

SPECIFICATION SHEET NO.	S0422 – RF12M28800S302	
ORIGINAL MFG/PART NO.	TGS Crystals/COM2231AGI01 TLF-12M288	
NEXTGEN PART CODE	RF12M28800S302	Indicate This Code For RFQ /Order
DATE	Apr. 22, 2025	
REVISION	A4	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	SMD Crystal Oscillator, Case 2520 Type, 4 Pads, RF series, Case Dimension L2.5*W2.0*H0.9mm 12.288MHz, Supply Voltage 3.3V, Tolerance $\pm 25\text{ppm}$ @25°C$\pm 3^\circ\text{C}$ Symmetry 45/55; Output Waveform HCMOS, Output Load 15pF Tri-State (Output Enable) Via Pin 1 Operating Temp. Range -40°C ~+85°C Package in Tape/Reel, 3000pcs/Reel REACH/RoHS/RoHS III Compliant	
CUSTOMER		
CUSTOMER PART NUMBER		
CROSS REF. PART NUMBER		
MEMO		

VENDOR APPROVE
Issued/Checked/Approved   
Effective Date: Apr. 22, 2025

CUSTOMER APPROVE
Date:

MAIN FEATURE

- SMD Package, Seam Sealed, 2520 Type, 4 Pads
- Case Dimension L2.5*W2.0*H0.9mm
- Low Noise And Low Current
- Industry Standard
- Reflow Profile Condition 260 °C Max.
- Tristate Function – Enable/Disable or Tri-State (Output Enable) Via Pin 1
- Cross More Competitor's Part
- REACH/RoHS/RoHS III Compliant



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

APPLICATION

- PDA, PND, DSC, Smart phone, WiLAN, Bluetooth and more
- Communication Electronics



ELECTRICAL CHARACTERISTICS

- See Page 6 ~ Page 8 For Different Part Code.
- All Products Parameters are Subject To NextGen Components' Final Confirmation.

HOW TO ORDER

- Please Follow Up Part Code Guide And Indicate NextGen Part Code RF12M28800S302 For RFQ and Order.

PART CODE GUIDE

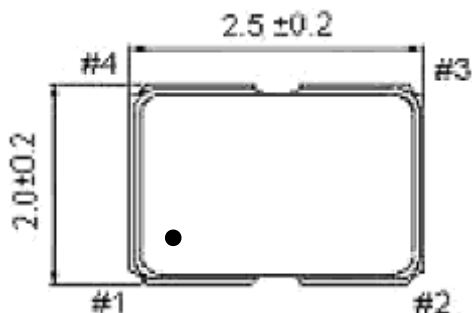
RFQ

[Request For Quotation](#)

CODE	NAME	KEY SPECIFICATION OPTION
RF	Series Code	SMD Crystal Oscillator 2520 Type, 4Pads, Case Dimension L2.5*W2.0*H0.9mm
12M288	Frequency Range Code	12M288: 12.288MHz or Custom Frequency Range
00S	Internal Control Code	Letter A~Z, a~z or Digits (0~9)
302	Parameters Code	Special Parameters Code Letter A~Z, a~z or Digits (0-9)
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, Case Dimension L2.5*W2.0*H0.9mm

