NextGen Components,Inc.

PART CODE: YQ12M500S33418

SPECIFICATION SHEET

SPECIFICATION SHEET NO.	Q1204- YQ12M500S33418	
DATE	Dec. 04, 2023	
REVISION	A0	Updated With Most Recent Data - Official First Release
DESCRIPTION AND MAIN PARAMETRICS	MHz SMD Crystal, Plastic case, L12.5*W4.6*H3.7mm, 12.5000MHz, +/-30ppm, 18pF, Stability +/-30ppm @Operating Temp. Range -40°C ~+85°C, ESR 60Ω Max, Tape/Reel, 1000pcs/Reel , Reflow Profile Condition 260 °C Max. RoHS/RoHS III compliant, RoHS Annex III lead Exemption (exempt per RoHS EU 2015/863)	
CUSTOMER		
CUSTOMER PART NO.		
CROSS REF. PART NO.		
ORIGINAL MFG/PART NO.	TGS/CCME 12M5A30-18-30-40-60 TLH	
PART CODE	YQ12M500S33418	

VENDOR APPROVE
Issued/Checked/Approved   
Date: Nov. 30, 2023

CUSTOMER APPROVE
Date:

NextGen Components,Inc.

PART CODE: **YQ12M500S33418**

MHZ SMD CRYSTAL PLASTIC CASE CCME SERIES

MAIN FEATURE

- MHz SMD Crystal, Plastic case, L12.5*W4.6*H3.7mm
- Operating Temperature Range -40°C ~+85°C
- Low Cost, High Precision, High Frequency Stability
- Reflow Profile Condition 260 °C Max.
- Cross More Competitors Part
- RoHS/RoHS III compliant, RoHS Annex III lead Exemption (exempt per RoHS EU 2015/863)

APPLICATION

- Measurement Instrument
- Communication Electronics

PART CODE GUIDE

RFQ
Request For Quotation

YQ	12M500	S	33418
1	2	3	4

1. YQ: Parts family Code for MHz SMD Crystal, Plastic case, L12.5*W4.6*H3.7mm, 4 pads
2. 12M500: Frequency range code for 12.5000MHz
3. S: SMD type Package code, Tape/Reel
4. 33418: Internal Control Code or special Parameters code letter A~Z or digits (1-9)

HOW TO ORDER

Please follow up **Part Code Guide** and indicate pat code when you order or RFQ.

MHZ SMD CRYSTAL PLASTIC CASE CCME SERIES

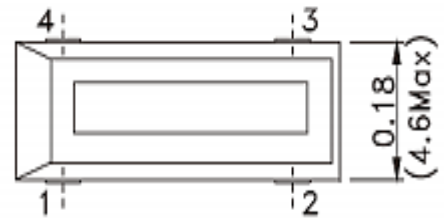
DIMENSION (Unit: Inch/mm)

Image for reference

Package code

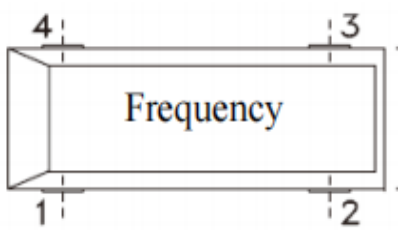
CCME, 4 Pads

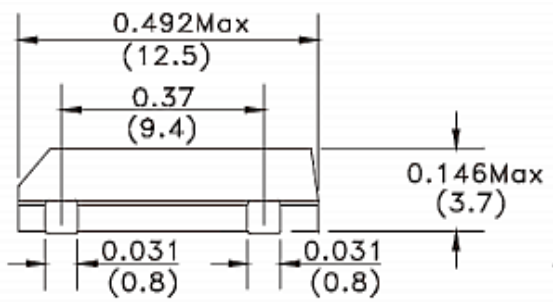
L12.5*W4.6*H3.7mm



Marking

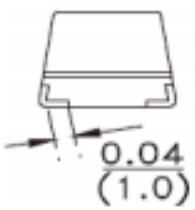
Frequency Rang



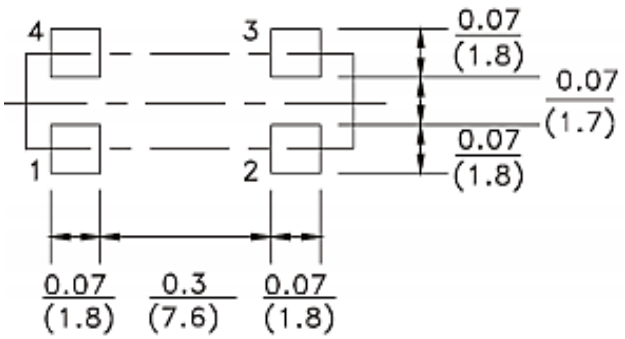


Note

Metal (Crystal inside) may be exposed on the top or bottom of CCME's plastic case. That will not be affect performance and reliability of the part in question



