




**SPECIFICATION SHEET**

<b>SPECIFICATION SHEET NO.</b>	R0206- XF24M000S12418	
<b>DATE</b>	Feb. 06, 2024	
<b>REVISION</b>	A0	Updated With Most Recent Data - Official First Release
<b>DESCRIPTION AND MAIN PARAMETRICS</b>	<p>MHz SMD Crystal, L3.2*W2.5*H0.7mm, Seam Seal, 4 Pads, CM32 series            24.00000MHz, Tolerance +/-10ppm, Load Capacitor 18pF,            Frequency stability +/-20ppm @Operating Temp. Range -40°C ~+85°C,            ESR 60 ohm Max, Reflow Profile Condition 260 °C Max.            Tape/Reel, 3000pcs/Reel            RoHS/RoHS III compliant</p>	
<b>CUSTOMER</b>		
<b>CUSTOMER PART NO.</b>		
<b>CROSS REF. PART NO.</b>		
<b>ORIGINAL MFG/PART NO.</b>	TGS/ CM32 24M0A10-18-20-40-60 TLF	
<b>PART CODE</b>	XF24M000S12418	

<b>VENDOR APPROVE</b>			
Issued/Checked/Approved			
DATE: Feb. 06, 2024			

<b>CUSTOMER APPROVE</b>	
DATE:	

**SMD CRYSTAL 3225 TYPE 4 PAD CM32 SERIES**

**MAIN FEATURE**

- SMD Crystal, Seam Seal, L3.2\*w2.5\*h0.7mm, 4 Pads
- Low Cost, High Precision, High Frequency Stability
- Short Lead time
- Reflow Profile Condition 260 °C Max.
- Cross More Competitors Part
- REACH/RoHS/RoHS III Compliant

**APPLICATION**

- Bluetooth, wireless communication set
- Communication Electronics

**RFQ**  
[Request For Quotation](#)

**PART CODE GUIDE**

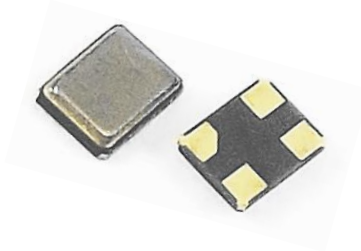
<b>XF</b>	<b>24M000</b>	<b>S</b>	<b>12418</b>
1	2	3	4

1. XF: Part family Code for SMD Crystal, Seam Seal, L3.2\*W2.5\*H0.7mm, 4 pads (CM32)
2. 24M000: Frequency range code for 24.000 MHz
3. S: SMD type, Package Tape/Reel, 3000pcs/Reel
4. 12418: Special or custom specification Code, Letter A~Z Or Digits (0-9)

**SMD CRYSTAL 3225 TYPE 4 PAD CM32 SERIES**

**DIMENSION** (Unit: mm)

Image for reference

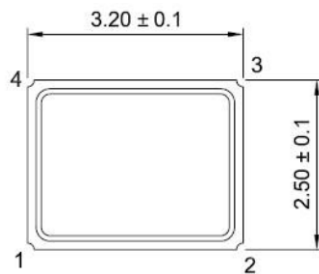


**3225 Series**

Size Code CM32

Dimension

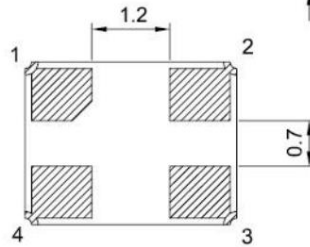
L3.20\*W2.50\*H0.70mm



**Marking**

Frequency Range

Or Custom Code



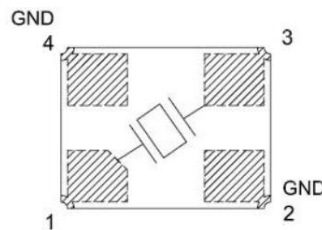
**Connection**

#1 Crystal

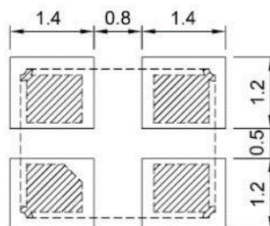
#2 Ground

#3 Crystal

#4 Ground



**Recommend Pad Layout**



**SMD CRYSTAL 3225 TYPE 4 PAD CM32 SERIES**
**ELECTRICAL PARAMETERS**

PARAMETER	PART NO. SYMBOL	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	24M0	MHz	24.000			
Mode of Oscillation	A	AT Fundamental				
Frequency Tolerance	10	ppm	-10		+10	@25°C
Load Capacitance	-18	pF	18			
Stability over Operation Temperance	-20	ppm	-20		+20	
Operation Temperature	-40	°C	-40		+85	
Storage Temperature		°C	-55		+125	
Equivalent Series Resistance (ESR)	-60	Ω			60	
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 <sup>st</sup> 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		N/A			

