

SPECIFICATION SHEET NO.	S0510 - XB20M00000S412	
ORIGINAL MFG/PART NO.	TGS Crystals/CM75 20M0A30-12-30-40-45TLF	
NEXTGEN PART CODE	XB20M00000S412	Indicate This Code For RFQ /Order
DATE	May 10, 2025	
REVISION	A2	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	MHz SMD Crystal Seam Seal, 7050 Type XB series, 4 pads Dimension L7.0*W5.0*H1.0mm 20.000MHz, Tolerance ± 30 ppm, Load Capacitor 12pF Frequency stability ± 30 ppm; Operating Temp. Range -40°C ~+85°C ESR 45ohm Max, Reflow Profile Condition 260 °C Max. Package in Tape/Reel, 1000pcs/Reel RoHS/RoHS III Compliant	
CUSTOMER		
CUSTOMER PART NUMBER		
CROSS REF. PART NUMBER		
MEMO		

VENDOR APPROVE			
Issued/Checked/Approved			
Effective Date: May 10, 2025			

CUSTOMER APPROVE
Date:

MAIN FEATURE

- MHz SMD Crystal L7.0*W5.0*H1.0mm 4 Pads
- Low Cost
- High Precision
- High Frequency Stability
- Short Lead time
- Reflow Profile Condition 260 ° C Max.
- Cross More Competitors Part
- REACH/RoHS/RoHS III Compliant



*Image shown is a representation only.
Exact specifications should be
obtained from the product dimension.*

APPLICATION

- Bluetooth, Wireless Communication Set
- Communication Electronics



ELECTRICAL CHARACTERISTICS

- See Page 6~14 For Different Part Code.
- All Products Parameters are Subject To NextGen Components' Final Confirmation.

HOW TO ORDER

- Please Follow Up Part Code Guide And Indicate NextGen Part Code XB20M00000S412 For RFQ and Order.

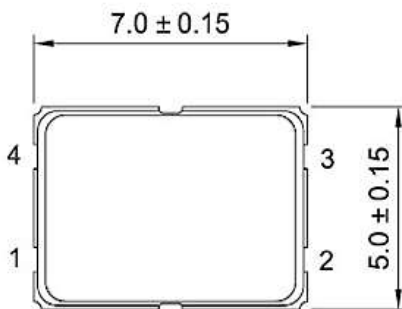
PART CODE GUIDE

RFQ
[Request For Quotation](#)

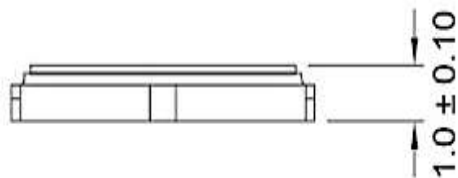
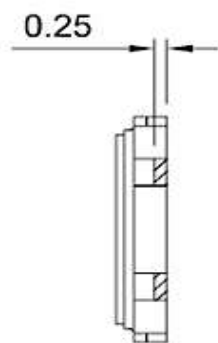
CODE	NAME	KEY SPECIFICATION OPTION
XB	Product Series Code	MHz SMD Crystal, Seam Seal, 4 Pads Case Dimension L7.0*W5.0*H1.0mm
20M0	Frequency Range Code	20M0: 20.0MHz or Specify Frequency Range
0000S	Internal Control Code	Letter or Digits (A~Z, a~z or 0~9)
412	Parameters Code	Letter or Digits (A~Z, a~z or 0~9)
XX	Special/Custom Parameters Code	Letter or Digits (A~Z, a~z or 0~9) for Special Parametric; Blank: N/A