Recommend Pad Layout



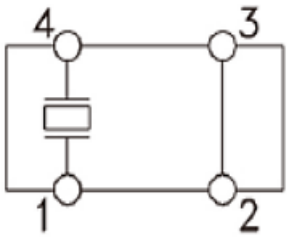
Pin Function

#1 Crystal

#2 Ground

#3 Ground

#4 Crystal



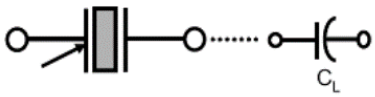
MHZ SMD CRYSTAL PLASTIC CASE CCME SERIES

ELECTRICAL PARAMETERS

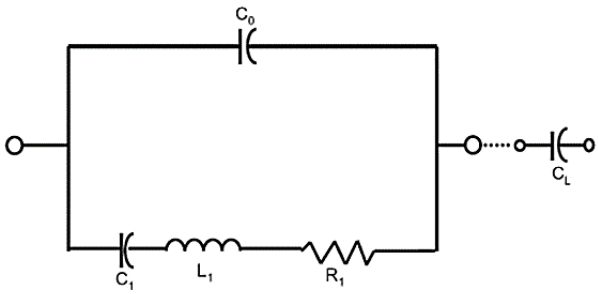
PARAMETER		PART NO. SYMBOL	UNITS	VALUE			CONDITION
				MIN.	TYPICAL	MAX.	
Original Manufacturer		TGS	TGS Crystals				
Holder Type		CCME	MHz SMD Crystal, Plastic case, L12.5*W4.6*H3.7mm				
Frequency Range		12M5	MHz	12.500			
Mode of Oscillation		A		AT Fundamental			
Frequency Tolerance		30	ppm	-30		+30	@25°C
Load Capacitance		-18	pF	18			
Stability over Operation Temperance		-30	ppm	-30		+30	
Operation Temperance		-40	°C	-40		+85	
Storage Temperance			°C	-55		+125	
Equivalent Series Resistance (ESR)		60	Ω			60	
Drive Level			μW		100	500	
Shunt Capacitance (C0)			pF	0	5.0	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			±5	@1st year
Insulation Resistance			MΩ	500			@100VDC ± 15VDC
Others	Package	T	Tape/Reel				
	RoHS Status	LH	RoHS III compliant, RoHS Annex III lead Exemption (exempt per RoHS EU 2015/863				
	Add Value		N/A				
	Code *		N/A				

TEST STANDARD

Equivalent Circuits

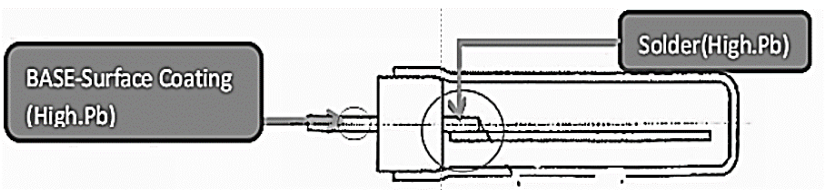


Symbol for crystal unit



Exemption Rule

1. SMD Tuning Fork Crystal series contain Pb chemical substance where solder material is over limitation. The location see at below drawing, The solder purpose is base connected with chip crystal blank.



2. Below statement is that exemption rule: Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).(RoHS 6/5 2002/95/EC)

CHARACTERISTICS

Standard Atmospheric Conditions

Unless otherwise specified the standard range of atmospheric conditions for making measurements and tests is as follows:

- Ambient temperature: 15℃ to 35℃
- Relative humidity : 25% to 85%
- Air pressure : 86 to 106 k Pa

If there is any doubt about the results measurements shall be made within the following limits:

- Ambient temperature : 25±1℃
- Relative humidity : 63% to 67%
- Air pressure : 86 to 106 k Pa

Operating Temperature Range

The operating temperature range is the range of ambient temperatures at which the quartz crystal oscillator can be stored without damage. Conditions are as specified elsewhere on these specifications.

- Operating temperature range: -40℃ to +85℃

Storage Temperature Range

The storage temperature range is the range of ambient temperatures at which the quartz crystal oscillator can be stored without damage. Conditions are as specified elsewhere on these specifications.

