




SPECIFICATION SHEET

SPECIFICATION SHEET NO.	N0217-RE16M00000S300
DATE	Feb. 17, 2021
REVISION	A0
DESCRIPTION	SMD Oscillator, 3225 Type, L3.2*W2.5*H1.2mm, 4 Pads, COM32 series 16.0000MHz, 3.3V, +/-50ppm, Symmetry 45/55, Operating Temp. Range -40°C ~+85°C, Reflow Profile Condition 260 °C Max. HCMOS//15pF, Tristate via Pad 1, Supply Current 30mA Max. Tape/Reel, RoHS/RoHS III compliant
CUSTOMER	
CUSTOMER PART NUMBER	
CROSS REF. PART NUMBER	
ORIGINAL PART NUMBER	TGS COM3231BGI03 TLF-16M000
PART CODE	RE16M00000S300

VENDOR APPROVE			
Issued/Checked/Approved			
DATE: Feb. 17, 2021			

CUSTOMER APPROVE	
DATE:	

MHZ SMD OSCILLATOR 3225 TYPE 4 PADS

MAIN FEATURE

- SMD Package, Seam Sealed, 3225 Type, L3.2*W2.5*H1.2mm, 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

RE	16M00000	S	300
1	2	3	4

- 1) RE: Part family Code for SMD Oscillator 3225 Type, L3.2*W2.5*H1.2mm, 4 Pads, COM32 series
- 2) 16M00000: Frequency range code for 16.00000MHz
- 3) S: SMD type, Package Tape/Reel, 3000pcs/Reel
- 4) 300: Specification code for original part No.: **TGS COM3231BGI03 TLF-16M000**

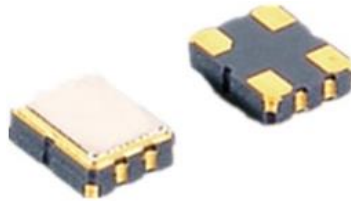
MORE FREQUENCY RANGE AVAILABLE (MHz)

4.91520	12.000	12.2880	16.000	24.000	24.576	25.000	26.000	27.000	32.000
37.125	40.00	48.000	50.000	100.00	125.00				

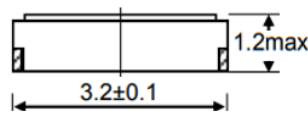
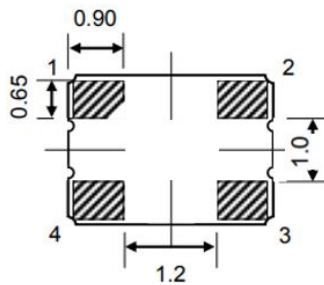
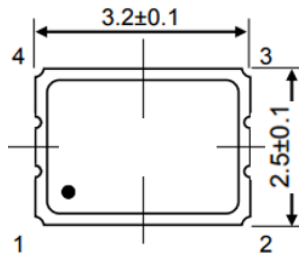
MHZ SMD OSCILLATOR 3225 TYPE 4 PADS

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

Image for reference



COM32



Marking 1

Line 1: Company Code + Supply Voltage
Line 2: Freq. Range + QC Code (A~Z)

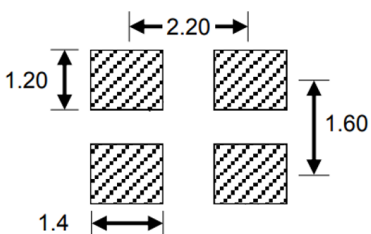
Marking 2

Line 1: Frequency Range

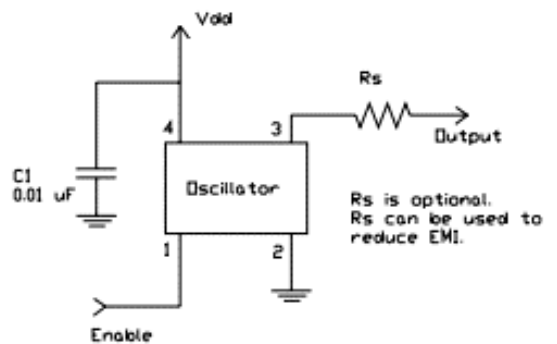
Pin Function

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

Recommend Pad Layout



Circuit Principle



MHZ SMD OSCILLATOR 3225 TYPE 4 PADS
ELECTRICAL PARAMETERS

Parameter		Part No. Symbol	Units	Value			Condition
				Min.	Typical	Max.	
Original Manufacturer		TGS	TGS Crystals				
Holder Type		COM32	SMD Oscillator, 3225 Type, L3.2*W2.5*H1.2mm, 4 Pads				
Supply Voltage		3	V	3.3		+/-10%	
Enable/Disable Function		1		Tri-State		@ Control via pin 1	
Overall Freq. Tolerance		B	ppm	-50		+50	@25°C
Operating Temp. Range		G	°C	-40		+85	
Storage Temp. Range			°C	-55		+125	
Symmetry		I	%	45		55	
Output	V OH		V	90%			High (Logic "1")
	V OL		V			10%	Low (Logic "0")
	Load		pF	15			
Output Waveform		03		HCMOS			@OutputLoad 15pF
Startup Time			ms			10	
Supply Current			mA			30	
Rise/ Fall time			ns			10	
Phase Jitter			ps			1.0	@12KHz~20MHz
Aging			ppm/year			±3	@1 st year
Others	Package	T	Tape/Reel				
	RoHS Status	LF	RoHS III compliant				
	Add Value		N/A				
	Internal Control Code *		N/A				
Frequency Range		-16M000	16.0000MHz				