DIMENSION - Unit: mm

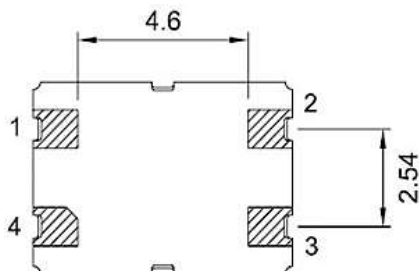
Top View



Side View



Bottom View



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

Connection



Recommend Pad Layout



GENERAL SPECIFICATION –Ta = 25°C

PARAMETER	SYMBOL	VALUE			UNIT	CONDITION
		MIN.	TYPE	MAX.		
Mode of Vibration Code		Fundamental				
Frequency Tolerance	△F/F0	± 10	-	± 50	ppm	
Load Capacitance	CL	8	-	30	pF	
Frequency Stability	Tc	± 10	±30	± 50	ppm	
Operating Temp. Range	TOPR	-40	-	+85	°C	
Storage Temp. Range	TSTG	-50	-	+105	°C	
Drive Level	DL	-	-	100	μW	
Insulation Resistance	IR	500	-		mΩ	@100V ± 15VDC
Shunt Capacitance	C0	-	-	3.0	pF	
Aging per year	Fa	-3	-	+3	ppm	1st Year

ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

PART CODE	FREQUENCY RANGE	FREQUENCY TOLERANCE	LOAD CAPACITANCE	FREQUENCY STABILITY	OPERATING TEMPE. RANGE	EQUIVALENT SERIES RESISTANCE
	MHz	ppm	pF	ppm	°C	Ω Max.
XB6M000000S408	6.000000	±30	8	±30	-40 ~ +85	100
XB6M000000S410	6.000000	±30	10	±30	-40 ~ +85	100
XB6M000000S412	6.000000	±30	12	±30	-40 ~ +85	100
XB6M000000S416	6.000000	±30	16	±30	-40 ~ +85	100
XB6M000000S418	6.000000	±30	18	±30	-40 ~ +85	100
XB6M000000S420	6.000000	±10	20	±30	-40 ~ +85	100
XB6M000000S430	6.000000	±30	30	±30	-40 ~ +85	100
XB7M372800S408	7.372800	±30	8	±30	-40 ~ +85	110
XB7M372800S410	7.372800	±30	10	±30	-40 ~ +85	110
XB7M372800S412	7.372800	±30	12	±30	-40 ~ +85	110
XB7M372800S416	7.372800	±30	16	±30	-40 ~ +85	110
XB7M372800S418	7.372800	±30	18	±30	-40 ~ +85	110
XB7M372800S420	7.372800	±30	20	±30	-40 ~ +85	110
XB7M372800S430	7.372800	±30	30	±30	-40 ~ +85	110
XB8M000000S408	8.000000	±30	8	±30	-40 ~ +85	110
XB8M000000S410	8.000000	±30	10	±30	-40 ~ +85	110
XB8M000000S412	8.000000	±30	12	±30	-40 ~ +85	110
XB8M000000S416	8.000000	±30	16	±30	-40 ~ +85	80
XB8M000000S418	8.000000	±30	18	±30	-40 ~ +85	80
XB8M000000S420	8.000000	±30	20	±30	-40 ~ +85	110

ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

PART CODE	FREQUENCY RANGE	FREQUENCY TOLERANCE	LOAD CAPACITANCE	FREQUENCY STABILITY	OPERATING TEMPE. RANGE	EQUIVALENT SERIES RESISTANCE
	MHz	ppm	pF	ppm	°C	Ω Max.
XB8M000000S430	8.000000	±30	30	±30	-40 ~ +85	110
XB9M830400S408	9.830400	±30	8	±30	-40 ~ +85	60
XB9M830400S410	9.830400	±30	10	±30	-40 ~ +85	60
XB9M830400S412	9.830400	±30	12	±30	-40 ~ +85	60
XB9M830400S416	9.830400	±30	16	±30	-40 ~ +85	60
XB9M830400S418	9.830400	±30	18	±30	-40 ~ +85	60
XB9M830400S420	9.830400	±30	20	±30	-40 ~ +85	60
XB9M830400S430	9.830400	±30	30	±30	-40 ~ +85	60
XB10M00000S408	10.00000	±30	8	±30	-40 ~ +85	110
XB10M00000S410	10.00000	±30	10	±30	-40 ~ +85	110
XB10M00000S412	10.00000	±30	12	±30	-40 ~ +85	110
XB10M00000S416	10.00000	±30	16	±30	-40 ~ +85	110
XB10M00000S418	10.00000	±30	18	±30	-40 ~ +85	110
XB10M00000S420	10.00000	±30	20	±30	-40 ~ +85	110
XB10M00000S430	10.00000	±30	30	±30	-40 ~ +85	110
XB11M05920S408	11.05920	±30	8	±30	-40 ~ +85	60
XB11M05920S410	11.05920	±30	10	±30	-40 ~ +85	60
XB11M05920S412	11.05920	±30	12	±30	-40 ~ +85	60
XB11M05920S416	11.05920	±30	16	±30	-40 ~ +85	60
XB11M05920S418	11.05920	±30	18	±30	-40 ~ +85	60

ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

PART CODE	FREQUENCY RANGE	FREQUENCY TOLERANCE	LOAD CAPACITANCE	FREQUENCY STABILITY	OPERATING TEMPE. RANGE	EQUIVALENT SERIES RESISTANCE
	MHz	ppm	pF	ppm	°C	Ω Max.
XB11M05920S420	11.05920	±30	20	±30	-40 ~ +85	60
XB11M05920S430	11.05920	±30	30	±30	-40 ~ +85	60
XB12M00000S408	12.00000	±30	8	±30	-40 ~ +85	50
XB12M00000S410	12.00000	±30	10	±30	-40 ~ +85	50
XB12M00000S412	12.00000	±30	12	±30	-40 ~ +85	50
XB12M00000S416	12.00000	±30	16	±30	-40 ~ +85	50
XB12M00000S418	12.00000	±30	18	±30	-40 ~ +85	50
XB12M00000S420	12.00000	±30	20	±30	-40 ~ +85	50
XB12M00000S430	12.00000	±30	30	±30	-40 ~ +85	50
XB12M50000S418	12.50000	±30	18	±30	-40 ~ +85	60
XB14M31818S408	14.31818	±30	8	±30	-40 ~ +85	50
XB14M31818S410	14.31818	±30	10	±30	-40 ~ +85	50
XB14M31818S412	14.31818	±30	12	±30	-40 ~ +85	50
XB14M31818S416	14.31818	±30	16	±30	-40 ~ +85	50
XB14M31818S418	14.31818	±30	18	±30	-40 ~ +85	50
XB14M31818S420	14.31818	±30	20	±30	-40 ~ +85	50
XB14M31818S430	14.31818	±30	30	±30	-40 ~ +85	50
XB14M74560S408	14.74560	±30	8	±30	-40 ~ +85	50
XB14M74560S410	14.74560	±30	10	±30	-40 ~ +85	50
XB14M74560S412	14.74560	±30	12	±30	-40 ~ +85	50

ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

PART CODE	FREQUENCY RANGE	FREQUENCY TOLERANCE	LOAD CAPACITANCE	FREQUENCY STABILITY	OPERATING TEMPE. RANGE	EQUIVALENT SERIES RESISTANCE
	MHz	ppm	pF	ppm	°C	Ω Max.
XB14M74560S416	14.74560	±30	16	±30	-40 ~ +85	50
XB14M74560S418	14.74560	±30	18	±30	-40 ~ +85	50
XB14M74560S420	14.74560	±30	20	±30	-40 ~ +85	50
XB14M74560S430	14.74560	±30	30	±30	-40 ~ +85	50
XB16M00000S408	16.00000	±30	8	±30	-40 ~ +85	45
XB16M00000S410	16.00000	±30	10	±30	-40 ~ +85	45
XB16M00000S412	16.00000	±30	12	±30	-40 ~ +85	45
XB16M00000S416	16.00000	±30	16	±30	-40 ~ +85	45
XB16M00000S418	16.00000	±30	18	±30	-40 ~ +85	45
XB16M00000S420	16.00000	±30	20	±30	-40 ~ +85	45
XB16M00000S430	16.00000	±30	30	±30	-40 ~ +85	45
XB16M38400S408	16.38400	±30	8	±30	-40 ~ +85	45
XB16M38400S410	16.38400	±30	10	±30	-40 ~ +85	45
XB16M38400S412	16.38400	±30	12	±30	-40 ~ +85	45
XB16M38400S416	16.38400	±30	16	±30	-40 ~ +85	45
XB16M38400S418	16.38400	±30	18	±30	-40 ~ +85	45
XB16M38400S420	16.38400	±30	20	±30	-40 ~ +85	45
XB16M38400S430	16.38400	±30	30	±30	-40 ~ +85	45
XB16M93440S408	16.93440	±30	8	±30	-40 ~ +85	45
XB16M93440S410	16.93440	±30	10	±30	-40 ~ +85	45

ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

PART CODE	FREQUENCY RANGE	FREQUENCY TOLERANCE	LOAD CAPACITANCE	FREQUENCY STABILITY	OPERATING TEMPE. RANGE	EQUIVALENT SERIES RESISTANCE
	MHz	ppm	pF	ppm	°C	Ω Max.
XB16M93440S412	16.93440	±30	12	±30	-40 ~ +85	45
XB16M93440S416	16.93440	±30	16	±30	-40 ~ +85	45
XB16M93440S418	16.93440	±30	18	±30	-40 ~ +85	45
XB16M93440S420	16.93440	±30	20	±30	-40 ~ +85	45
XB16M93440S430	16.93440	±30	30	±30	-40 ~ +85	45
XB18M43200S408	18.43200	±30	8	±30	-40 ~ +85	45
XB18M43200S410	18.43200	±30	10	±30	-40 ~ +85	45
XB18M43200S412	18.43200	±30	12	±30	-40 ~ +85	45
XB18M43200S416	18.43200	±30	16	±30	-40 ~ +85	45
XB18M43200S418	18.43200	±30	18	±30	-40 ~ +85	45
XB18M43200S420	18.43200	±30	20	±30	-40 ~ +85	45
XB18M43200S430	18.43200	±30	30	±30	-40 ~ +85	45
XB20M00000S408	20.00000	±30	8	±30	-40 ~ +85	45
XB20M00000S410	20.00000	±30	10	±30	-40 ~ +85	45
XB20M00000S412	20.00000	±30	12	±30	-40 ~ +85	45
XB20M00000S416	20.00000	±30	16	±30	-40 ~ +85	45
XB20M00000S418	20.00000	±30	18	±30	-40 ~ +85	45
XB20M00000S420	20.00000	±30	20	±30	-40 ~ +85	45
XB20M00000S430	20.00000	±30	30	±30	-40 ~ +85	45
XB22M11840S408	22.11840	±30	8	±30	-40 ~ +85	30

ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

PART CODE	FREQUENCY RANGE	FREQUENCY TOLERANCE	LOAD CAPACITANCE	FREQUENCY STABILITY	OPERATING TEMPE. RANGE	EQUIVALENT SERIES RESISTANCE
	MHz	ppm	pF	ppm	°C	Ω Max.
XB22M11840S410	22.11840	±30	10	±30	-40 ~ +85	30
XB22M11840S412	22.11840	±30	12	±30	-40 ~ +85	30
XB22M11840S416	22.11840	±30	16	±30	-40 ~ +85	30
XB22M11840S418	22.11840	±30	18	±30	-40 ~ +85	30
XB22M11840S420	22.11840	±30	20	±30	-40 ~ +85	30
XB22M11840S430	22.11840	±30	30	±30	-40 ~ +85	30
XB24M00000S408	24.00000	±30	8	±30	-40 ~ +85	30
XB24M00000S410	24.00000	±30	10	±30	-40 ~ +85	30
XB24M00000S412	24.00000	±30	12	±30	-40 ~ +85	30
XB24M00000S416	24.00000	±30	16	±30	-40 ~ +85	30
XB24M00000S418	24.00000	±30	18	±30	-40 ~ +85	30
XB24M00000S420	24.00000	±30	20	±30	-40 ~ +85	30
XB24M00000S430	24.00000	±30	30	±30	-40 ~ +85	30
XB24M57600S408	24.57600	±30	8	±30	-40 ~ +85	30
XB24M57600S410	24.57600	±30	10	±30	-40 ~ +85	30
XB24M57600S412	24.57600	±30	12	±30	-40 ~ +85	30
XB24M57600S416	24.57600	±30	16	±30	-40 ~ +85	30
XB24M57600S418	24.57600	±30	18	±30	-40 ~ +85	30
XB24M57600S420	24.57600	±30	20	±30	-40 ~ +85	30
XB24M57600S430	24.57600	±30	30	±30	-40 ~ +85	30

ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

PART CODE	FREQUENCY RANGE	FREQUENCY TOLERANCE	LOAD CAPACITANCE	FREQUENCY STABILITY	OPERATING TEMPE. RANGE	EQUIVALENT SERIES RESISTANCE
	MHz	ppm	pF	ppm	°C	Ω Max.
XB25M00000S408	26.00000	±30	8	±30	-40 ~ +85	30
XB25M00000S410	26.00000	±30	10	±30	-40 ~ +85	30
XB25M00000S412	26.00000	±30	12	±30	-40 ~ +85	30
XB25M00000S416	26.00000	±30	16	±30	-40 ~ +85	30
XB25M00000S418	26.00000	±30	18	±30	-40 ~ +85	30
XB25M00000S420	26.00000	±30	20	±30	-40 ~ +85	60
XB25M00000S430	26.00000	±30	30	±30	-40 ~ +85	30
XB27M00000S408	27.00000	±30	8	±30	-40 ~ +85	30
XB27M00000S410	27.00000	±30	10	±30	-40 ~ +85	30
XB27M00000S412	27.00000	±30	12	±30	-40 ~ +85	30
XB27M00000S416	27.00000	±30	16	±30	-40 ~ +85	30
XB27M00000S418	27.00000	±30	18	±30	-40 ~ +85	30
XB27M00000S420	27.00000	±30	20	±30	-40 ~ +85	30
XB27M00000S430	27.00000	±30	30	±30	-40 ~ +85	30
XB29M49120S408	29.49120	±30	8	±30	-40 ~ +85	30
XB29M49120S410	29.49120	±30	10	±30	-40 ~ +85	30
XB29M49120S412	29.49120	±30	12	±30	-40 ~ +85	30
XB29M49120S416	29.49120	±30	16	±30	-40 ~ +85	30
XB29M49120S418	29.49120	±30	18	±30	-40 ~ +85	30
XB29M49120S420	29.49120	±30	20	±30	-40 ~ +85	30

ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

PART CODE	FREQUENCY RANGE	FREQUENCY TOLERANCE	LOAD CAPACITANCE	FREQUENCY STABILITY	OPERATING TEMPE. RANGE	EQUIVALENT SERIES RESISTANCE
	MHz	ppm	pF	ppm	°C	Ω Max.
XB29M49120S430	29.49120	±30	30	±30	-40 ~ +85	30
XB30M00000S408	30.00000	±30	8	±30	-40 ~ +85	40
XB30M00000S410	30.00000	±30	10	±30	-40 ~ +85	40
XB30M00000S412	30.00000	±30	12	±30	-40 ~ +85	40
XB30M00000S416	30.00000	±30	16	±30	-40 ~ +85	40
XB30M00000S418	30.00000	±30	18	±30	-40 ~ +85	40
XB30M00000S420	30.00000	±30	20	±30	-40 ~ +85	40
XB30M00000S430	30.00000	±30	30	±30	-40 ~ +85	40
XB32M00000S408	32.00000	±30	8	±30	-40 ~ +85	20
XB32M00000S410	32.00000	±30	10	±30	-40 ~ +85	20
XB32M00000S412	32.00000	±30	12	±30	-40 ~ +85	20
XB32M00000S416	32.00000	±30	16	±30	-40 ~ +85	20
XB32M00000S418	32.00000	±30	18	±30	-40 ~ +85	20
XB32M00000S420	32.00000	±30	20	±30	-40 ~ +85	20
XB32M00000S430	32.00000	±30	30	±30	-40 ~ +85	20
XB36M00000S408	36.00000	±30	8	±30	-40 ~ +85	20
XB36M00000S410	36.00000	±30	10	±30	-40 ~ +85	20
XB36M00000S412	36.00000	±30	12	±30	-40 ~ +85	20
XB36M00000S416	36.00000	±30	16	±30	-40 ~ +85	20
XB36M00000S418	36.00000	±30	18	±30	-40 ~ +85	20

ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

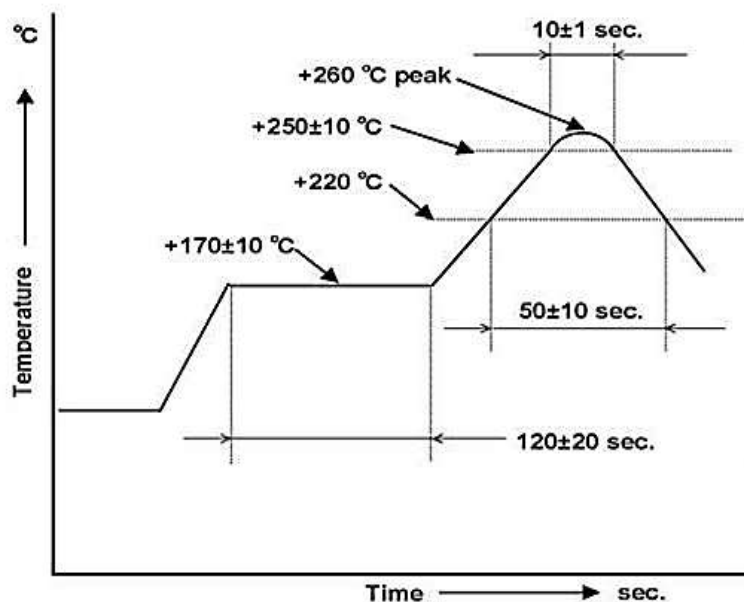
PART CODE	FREQUENCY RANGE	FREQUENCY TOLERANCE	LOAD CAPACITANCE	FREQUENCY STABILITY	OPERATING TEMPE. RANGE	EQUIVALENT SERIES RESISTANCE
	MHz	ppm	pF	ppm	°C	Ω Max.
XB36M00000S420	36.00000	±30	20	±30	-40 ~ +85	20
XB36M00000S430	36.00000	±30	30	±30	-40 ~ +85	20
XB50M00000S408	50.00000	±30	8	±30	-40 ~ +85	80
XB50M00000S410	50.00000	±30	10	±30	-40 ~ +85	80
XB50M00000S412	50.00000	±30	12	±30	-40 ~ +85	80
XB50M00000S416	50.00000	±30	16	±30	-40 ~ +85	80
XB50M00000S418	50.00000	±30	18	±30	-40 ~ +85	80
XB50M00000S420	50.00000	±30	20	±30	-40 ~ +85	80
XB50M00000S430	50.00000	±30	30	±30	-40 ~ +85	80