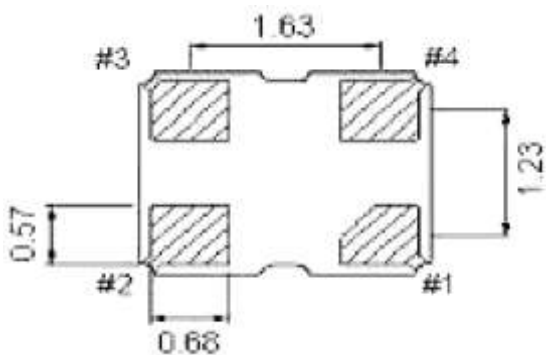
Top View



Side View



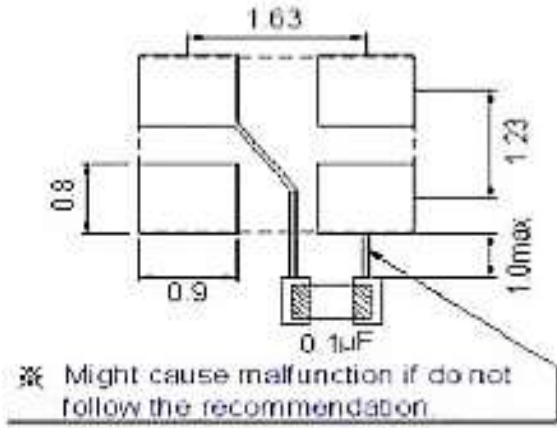
Bottom View



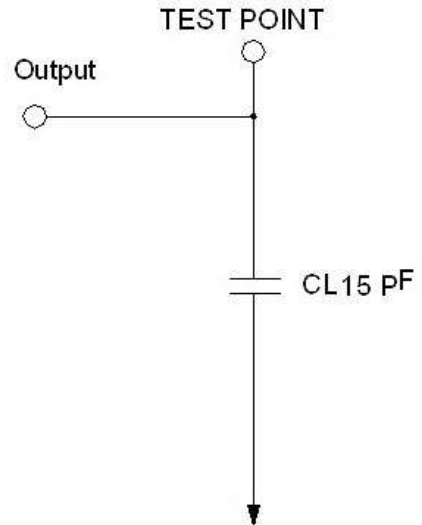
Pin Function

- # 1 Tristate Enable Via #1
- #2 Ground
- #3 Output
- #4 VDD

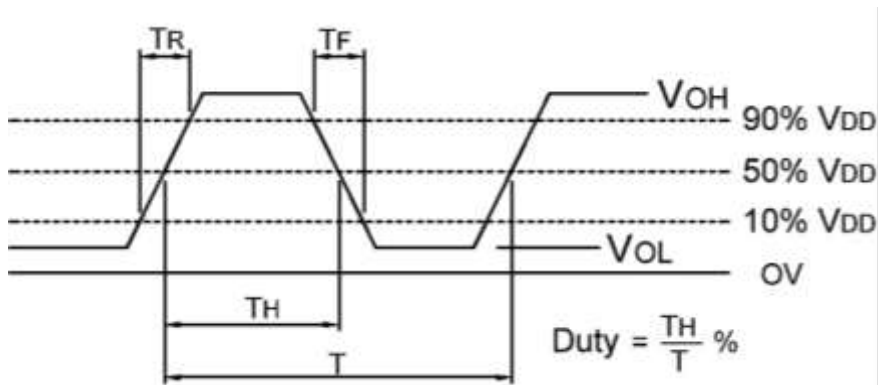
SUGGESTED LAYOUT– Unit: mm, For Reference