Note: 1) Original Part Number: **TGS COM3231BGI03 TLF-16M000**

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

MHZ SMD OSCILLATOR 3225 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: 96 Hours	JIS C5023
High Temperature Storage	Temperature: 125°C±3°C Time: 96 Hours.	MIL-STD-883E Method 1005.8
Low Temperature Storage	Temperature: -40°C±3°C Time: 96 Hours.	MIL-STD-883E Method 1013
Thermal Shock	Temperature 1: -55°C±5°C Temperature 2: 85°C±5 °C Temperature change between T1 and T2 5 min 10cycles maintain T1 and T2 for 30 minutes each cycle	MIL-STD-202F Method 107 Condition A
Resistance to Solder Heat	Solder Temperature: 260°C±5°C Time: 10±1 Seconds	MIL-STD-202F Method 210E
Solderability	The solder pot temperature is 245±5°C , dwell time 5±0.5sec	J-STD-002B
Drop Test	3 Times Free Fall from 50cm height table to 3cm thickness hard wood board	J-STD-002B
Mechanical Shock	Half sine wave,1000 G 3 Times for all 3 directions(X,Y Z)	MIL STD 202F Method 213B
Vibration	Frequency Range: 10Hz ~ 55Hz Amplitude: 0.75mm 2 Hours in each direction, total 6 Hours	MIL-STD-883E Method 2007.3
Leakage Test	Take measurements with a helium Leakage detector Leakage Rate≤1×10 ⁻³ Pa cm ³ /s	MIL-STD-883E

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SUGGESTED REFLOW PROFILE (For Reference Only)

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

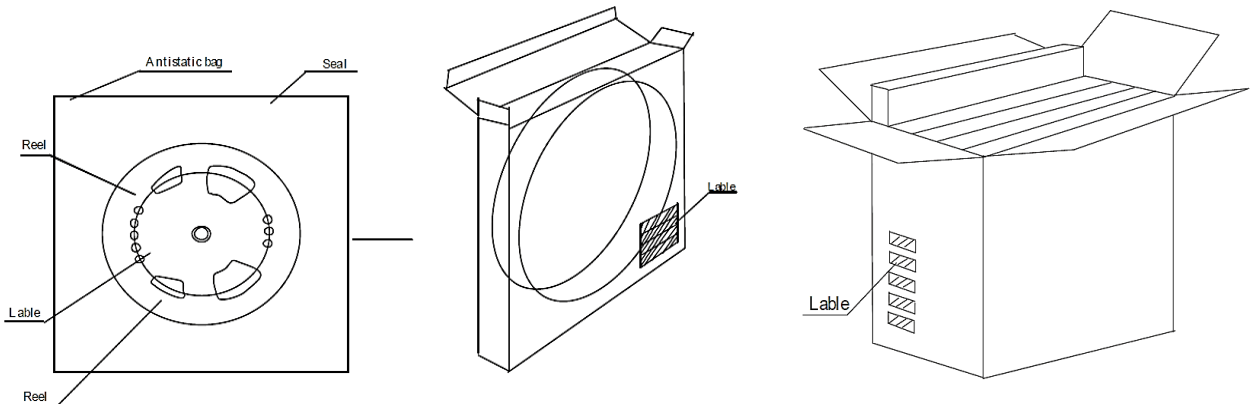
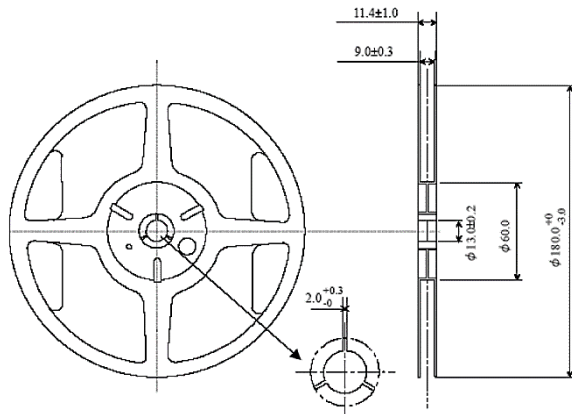
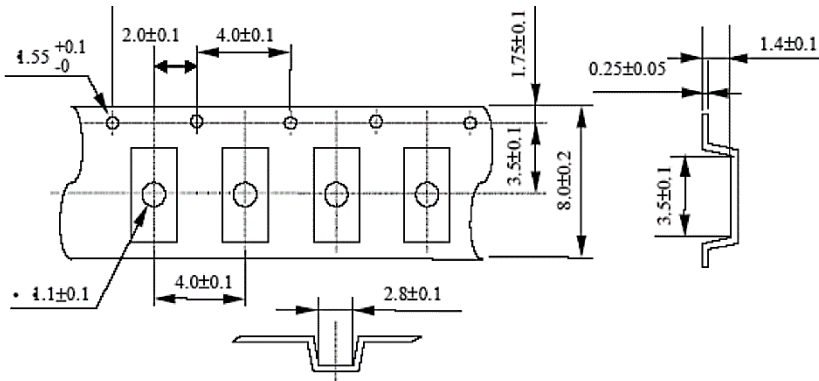


Profile Feature		Pb-Free Assembly
Average Ramp-up Rate (Ts Max to Tp)		3°C/second Max
Preheat	Temperature Min (Ts Min.)	125°C
	Temperature Max (Ts Max.)	200°C
	Time (ts Min. to ts Max.)	60 ~ 180 seconds
Time maintained above	Temperature (T_L)	217°C
	Time (t_L)	60 ~ 150 seconds
Peak/Classification Temperature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



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