




SPECIFICATION SHEET

SPECIFICATION SHEET NO.	N0207-XK1200000S700
DATE	Feb. 12, 2021
REVISION	A0
DESCRIPTION	SMD Crystal, 49SSMD Type, L11.4*W4.7*H3.0mm, 2 pads, 12.00MHz, +/-10ppm, CL 20pF, Stability +/-50ppm @Operating Temp. Range -20°C ~+70°C, ESR 25 ohm Max, Tape/Reel, Reflow Profile Condition 260 °C Max. RoHS/RoHS III compliant
CUSTOMER	
CUSTOMER PART NUMBER	
CROSS REF. PART NUMBER	
ORIGINAL PART NUMBER	TGS CSSM2 12M0A10-20-50-20-25 TLF
PART CODE	XK12M00000S700

VENDOR APPROVE			
Issued/Checked/Approved			
DATE: Feb. 12, 2021			

CUSTOMER APPROVE	
DATE:	

SMD CRYSTAL 49SSMD TYPE 2 PADS

MAIN FEATURE

- SMD Crystal, 49SSMD Type, L11.4*W4.7*H3.0mm, 2 pads
- Low cost, High precision, High frequency stability
- Reflow Profile Condition 260 °C Max.
- Wide Frequency Range
- Cross more competitors part
- RoHS/RoHS III compliant



APPLICATION

- Bluetooth, wireless communication set
- Communication Electronics

PART CODE GUIDE

RFQ
Request For Quotation

XK	12M00000	S	700
1	2	3	4

- 1) XK: Part family Code for SMD Crystal, 49SSMD Type, L11.4*W4.7*H3.0mm, 2 pads (CSSM2)
- 2) 12M00000: Frequency range code for 12.00000MHz
- 3) S: SMD type, Package Tape/Reel, 1000pcs/Reel
- 4) 700: Specification code for original part No.: **TGS CSSM2 12M0A10-20-50-20-25 TLF**

MORE FREQUENCY RANGE AVAILABLE (MHz)

3.579545	3.6864	4.0000	4.09600	4.194304	6.0000	7.3728	8.00000	9.8304	10.000
11.0592	12.000	12.288	14.31818	13.5600	16.0000	18.432	19.200	20.000	22.1184
24.000	25.0000	26.000	27.0000	32.0000					

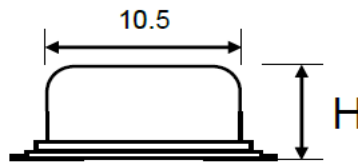
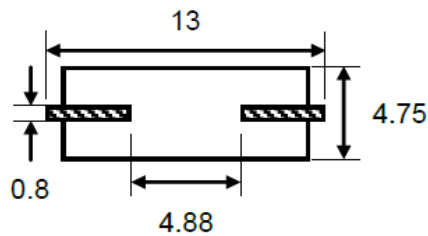
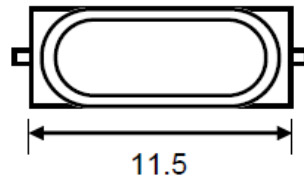
SMD CRYSTAL 49SSMD TYPE 2 PADS

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

Image for reference



CSSM2



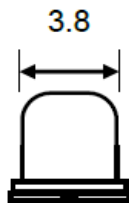
Marking 1

Line 1: Company Code + CL value
Line 2: Freq. Range+ QC Code (A~Z)

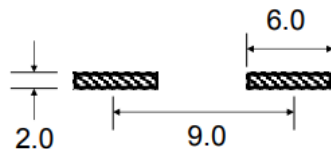
Marking 2 (Option)

Line 1: Frequency Range

H: 3.0 +/-0.2



Recommend Pad Layout



SMD CRYSTAL 49SSMD TYPE 2 PADS
ELECTRICAL PARAMETERS

Parameter	Part No. Symbol	Units	Value			Condition
			Min.	Typical	Max.	
Original Manufacturer	TGS	TGS Crystals				
Holder Type	CSSM2	SMD Crystal, 49SSMD Type, L11.4*W4.7*H3.0mm, 2 pads				
Frequency Range	12M0	MHz	12.000			
Mode of Oscillation	A	AT Fundamental				
Frequency Tolerance	10	ppm	-10		+10	@25°C
Load Capacitance	-20	pF	20			
Stability over Operation Temperature	-50	ppm	-50		+50	
Operation Temperature	-20	°C	-20		+70	
Storage Temperature		°C	-40		+85	
Equivalent Series Resistance (ESR)	-25	Ω			25	
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 CSSM2 12M0A10-20-50-20-25 TLF**

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

SMD CRYSTAL 49SSMD TYPE 2 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

SMD CRYSTAL 49SSMD TYPE 2 PADS

SUGGESTED REFLOW PROFILE (For Reference Only)

