




**SPECIFICATION SHEET**

<b>SPECIFICATION SHEET NO.</b>	N1016- YQ20M00000S420
<b>DATE</b>	Oct.16, 2021
<b>REVISION</b>	A0
<b>DESCRIPTION</b>	MHz SMD Crystal, Plastic case, L12.5*W4.6*H3.7mm, 20.0000MHz, +/-30ppm, 20pF, Stability +/-50ppm @Operating Temp. Range -40°C ~+85°C, ESR 40Ω 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)
<b>CUSTOMER</b>	
<b>CUSTOMER PART NUMBER</b>	
<b>CROSS REF. PART NUMBER</b>	
<b>ORIGINAL PART NUMBER</b>	TGS CCME 20M0A30-20-50-40-40 TLH
<b>PART CODE</b>	YQ20M00000S420

<b>VENDOR APPROVE</b>			
Issued/Checked/Approved			
Date: Oct. 16, 2021			

<b>CUSTOMER APPROVE</b>
Date:

**MHZ SMD CRYSTAL PLASTIC CASE CCME SERIES**

**MAIN FEATURE**



- MHz SMD Crystal, Plastic case, Glass seal, L12.5\*W4.6\*H3.7mm
- 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

<b>YQ</b>	<b>20M00000</b>	<b>S</b>	<b>420</b>
1	2	3	4

- 1) YQ: Part family Code for SMD Crystal, Plastic case, L12.5\*W4.6\*H3.7mm, CCME series
- 2) 20M00000: Frequency range code for 20.00000MHz
- 3) S: SMD type, Package Tape/Reel, 1000pcs/Reel
- 4) 420: Specification code for original part no. **TGS CCME 20M0A30-20-50-40-40 TLH**

**MORE FREQUENCY RANGE AVAILABLE (MHz)**

3.579545	3.68640	4.000000	4.09600	4.194304	4.915200	5.00000	6.00000	6.144000	7.37280
8.00000	9.83040	10.0000	11.05920	12.00000	13.56000	14.31818	14.74560	16.0000	16.9340
18.43200	19.6608	20.0000	22.1184	24.0000	24.57600	25.00000	27.00000	28.33200	

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

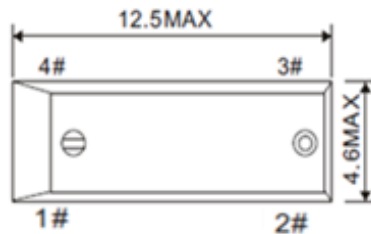
Image for reference



**Note**

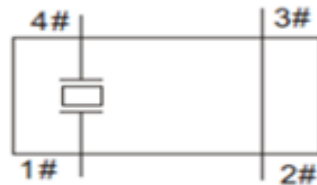
Metal (Crystal inside) may be exposed on the top or bottom of CCME's plastic case. That will not be affect performance and reliability of the part in question

CCME



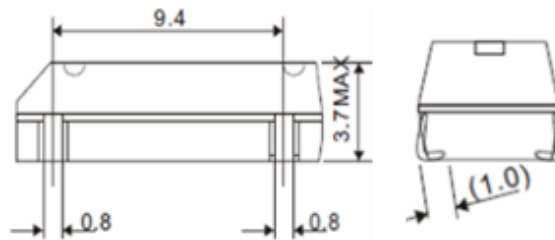
**Marking**

Frequency Range



**Connection**

- 1# Crystal
- 2# Ground
- 3# Ground
- 4# Crystal



Recommend Pad Layout



**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	20M0	MHz	20.0000			
Mode of Oscillation	A	AT Fundamental				
Frequency Tolerance	30	ppm	-30		+30	@25°C
Load Capacitance	-20	pF	20			
Stability over Operation Temperature	-50	ppm	-50		+50	
Operation Temperature	-40	°C	-40		+85	
Storage Temperature		°C	-55		+125	
Equivalent Series Resistance (ESR)	-40	Ω			40	
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			±5	@1 <sup>st</sup> 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			

Note: 1) Original Part Number: **TGS CCME 20M0A30-20-50-40-40 TLH**

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

**MHZ SMD CRYSTAL PLASTIC CASE CCME 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

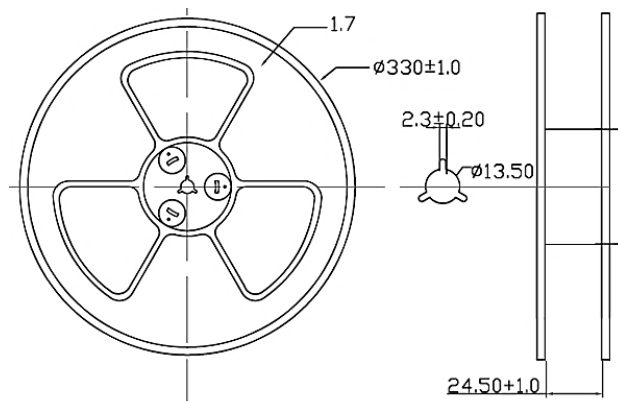
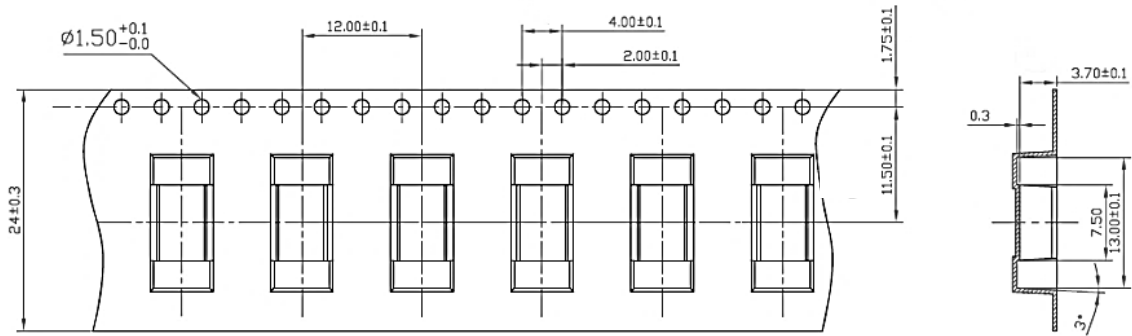


<b>Profile Feature</b>		Pb-Free Assembly
<b>Average Ramp-up Rate (Ts Max to Tp)</b>		3°C/second Max
<b>Preheat</b>	<b>Temperature Min (Ts Min.)</b>	125°C
	<b>Temperature Max (Ts Max.)</b>	200°C
	<b>Time (ts Min. to ts Max.)</b>	60 ~ 180 seconds
<b>Time maintained above</b>	<b>Temperature (T<sub>L</sub>)</b>	217°C
	<b>Time (t<sub>L</sub>)</b>	60 ~ 150 seconds
<b>Peak/Classification Temperature (T<sub>p</sub>)</b>		260 °C
<b>Time within 5°C of actual Peak Temperature (t<sub>p</sub>)</b>		20 ~ 40 seconds
<b>Ramp-down rate</b>		6 °C /Second Max.
<b>Time 25 °C to Peak Temperature</b>		8 minutes Max.
<b>Suggest reflow times</b>		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., 1000pcs/Reel



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