- Storage temperature range: -55℃ to +125℃

RELIABILITY (Mechanical And Environmental Endurance)

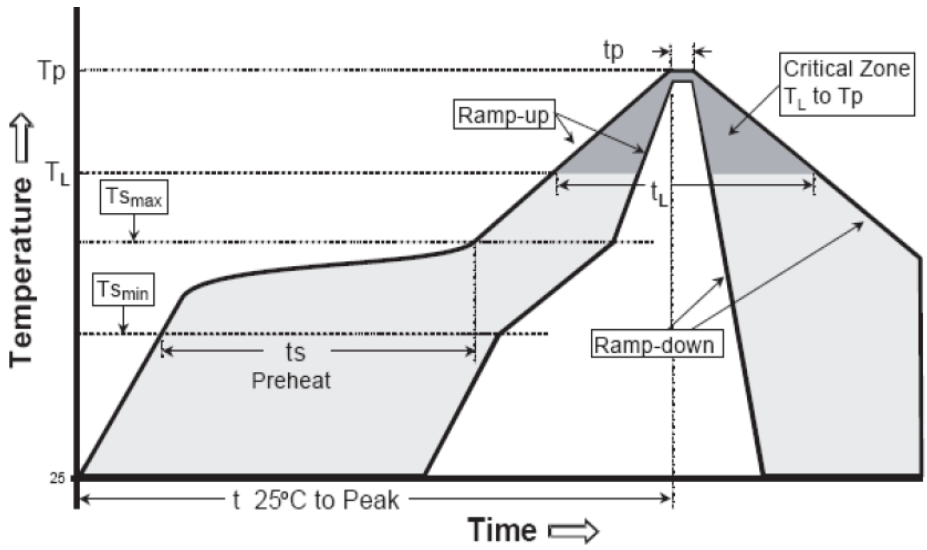
TEST ITEMS	TEST METHOD AND CONDITIONS	REQUIREMENTS
Vibration	1. Vibration Frequency： 10 To 55hz 2. Vibration Amplitude： 1.5mm 3. Cycle Time： 1~2min(10-55-10hz) 4. Direction： X.Y.Z 5. Duration： 2h/Each Direction, total 6Hours	Frequency Change: ±10ppm Max. Resistance Change: ± 15% Rr Max
Drop	3 Times Free Fall From 75cm Height table to 3cm thickness hard wood board, After 30 minutes, the relative change value of frequency was measured.	Frequency Change: ±10ppm Max. Resistance Change: ± 15% Rr Max.
Leakage	Placed in a helium pressurized tank and filled with helium at a pressure of 0.5-0.6mpa for 1 hour then tested with a helium mass spectrometry leak detector.	Leakage:1x10⁻8mbar.L/S Max.
Solder ability	Dip in flux 3-5 seconds Temperature: 260℃±5℃	Solder adhesion is good, solder adhesion more than 95%
High Temp Storage	Temperature: 125℃±5℃ for 72 H, and the relative change in frequency was measured after 1-2 hours at room temperature	Frequency Change: ±10ppm Max. Resistance Change: ± 15% Rr Max.
Low Temp Storage	Temperature: -45℃±5℃ for 72 H, and the relative change in frequency was measured after 1-2 hours at room temperature	Frequency Change: ±10ppm Max. Resistance Change: ± 15% Rr Max.

RELIABILITY (Mechanical And Environmental Endurance)

TEST ITEMS	TEST METHOD AND CONDITIONS	REQUIREMENTS
Humidity Storage	Temperature: 80℃±5℃ for 72 H, relative Humidity: 90-95% for 72 hours, and then the relative change in frequency was measured	Frequency Change: ±10ppm Max. Resistance Change: ± 15%rr max.
Temp cycle	Temperature 1: -55℃±5℃, Temperature 2: -55℃±5℃, Temperature change between from T1 to T2 to T1, Run 5 cycles, maintain T1 and T2 30minutes each in one cycle. And the relative change in frequency was measured after 1-2 hours at room temperature	Frequency Change: ±10ppm Max. Resistance Change: ± 15%rr max.
Salt Fog	Put the crystal units in the salt spray room(salt density: 5%) at the temperature of 35℃ for 96 hours. Then clean it with water and dry its surface.	The appearance shall has no abnormity and soldering is good.
Aging	Temperature: 85℃±5℃ for 1000H hours, the stood at room temperature for 1-2hours, and the relative change in frequency was measured	Frequency Change: ±10ppm Max. Resistance Change: ± 15%rr max.

