

**SPECIFICATION SHEET**

<b>SPECIFICATION SHEET NO.</b>	Q0120- RF12M00000S300
<b>DATE</b>	Jan.20, 2023
<b>REVISION</b>	A1
<b>DESCRIPTION</b>	<p>SMD Oscillator, 2520 Type, L2.5*W2.0*H1.0mm, 4 Pads, COM22 series            12.0000MHz, 3.3V, +/-50ppm, Symmetry 45/55,            Operating Temp. Range -40°C ~+85°C, Reflow Profile Condition 260 °C Max.            HCMOS//15pF, Supply Current 20mA Max,            Tristate function - Enable via Pad 1,            Packed in Tape/Reel, 3000pcs/Reel            RoHS/RoHS III compliant</p>
<b>CUSTOMER</b>	
<b>CUSTOMER PART NUMBER</b>	
<b>CROSS REF. PART NUMBER</b>	
<b>ORIGINAL PART NUMBER</b>	TGS COM2231BGI01 TLF-12M000
<b>PART CODE</b>	RF12M00000S300

**VENDOR APPROVE**

Issued/Checked/Approved



DATE: Jan.20, 2023

**CUSTOMER APPROVE**

DATE:

1/20/2023

**MHZ SMD OSCILLATOR 2520 TYPE 4 PADS**

**MAIN FEATURE**

- SMD Package, Seam Sealed, 2520 Type, L2.5\*W2.0\*H1.0mm, 4 Pads
- Low noise and Low current
- Industry standard
- Reflow Profile Condition 260 °C Max.
- Cross more competitors part
- RoHS/RoHS III compliant



**APPLICATION**

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

**RFQ**

[Request For Quotation](#)

**PART CODE GUIDE**

RF	12M00000	S	300
1	2	3	4

- 1) RF: Part family Code for SMD Oscillator, 2520 Type, L2.5\*W2.0\*H1.0mm, 4 Pads, COM22 series
- 2) 12M00000: Frequency range code for 12.00000MHz
- 3) S: SMD type, Package Tape/Reel, 3000pcs/Reel
- 4) 300: Specification code for original part No.: **TGS COM2231BGI01 TLF-12M000**

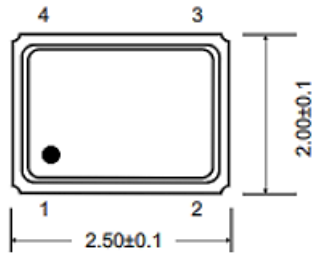
**MHZ SMD OSCILLATOR 2520 TYPE 4 PADS**

**DIMENSION (Unit: mm, Tol. +/-0.15mm)**

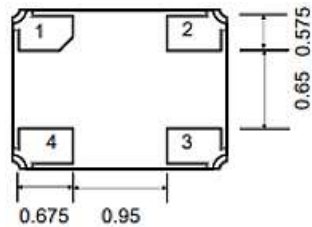
Image for reference



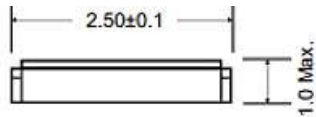
COM22



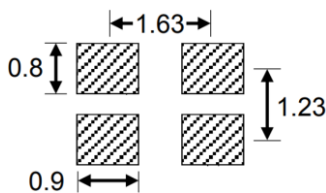
**Marking**  
Frequency Range



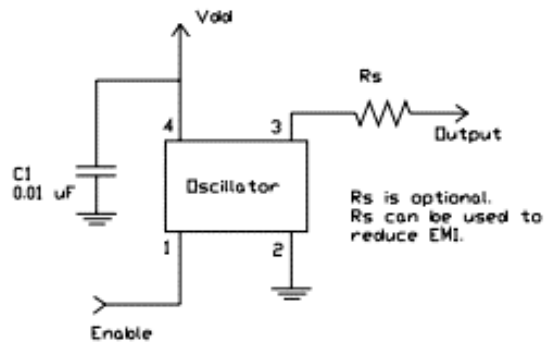
**Pin Function**  
#1 Enable (Tri-State)  
#2 Ground  
#3 Output  
#4 VDD



