




SPECIFICATION SHEET

SPECIFICATION SHEET NO.	Q1115- XF12M0000S4310	
DATE	Nov. 15, 2023	
REVISION	A0	Updated With Most Recent Data - Official First Release
DESCRIPTION AND MAIN PARAMETRICS	<p>MHz SMD Crystal, L3.2*W2.5*H0.7mm, Seam Seal, 4 Pads, CM32 series 12.0000MHz, Tolerance +/-30ppm, Load Capacitor 10pF, Frequency stability +/-30ppm @Operating Temp. Range -40°C ~+85°C, ESR 80 ohm Max, Reflow Profile Condition 260 °C Max. Tape/Reel, 3000pcs/Reel RoHS/RoHS III compliant</p>	
CUSTOMER		
CUSTOMER PART NO.		
CROSS REF. PART NO.		
ORIGINAL MFG/PART NO.	TGS/CM32 12M0A30-10-30-40-80TLF	
PART CODE	XF12M0000S4310	

VENDOR APPROVE			
Issued/Checked/Approved			
DATE: Nov. 15, 2023			

CUSTOMER APPROVE	
DATE:	

SMD CRYSTAL 3225 TYPE 4 PADS

MAIN FEATURE

- SMD Crystal, Seam Seal, L3.2*W2.5*H0.7mm, 4 pads
- Low cost, High precision, High frequency stability
- Reflow Profile Condition 260 °C Max.
- Cross more competitors part
- RoHS/RoHS III compliant



APPLICATION

- Bluetooth, wireless communication set
- Communication Electronics

PART CODE GUIDE

RFQ
Request For Quotation

XF	12M0000	S	4310
1	2	3	4

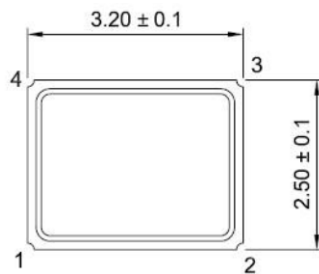
1. XF: Part family Code for SMD Crystal, Seam Seal, L3.2*W2.5*H0.7mm, 4 pads (CM32)
2. 12M0000: Frequency range code for 12.00000 MHz
3. S: SMD type, Package Tape/Reel, 3000pcs/Reel
4. 4310: Internal Control Code or special Parameters code letter A~Z or digits (1-9)

DIMENSION (Unit: mm)

Image for reference

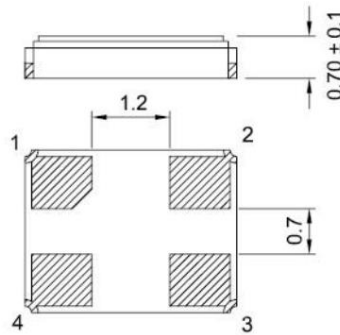


CM32



Marking

Frequency Range



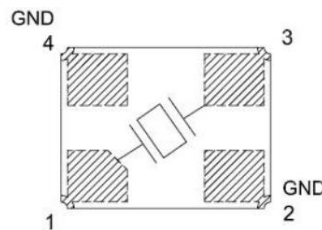
Connection

#1 Crystal

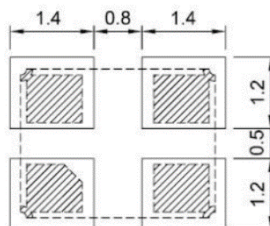
#2 Ground

#3 Crystal

#4 Ground



Recommend Pad Layout



ELECTRICAL PARAMETERS

PARAMETER	PART NO. SYMBOL (NOTE 1)	UNITS	VALUE			CONDITION
			MIN.	TYPICAL	MAX.	
Original Manufacturer	TGS	TGS Crystals				
Holder Type	CM32	SMD Crystal, Seam Seal, L3.2*W2.5*H0.7mm, 4 pads				
Frequency Range	12M0	MHz	12.0000			
Mode of Oscillation	A	AT Fundamental				
Frequency Tolerance	30	ppm	-30		+30	@25°C
Load Capacitance	-10	pF	10			
Stability over Operation Temperature	-30	ppm	-30		+30	
Operation Temperature	-40	°C	-40		+85	
Storage Temperature		°C	-55		+105	
Equivalent Series Resistance (ESR)	-80	Ω			80	
Drive Level		μW			300	
Shunt Capacitance (C0)		pF			5.0	
Motional Capacitance (C1)		fF	N/A			
DLD2		Ω	N/A			
FLD2		ppm	N/A			
RDL2		Ω	N/A			
SPDB		dB	N/A			
Aging		ppm/year			±3	@1 st year
Insulation Resistance		MΩ	500			@100VDC ± 15VDC
Others	Package	T	Tape/Reel			
	RoHS Status	LF	RoHS III compliant			
	Add Value		N/A			
	Internal Control Code	DE	2 letter or digits; Blank: N/A			