CIRCUIT PRINCIPLE – For Reference



OUTPUT WAVEFORM - HCMOS LOAD



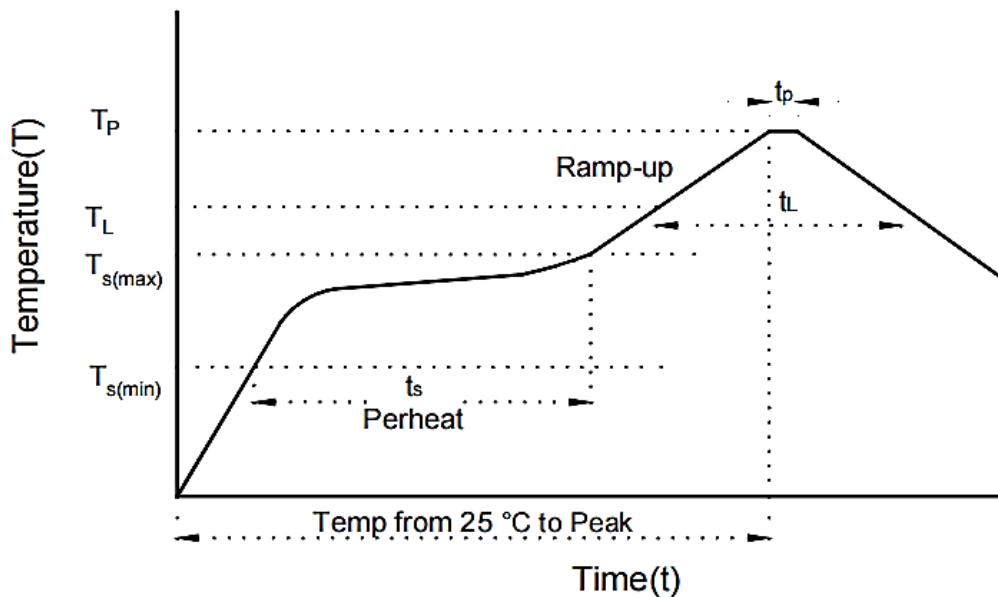
GENERAL SPECIFICATION

PARAMETER		SYMBOL	VALUE			UNIT	CONDITION
			MIN.	TYPE	MAX.		
Frequency Range		F0	0.032768	-	125.00	MHz	Please specify
Frequency Tolerance		$\Delta F/F0$	± 20	-	± 50	ppm	at 25°C $\pm 3^\circ\text{C}$
Tristate Function		INH N	Disable or Tri-State (Output Enable) Via Pin 1				Please specify
Operating Temp. Range		TOPR	-40	-	+85	°C	
Storage Temp. Range		TSTG	-55	-	+125	°C	
Power Supply	Voltage	VDD	1.65		3.45	V	Please specify
	Current	IDD	-	-	1.5	mA	@ Max. Supply Voltage
Output Level		VOH	90% Vdd	-	-	V	Output High(Logic "1")
		VOL	-	-	10% Vdd	V	Output Low(Logic "0")
		Load	15, 30, 50			pF	Please specify
Output Waveform			HCMOS				Please specify
Duty Cycle		Duty	45	-	55	%	
Start-up Time		Tosc	-	-	2.0	mSec.	
Rise/ Fall time		Tr/Tf	-	-	50	nSec.	
Aging		FA	-3	-	+3	ppm	Frequency drift in 1st year

ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

PART CODE	FREQUENCY RANGE	SUPPLY VOLTAGE	FREQUENCY TOLERANCE	OUTPUT WAVEFORM	OUTLOAD	TRISTATE FUNCTION
	MHz	V	ppm @25°C		pF	
RF4M096000S300	4.096000	3.3	±50	HCMOS	15	Tri-State (Output Enable)
RF12M00000S302	12.000000	3.3	±25	HCMOS	15	Tri-State (Output Enable)
RF12M00000S300	12.000000	3.3	±50	HCMOS	15	Tri-State (Output Enable)
RF12M28800S302	12.288000	3.3	±25	HCMOS	15	Tri-State (Output Enable)
RF14M18750S300	14.187500	3.3	±20	HCMOS	15	Tri-State (Output Enable)
RF16M00000S302	16.000000	3.3	±25	HCMOS	15	Tri-State (Output Enable)
RF20M00000S302	20.000000	3.3	±25	HCMOS	15	Tri-State (Output Enable)
RF24M00000S302	24.000000	3.3	±25	HCMOS	15	Tri-State (Output Enable)
RF24M00000S300	24.000000	3.3	±50	HCMOS	15	Tri-State (Output Enable)
RF24M57600S302	24.576000	3.3	±25	HCMOS	15	Tri-State (Output Enable)
RF25M00000S302	25.000000	3.3	±25	HCMOS	15	Tri-State (Output Enable)
RF25M00000S300	25.000000	3.3	±50	HCMOS	15	Tri-State (Output Enable)
RF26M00000S302	26.000000	3.3	±25	HCMOS	15	Tri-State (Output Enable)
RF27M00000S302	27.000000	3.3	±25	HCMOS	15	Tri-State (Output Enable)
RF27M00000S300	27.000000	3.3	±50	HCMOS	15	Tri-State (Output Enable)
RF40M00000S302	40.000000	3.3	±25	HCMOS	15	Tri-State (Output Enable)
RF48M00000S302	48.000000	3.3	±25	HCMOS	15	Tri-State (Output Enable)
RF48M00000S300	48.000000	3.3	±50	HCMOS	15	Tri-State (Output Enable)
RF49M15200S102	49.152000	1.8	±25	HCMOS	15	Tri-State (Output Enable)
RF49M15200S302	49.152000	3.3	±25	HCMOS	15	Tri-State (Output Enable)