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

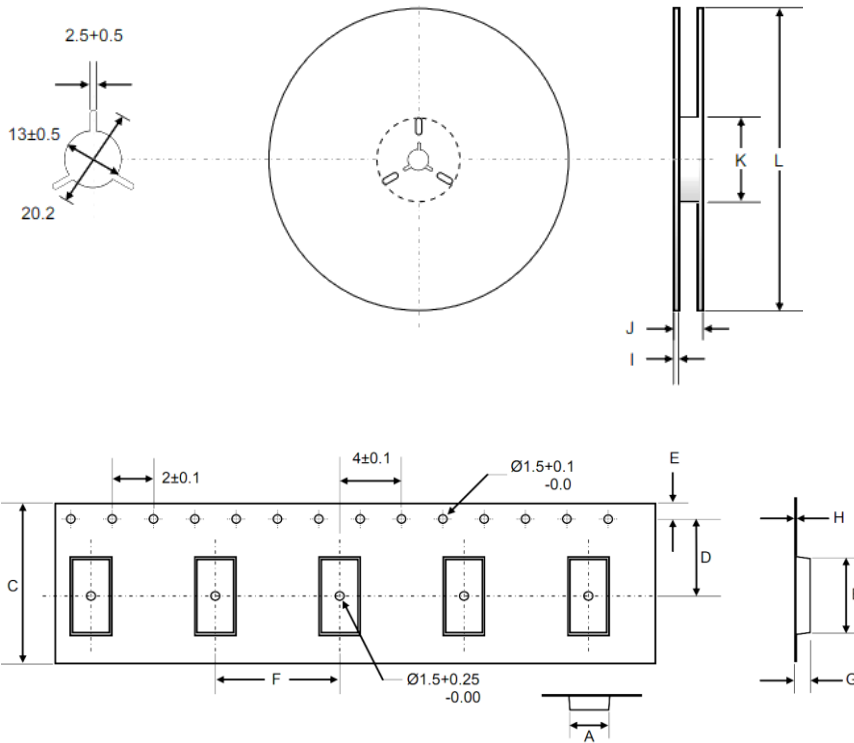


Profile Feature		Pb-Free Assembly
Average Ramp-up Rate (Ts Max to Tp)		3°C/second Max
Preheat	Temperature Min (Ts Min.)	125°C
	Temperature Max (Ts Max.)	200°C
	Time (ts Min. to ts Max.)	60 ~ 180 seconds
Time maintained above	Temperature (Tl)	217°C
	Time (tL)	60 ~ 150 seconds
Peak/Classification Temperature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

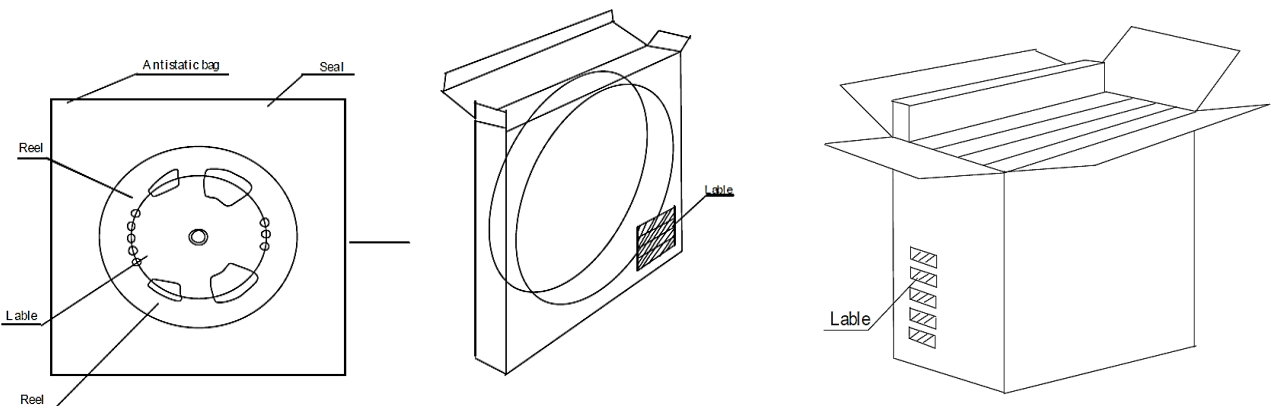
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TAPE/REEL (Unit: mm)

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



Symbol	Dimension
A	5.0±0.1
B	15.0±0.2
C	24.0±0.3
D	11.05±0.1
E	1.75±0.1
F	8.0±0.1/12.0±0.1
G	5.0±0.1
H	0.5±0.1
I	2.4±0.2
J	24.4±2.0/-0.0
K	100.0±1.0
L	330



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