**Recommend Pad Layout**



**Circuit Principle**



**MHZ SMD OSCILLATOR 2520 TYPE 4 PADS**
**ELECTRICAL PARAMETERS**

Parameter		Part No. Symbol	Units	Value			Condition
				Min.	Typical	Max.	
<b>Original Manufacturer</b>		TGS	TGS Crystals				
<b>Holder Type</b>		COM22	SMD Oscillator, 2520 Type, L2.5*W2.0*H1.0mm, 4 Pads				
<b>Supply Voltage</b>		3	V	3.3		+/-10%	
<b>Enable/Disable Function</b>		1		Tristate function - Enable		@ Control via pin 1	
<b>Overall Freq. Tolerance</b>		B	ppm	-50		+50	@25°C
<b>Operating Temp. Range</b>		G	°C	-40		+85	
<b>Storage Temp. Range</b>			°C	-55		+125	
<b>Symmetry</b>		I	%	45		55	
<b>Output</b>	<b>V OH</b>		V	90%			High (Logic "1")
	<b>V OL</b>		V			10%	Low (Logic "0")
	<b>Load</b>		pF	15			
<b>Output Waveform</b>		01		HCMOS			@OutputLoad 15pF
<b>Startup Time</b>			ms			10	
<b>Supply Current</b>			mA			20	
<b>Rise/ Fall time</b>			ns			10	
<b>Phase Jitter</b>			ps			1.0	@12KHz~20MHz
<b>Aging</b>			ppm/year			±3	@1 <sup>st</sup> year
<b>Others</b>	<b>Package</b>	T	Tape/Reel				
	<b>RoHS Status</b>	LF	RoHS III compliant				
	<b>Add Value</b>		N/A				
	<b>Internal Control Code *</b>		N/A				
<b>Frequency Range</b>		-12M000	12.0000MHz				

Note: 1) Original Part Number: **TGS COM2231BGI01 TLF-12M000**

2) \* Internal Control Code- 2 letter or digits; Blank: N/A

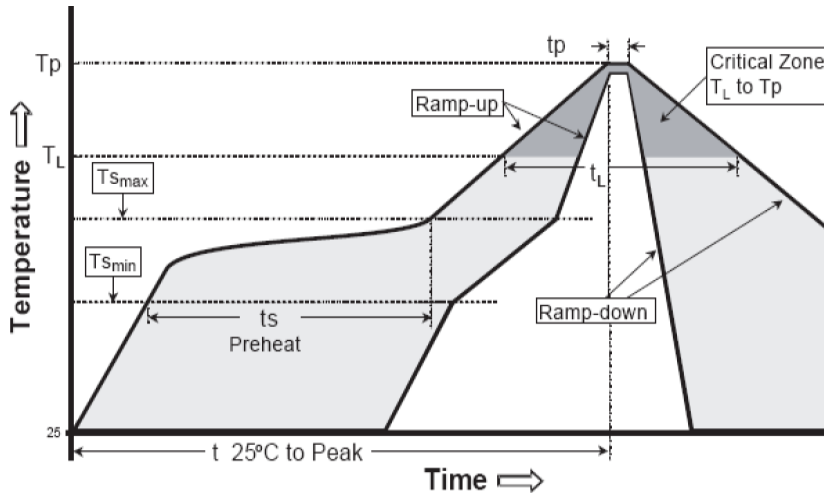
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**MHZ SMD OSCILLATOR 2520 TYPE 4 PADS**
**RELIABILITY**

Test Items	Test Method And Conditions	Reference Documents
High Temperature High Humidity Storage	Temperature: 85°C±3°C Relative Humidity:85%RH Time: 1000 Hours	JIS C5023
High Temperature Storage	Temperature: 125°C±3°C Time: 1000+/-12 Hours.	MIL-STD-883
Low Temperature Storage	Temperature: -40°C±3°C Time: 1000+/-12 Hours	MIL-STD-883
Thermal Shock	Temperature 1: -125°C±3°C Temperature 2: -55°C±3 °C Temperature change between T1 and T2 10 min 100 cycles maintain T1 and T2 for 10 Min. each cycle	MIL-STD-883
Resistance to Solder Heat	Solder Temperature: 260°C±5°C Time: 10±1 Seconds	MIL-STD-202
Solderability	The solder pot temperature is 245±5°C Immersing Depth: 0.5mm Min. Immersion Time: 5 ± 1 sec. Flux: Rosin resin methyl alcohol solvent (1:4)	MIL-STD-883
Drop Test	3 Times Free Fall from 75cm height table to 3cm thickness hard wood board	JIS C6701
Mechanical Shock	Half sine wave,1000 G 3 Times for all 3 directions(X,Y Z)	MIL STD 202
Vibration	Frequency Range: 10Hz ~ 2000Hz Amplitude: 1.52m/20G Sweep time: 20 minutes 4 Hours in each direction, total 12 Hours	MIL-STD-883
Leakage Test	Gross leak: standard sample for automatic gross leak detector, test pressure: 2 kg/cm <sup>2</sup> Fine leak: Helium Bombing 4.5kgf/cm <sup>2</sup> for 2 hours	MIL-STD-883
Pressure cooker storage	121°C±3°C, RH 100%; 2 bar, 240 hours	JIS C6701