**SMD CRYSTAL 3225 TYPE 4 PAD CM32 SERIES**

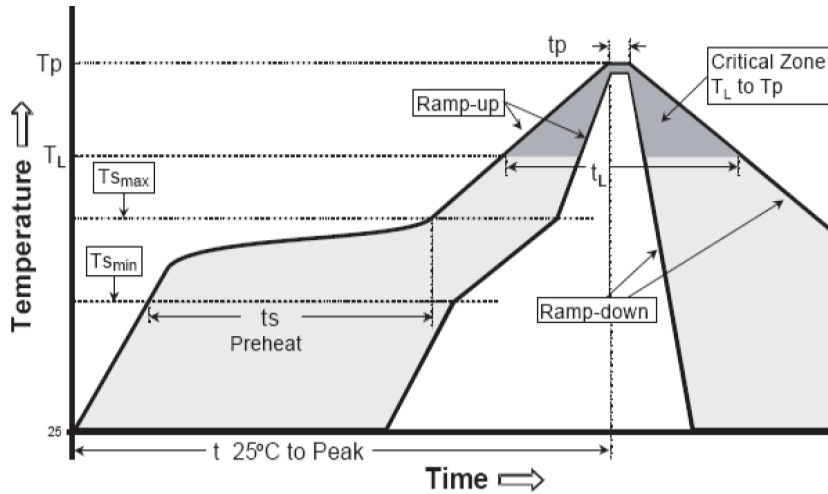
**RELIABILITY**

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 <sup>-3</sup> Pa cm <sup>3</sup> /s	MIL-STD-883E

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**SUGGESTED REFLOW PROFILE** (For Reference Only)

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

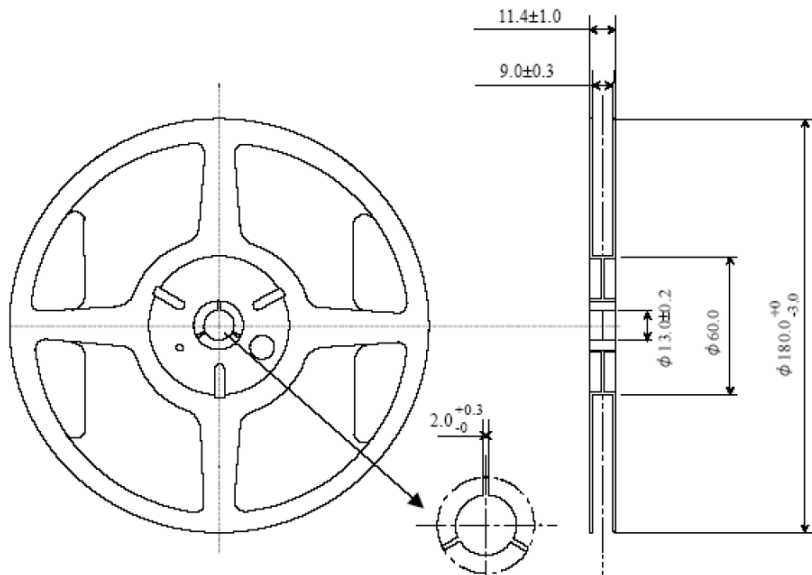
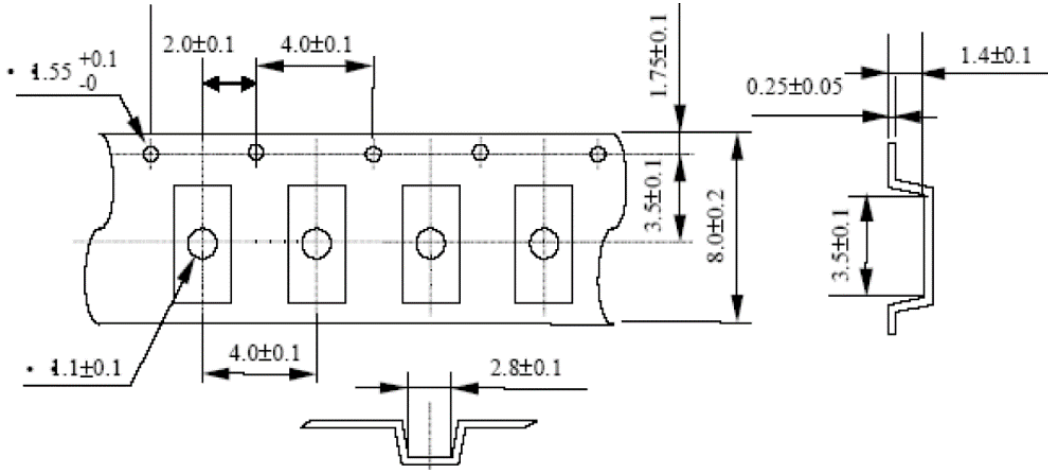


PROFILE FEATURE		PB-FREE ASSEMBLY
Average Ramp-up Rate (Ts Max to Tp)		3°C/second Max
Preheat	Temperature Min (Ts Min.)	125°C
	Temperature Max (Ts Max.)	200°C
	Time (ts Min. to ts Max.)	60 ~ 180 seconds
Time maintained above	Temperature (Tl)	217°C
	Time (tl)	60 ~ 150 seconds
Peak/Classification Temperature (Tp)		260 °C
Time within 5°C of actual Peak Temperature (tp)		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



## SMD CRYSTAL 3225 TYPE 4 PAD CM32 SERIES

### 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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