




SPECIFICATION SHEET

SPECIFICATION SHEET NO.	N1016- YQ20M00000S416
DATE	Oct.16, 2021
REVISION	A0
DESCRIPTION	MHz SMD Crystal, Plastic case, L12.5*W4.6*H3.7mm, 20.0000MHz, +/-30ppm, 16pF, 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)
CUSTOMER	
CUSTOMER PART NUMBER	
CROSS REF. PART NUMBER	
ORIGINAL PART NUMBER	TGS CCME 20M0A30-16-50-40-40 TLH
PART CODE	YQ20M00000S416

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

CUSTOMER APPROVE
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

YQ	20M00000	S	416
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) 416: Specification code for original part no. **TGS CCME 20M0A30-16-50-40-40 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

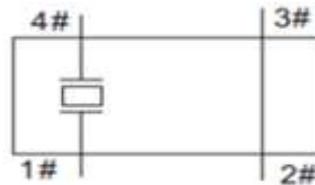
Metal (Crystal inside) may be exposed on the top or bottom of CCME's plastic case. That will not be affect performance and reliability of the part in question

CCME



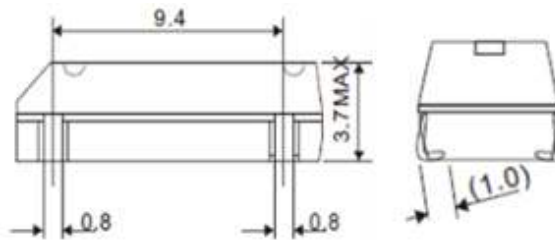
Marking

Frequency Range



Connection

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



Recommend Pad Layout



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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	-16	pF	16			
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 st 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 20M0A30-16-50-40-40 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 ⁻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

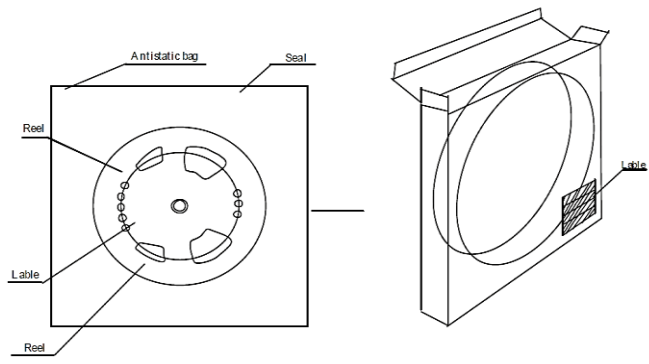
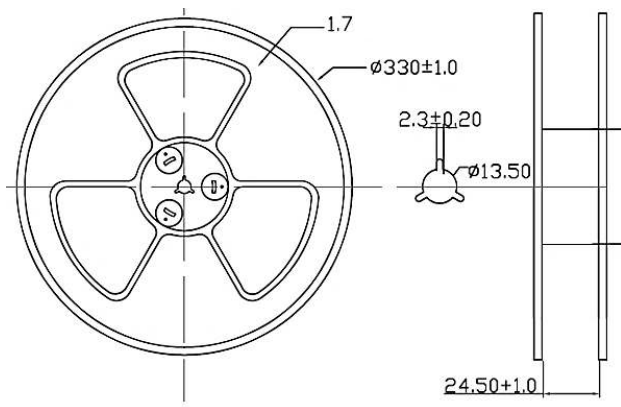
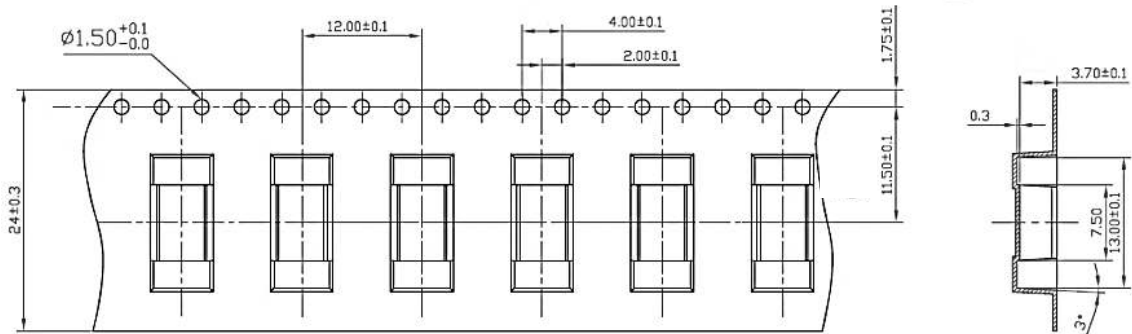


Profile Feature		Pb-Free Assembly
Average Ramp-up Rate (Ts Max to Tp)		3°C/second Max
Preheat	Temperature Min (Ts Min.)	125°C
	Temperature Max (Ts Max.)	200°C
	Time (ts Min. to ts Max.)	60 ~ 180 seconds
Time maintained above	Temperature (Tl)	217°C
	Time (tL)	60 ~ 150 seconds
Peak/Classification Temperature (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., 1000pcs/Reel



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