**MHZ SMD OSCILLATOR 2520 TYPE 4 PADS**
**SUGGESTED REFLOW PROFILE (For Reference Only)**

Total time: 200 Sec. Max. Solder melting point: 220°C

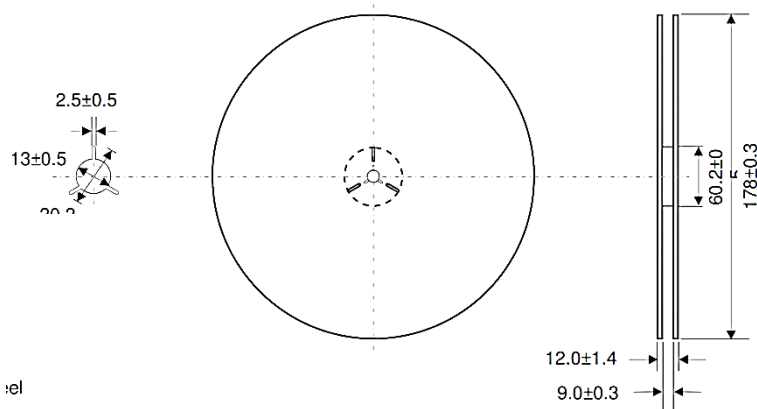
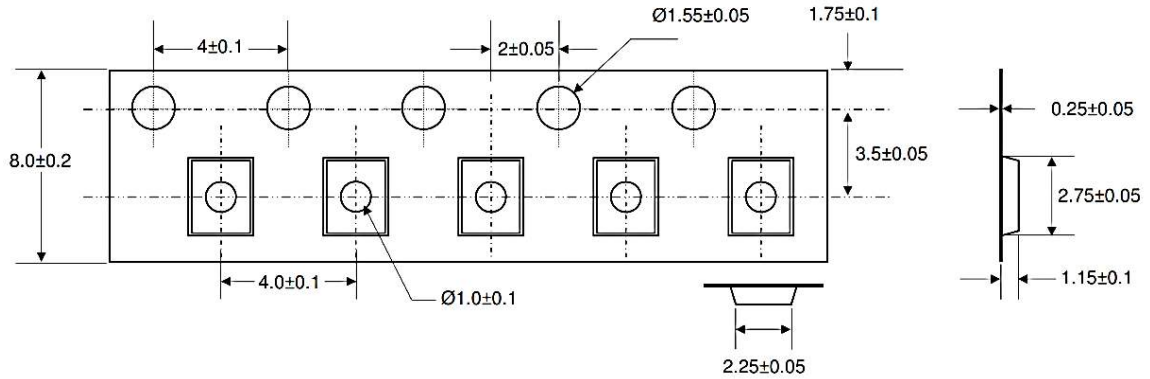


<b>Profile Feature</b>		Pb-Free Assembly
<b>Average Ramp-up Rate (Ts Max to Tp)</b>		3°C/second Max
<b>Preheat</b>	<b>Temperature Min (Ts Min.)</b>	125°C
	<b>Temperature Max (Ts Max.)</b>	200°C
	<b>Time (ts Min. to ts Max.)</b>	60 ~ 180 seconds
<b>Time maintained above</b>	<b>Temperature (T<sub>L</sub>)</b>	217°C
	<b>Time (t<sub>L</sub>)</b>	60 ~ 150 seconds
<b>Peak/Classification Temperature (T<sub>p</sub>)</b>		260 °C
<b>Time within 5°C of actual Peak Temperature (t<sub>p</sub>)</b>		20 ~ 40 seconds
<b>Ramp-down rate</b>		6 °C /Second Max.
<b>Time 25 °C to Peak Temperature</b>		8 minutes Max.
<b>Suggest reflow times</b>		3 Times Max.

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**TAPE/REEL (Unit: mm)**

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



**DISCLAIMER**

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1/20/2023