

SPECIFICATION SHEET

SPECIFICATION SHEET NO.	Q0201- XI27M12000S412
DATE	Feb. 01, 2023
REVISION	A0
DESCRIPTION	MHz SMD Crystal, Seam Seal, L2.5*W2.0*H0.55mm, 4 Pads, CM22 series 27.12000MHz, Tolerance +/-10ppm, Load Capacitor 12pF, Frequency stability +/-30ppm @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
CUSTOMER	
CUSTOMER PART NUMBER	
CROSS REF. PART NUMBER	
ORIGINAL PART NUMBER	TGS CM22 27M12A10-12-30-40-60 TLF
PART CODE	XI27M12000S412

VENDOR APPROVE

Issued/Checked/Approved



DATE: Feb. 01, 2023

CUSTOMER APPROVE

DATE:

2/1/2023

MHZ SMD CRYSTAL 2520 TYPE 4 PADS

MAIN FEATURE

- Extra SMD Package, Seam Sealed Ceramic-Metal, 4pads
- 2520 Type, L2.5*W2.0*H0.55mm, 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](#)

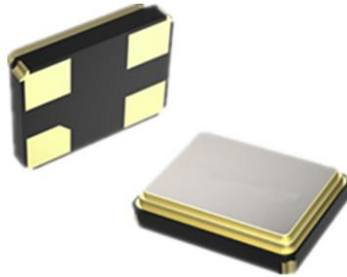
XI	27M12000	S	412
1	2	3	4

- 1) XI: Part family Code for SMD Crystal, 2520 Type, L2.5*W2.0*H0.55mm, 4 Pads, (CM22)
- 2) 27M12000: Frequency range code for 27.120000MHz
- 3) S: SMD type, Package Tape/Reel, 3000pcs/Reel
- 4) 412: Specification code for original part No.: **TGS CM22 27M12A10-12-30-40-60 TLF**

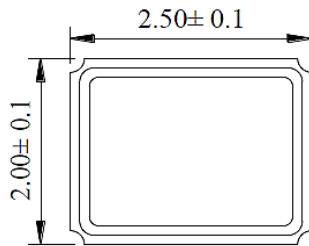
MHZ SMD CRYSTAL 2520 TYPE 4 PADS

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

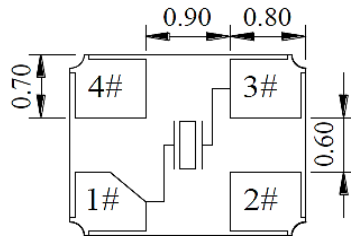
Image for reference



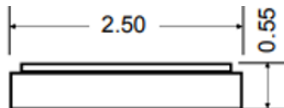
CM22



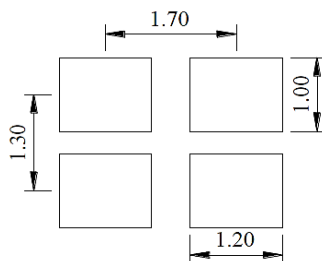
Marking
standard



Connection
#1 Crystal
#2 Ground
#3 Crystal
#4 Ground



Recommend Pad Layout



MHZ SMD CRYSTAL 2520 TYPE 4 PADS
ELECTRICAL PARAMETERS

Parameter	Part No. Symbol	Units	Value			Condition
			Min.	Typical	Max.	
Original Manufacturer	TGS	TGS Crystals				
Holder Type	CM22	SMD Crystal, 2520 Type, L2.5*W2.0*H0.55mm, 4 Pads				
Frequency Range	27M12	MHz	27.12000			
Mode of Oscillation	A	AT Fundamental				
Frequency Tolerance	10	ppm	-10		+10	@25°C
Load Capacitance	-12	pF	12			
Stability over Operation Temperature	-30	ppm	-30		+30	
Operation Temperature	-40	°C	-40		+85	
Storage Temperature		°C	-40		+85	
Equivalent Series Resistance (ESR)	-60	Ω			60	
Drive Level		μW			100	
Shunt Capacitance (C0)		pF	0		7.0	
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 *		N/A			

 Note: 1) Original Part Number: **TGS CM22 27M12A10-12-30-40-60 TLF**

2/1/2023 * Internal Control Code- 2 letter or digits; Blank: N/A

MHZ SMD CRYSTAL 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: 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

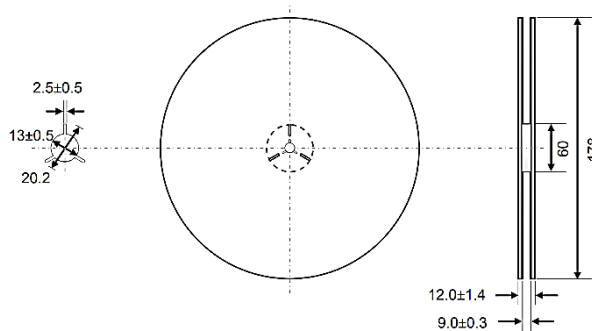
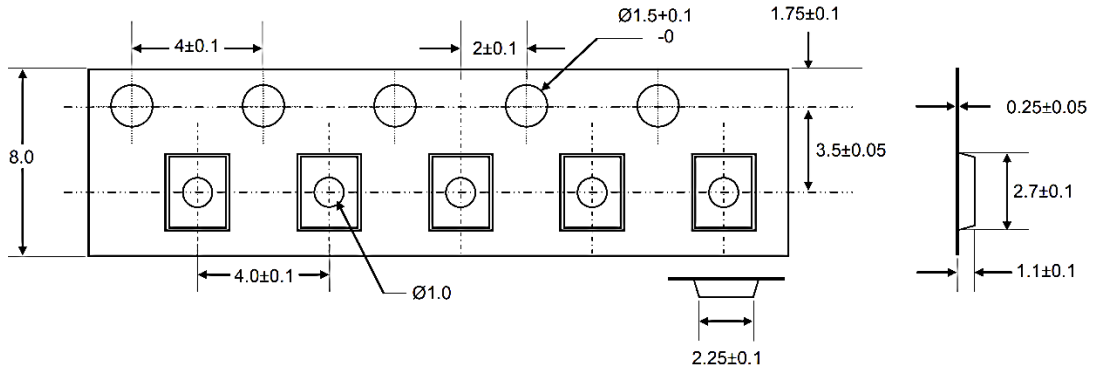


Profile Feature		Pb-Free Assembly
Average Ramp-up Rate (Ts Max to Tp)		3°C/second Max
Preheat	Temperature Min (Ts Min.)	125°C
	Temperature Max (Ts Max.)	200°C
	Time (ts Min. to ts Max.)	60 ~ 180 seconds
Time maintained above	Temperature (Tl)	217°C
	Time (tl)	60 ~ 150 seconds
Peak/Classification Temperature (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



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2/1/2023