RELIABILITY - MECHANICAL AND ENVIRONMENTAL ENDURANCE - FOR REFERENCE ONLY

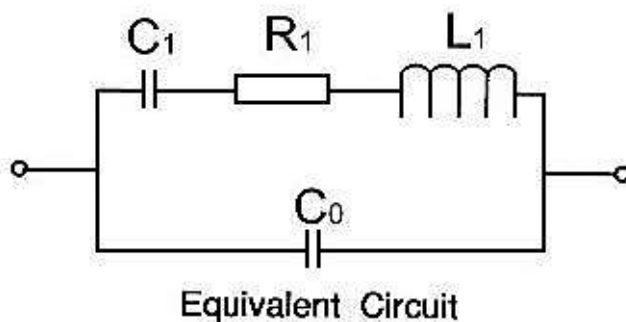
TEST ITEMS	TEST METHOD AND CONDITIONS	REQUIREMENTS
Drop	Free drop from 75cm height on a hard wooden board for 3 times. (Board is thickness more than 30mm.)	Frequency change: ≤5ppm Rr as specification
Shake	Shake frequency 10~55Hz, cyc1~2 minutes, swing 1.5mm, direction x/y/z, all 30 minutes, test after 1 hours.	Frequency change: ≤5ppm Rr as specification
Airproof	Put crystal into the pressure cabin with alcohol, keep pressure 0.4~0.5mpa 10 minutes, then take out and blow for 5 minutes	IR≥500MΩ
Weld	Temperature: 260±5°C Time: 3 seconds	90% exhibit tin ok
Humidity	Temperature: +40±2°C Humidity: 90%~95% R.H. Time: 250 hours	Frequency change: ≤5ppm Rr as specification
Low temperature	Temperature: -30±2°C Time: 250 hours put in room temperature, test after 1 hours.	Frequency change: ≤5ppm Rr as specification
High Temperature	Temperature: +85±2°C Time: 250 hours put in room temperature, test after 1 hours.	Frequency change: ≤5ppm Rr as specification
Temperature cycling	-30±3°C/30±3 min~+85±2°C/30±3min, 5 cycles	Frequency change: ≤5ppm Rr as specification

SUGGESTED REFLOW PROFILE - FOR REFERENCE ONLY

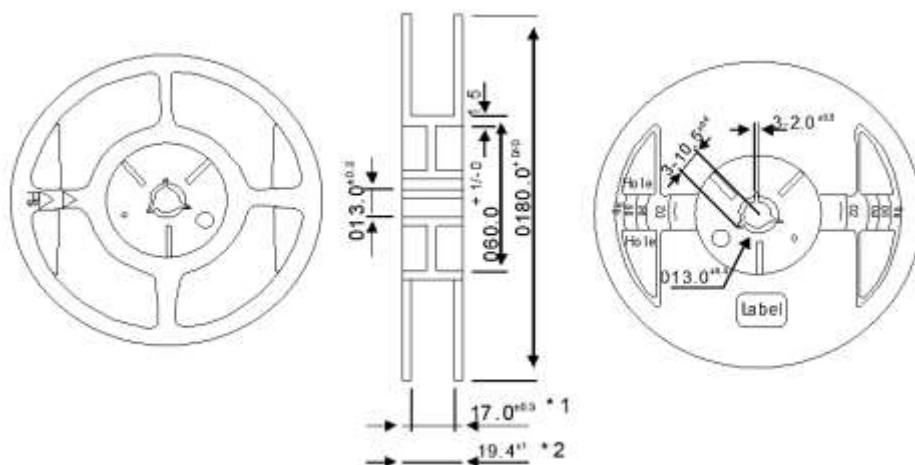
Condition:



EQUIVALENT CIRCUIT



SYMBOL	TOLERANCE	DIMENSION (MM)
A	±0.1	5.4
B	±0.1	7.4
C	±0.2	16
D	±0.1	7.5
E	±0.1	1.75
F	±0.1	8.0
G	±0.1	2.0
H	±0.1	4.0
J	±0.05	1.55
K	±0.1	1.4
Q	+0.1/0	1.6
T	±0.05	0.3



IMPORTANT NOTES AND DISCLAIMER

1. **ROHS COMPLIANCE:** The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). RoHS Test Report for this product can be obtained at Download Center.
2. **REACH COMPLIANCE:** REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained at Download Center.
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