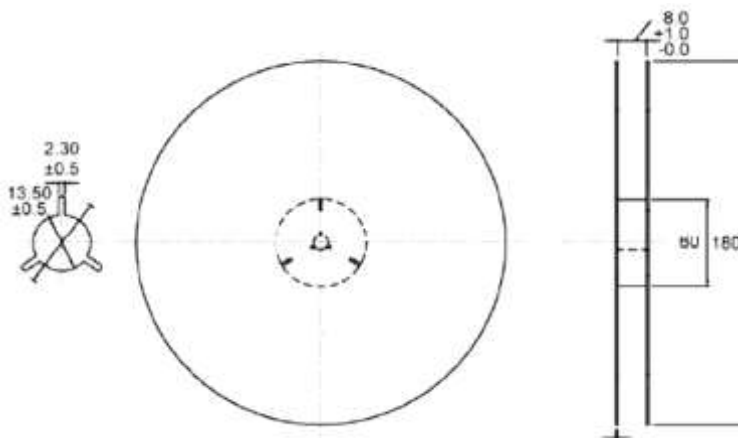
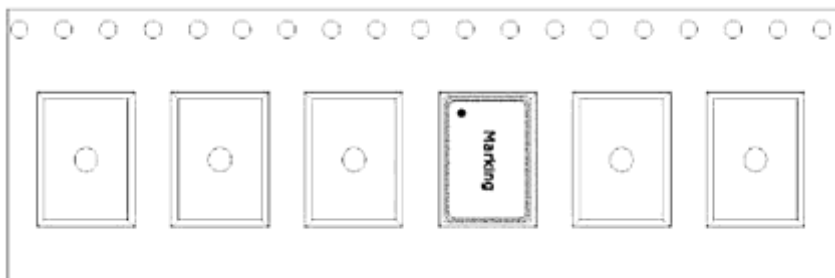
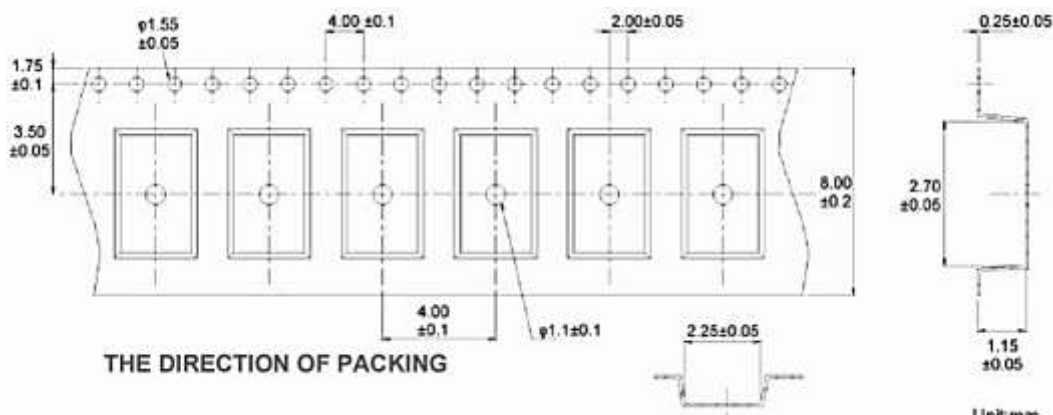
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SUGGESTED REFLOW PROFILE - For Reference Only


PROFILE FEATURE		PB-FREE ASSEMBLY
Average Ramp-up Rate (T_L Max to T_p)		3°C/second Max
Preheat	Temperature Min (T_s Min.)	150°C
	Temperature Max (T_s Max.)	200°C
	Time (t_s Min. to t_s Max.)	60 ~ 180 seconds
Time maintained above	Temperature (T_L)	217°C
	Time (t_L)	60 ~ 150 seconds
Peak/Classification Temperature (T_p)		260 °C
Time within 5°C of actual Peak Temperature (t_p)		10 seconds Max.
Ramp-down Rate		6 °C /Second Max.
Time 25 °C to Peak Temperature		8 Minutes Max.
Suggest reflow times		3 Times Max.

TAPE/REEL -Unit: mm

All Devices are packed in accordance with EIA standard RS-481-2 and specifications, 3000pcs/Reel



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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