SUGGESTED REFLOW PROFILE (For Reference Only)

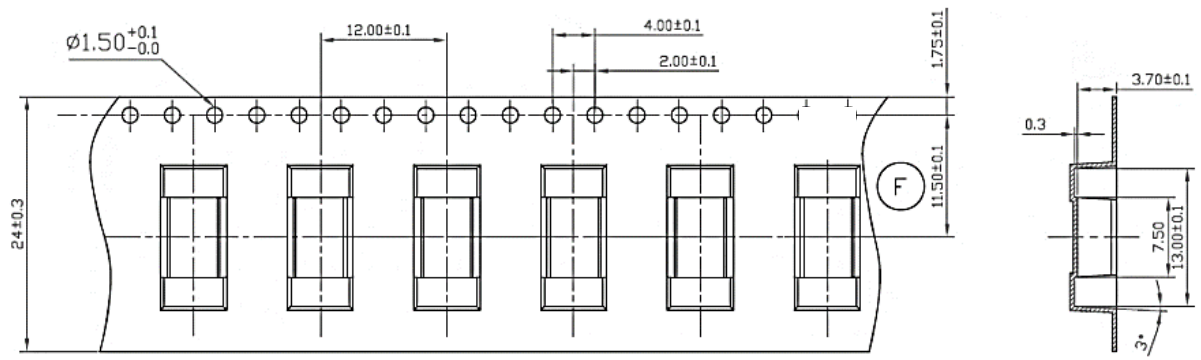
Recommended Solder Composition: It is following industry trend of using alloy range Sn-Ag (3.4-4.1)-Cu (0.45-0.9) or Sn-Pb-Ag for reflow and wave soldering.

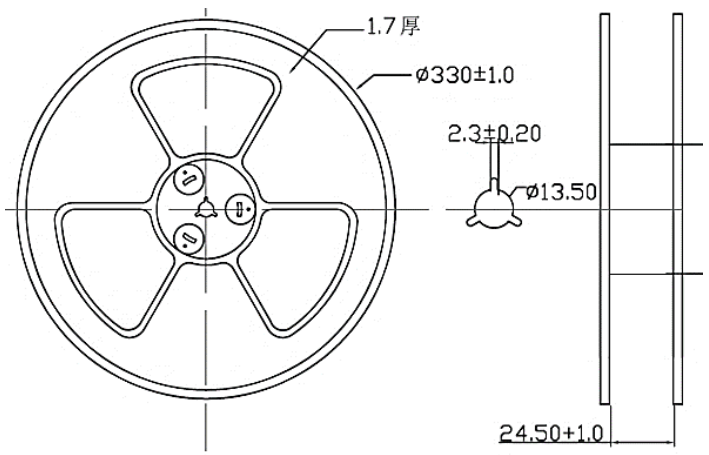


PROFILE FEATURE		PB-FREE ASSEMBLY
Average Ramp-up Rate (Ts Max to Tp)		3°C/second Max
Preheat	Temperature Min (Ts Min.)	125°C
	Temperature Max (Ts Max.)	200°C
	Time (ts Min. to ts Max.)	60 ~ 180 seconds
Time maintained above	Temperature (T_L)	217°C
	Time (t_L)	60 ~ 150 seconds
Peak/Classification Temperature (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.

TAPE/REEL (Unit: mm)

All Devices are packed in accordance with EIA standard RS-481-2 and specifications., 1000pcs/Reel





CAUTION

In Order To Maintain Quality. Without Change In Characteristics Of The crystal Units. Please Follow Below Recommendation

Shock

All Crystal Units Have A Thin Crystal Blanks Within If It Is Dropped Above The Recommended Dropping Height (500mm) The Specific Characteristics And Appearance Can Be Changed Please Pay Special Attention To External Shock

Environmental

1. Crystal Units' Frequency Can Be Changed Due To Surrounding Temperature If It Is Stored Next To A High Temperature Heater (Above+85°C) Or Below 40°C. And A Strong Light Source For Long Period Of Time. The Electrical Characteristics Can Be Changed It Is Suggested That These Environment Be Avoided
2. If The Unit Is Placed In A Humid Environment. Lead Terminal Can Be Damaged: Therefore. Do Not Store The Crystal Units In A Humid Environment
3. Crystal unit Has Vibrating Characteristics If It Is Placed Where Vibration Exists The Operating Characteristics Can Be Altered; Therefore This Environment Should Be Avoided

Leads

1. After Soldering Crystal Units Into A PCB Impacting The Unit From The top, bottom Left Or Right Side Of The Unit Can Shatter The Glass Portion Of The Base Rendering The Unit Useless

Assembly Method

1. Correct Ultrasonic Frequency For Cleaning Should Be Less Than 20khz
2. Soldering Should Be Bone Using IEC 61760-1 OR Pb-free Products

Storage

If The Crystal Units Are Stored In Humid Or Salty Environment Appearance Can Be Changed And Solderability Can Deteriorate; Therefore avoid Storing In Such Environment Do Not Store The Crystal Unit More Than 3 Months

IMPORTANT NOTES AND DISCLAIMER

1. 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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6. *NextGen* requires that customers first obtain an RMA (Returned Merchandise Authorization) number prior to returning any products. Returns must be made within 30 days of the date of invoice, be in the original packaging, unused and like-new condition. At the time of quoting or purchasing, a product may say that it is Non-Cancelable/ Non-Returnable (NCNR). These products are not returnable and not refundable.