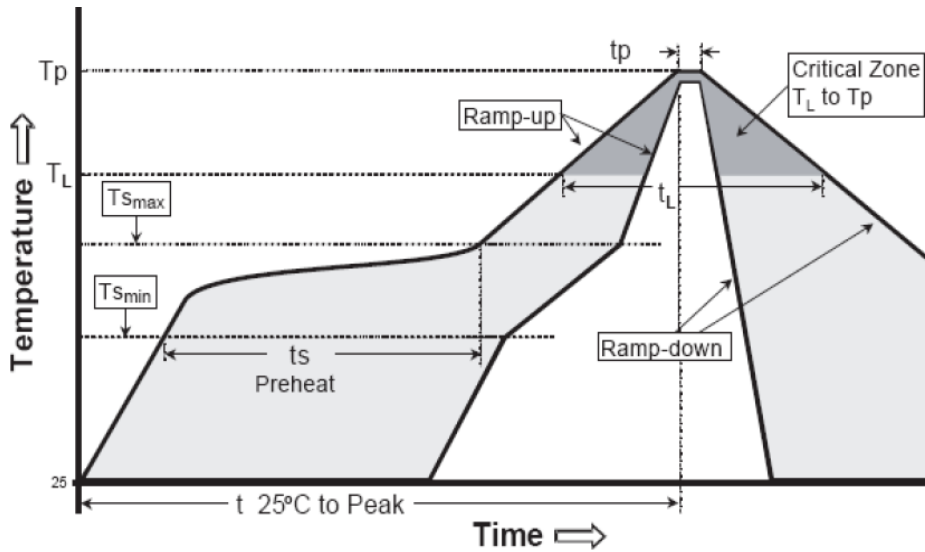
Note: 1) Original Part Number: TGS CM32 12M0A30-10-30-40-80 TLFDE

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

SUGGESTED REFLOW PROFILE (For Reference Only)

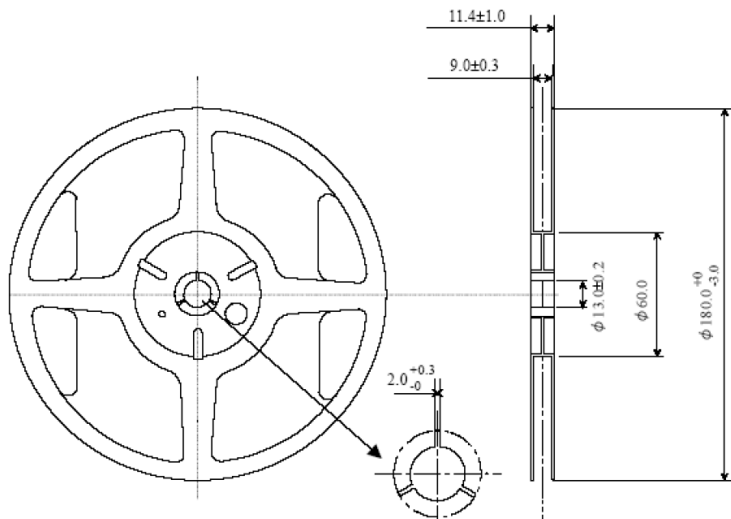
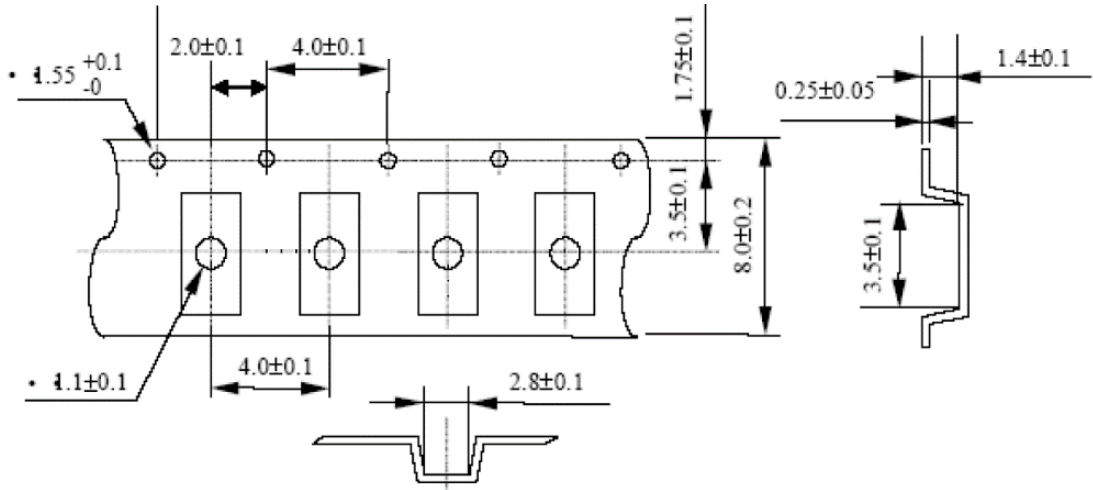
Total time: 200 Sec. Max. Solder melting point: 220°C



PROFILE FEATURE		PB-FREE ASSEMBLY
Average Ramp-up Rate (T_s Max to T_p)		3°C/second Max
Preheat	Temperature Min (T_s Min.)	125°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)		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.

TAPE/REEL (Unit: mm)

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



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