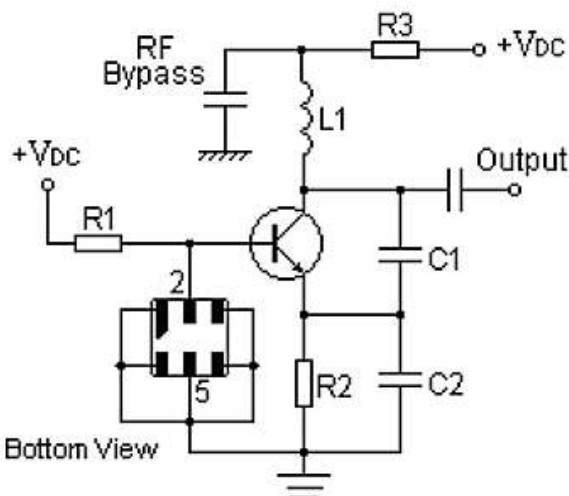
RECOMMENDED SOLDERING PROFILE – FOR REFERENCE ONLY



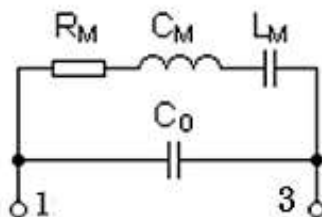
TYPICAL LOW-POWER TRANSMITTER APPLICATION – FOE REFERENCE ONLY



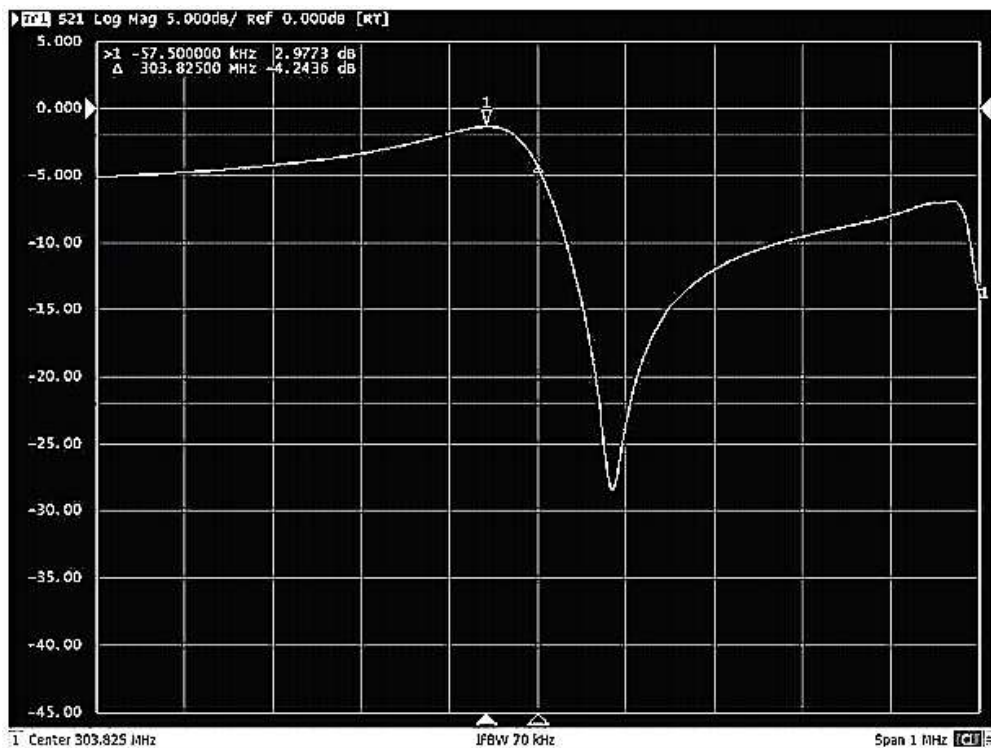
TYPICAL LOCAL OSCILLATOR APPLICATION – FOE REFERENCE ONLY



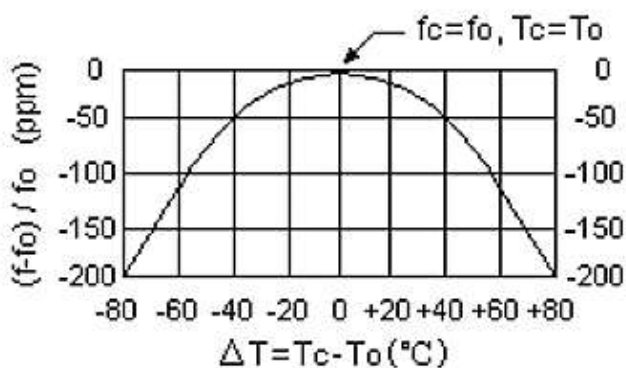
EQUIVALENT LC MODEL – FOR REFERENCE ONLY



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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> Conditions: $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$, 90~95% RH, Duration: 250h |
| Thermal Shock | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> Frequency of vibration: 10~55Hz, Amplitude:1.5mm Directions: X,Y and Z, Duration: 2h |
| Drop Test | <ul style="list-style-type: none"> Cycle time: 10 times, Height: 1.0m |
| Solderability | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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. |

[illegible]

The diagram illustrates a magnetic tape structure with the following components and dimensions:

- vacant**: The first section of the tape, containing a series of circles representing components. A dimension line below indicates a length of **150mm min**.
- components contained**: The middle section of the tape, containing a series of circles and squares representing components. A dimension line below indicates a length of **150mm min**.
- vacant**: The third section of the tape, containing a series of circles representing components. A dimension line below indicates a length of **150mm min**.
- Leader part**: The final section of the tape, containing a series of circles representing components. A dimension line below indicates a length of **250mm min**.

The tape is labeled **TAPE RUNNING DIRECTION** with an arrow pointing to the right.

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.
4. NextGen Component, Inc (*NextGen*) reserves the right to make changes to this document and its products and specifications at any time without notice. Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.
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7. *NextGen* products are not authorized for use as critical components in life support devices or systems without express written approval by *NextGen*.
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.