

SPECIFICATIONS

PARAMETER	VALUE
NOMINAL FREQUENCY	32.768 kHz
MODE OF OSCILLATION	Fundamental
FREQUENCY TOLERANCE AT 25°C	±20 ppm max
TURNOVER TEMPERATURE	+25 ± 5°C
TEMPERATURE COEFFICIENT	-0.04 ppm / °C ² max
OPERATING TEMPERATURE RANGE	-40°C to +85°C
STORAGE TEMPERATURE RANGE	-55°C to +125°C
AGING	±3 ppm first year max
LOAD CAPACITANCE	6 pF
EQUIVALENT SERIES RESISTANCE	70 kΩ max
SHUNT CAPACITANCE	1.1 pF typ
DRIVE LEVEL	0.5 μW max
INSULATION RESISTANCE	500 MΩ min @ DC 100V

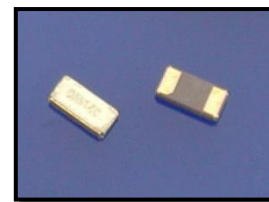
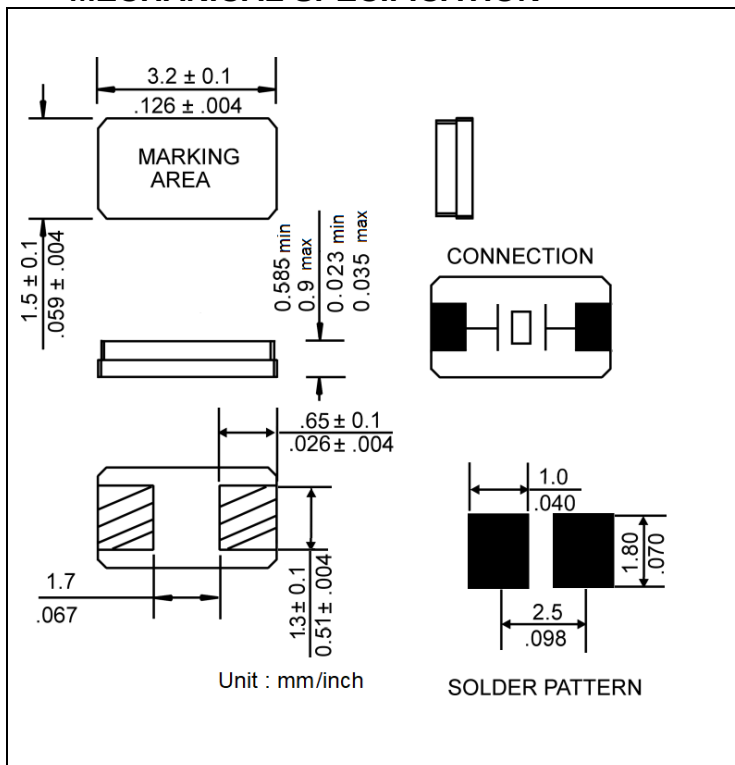
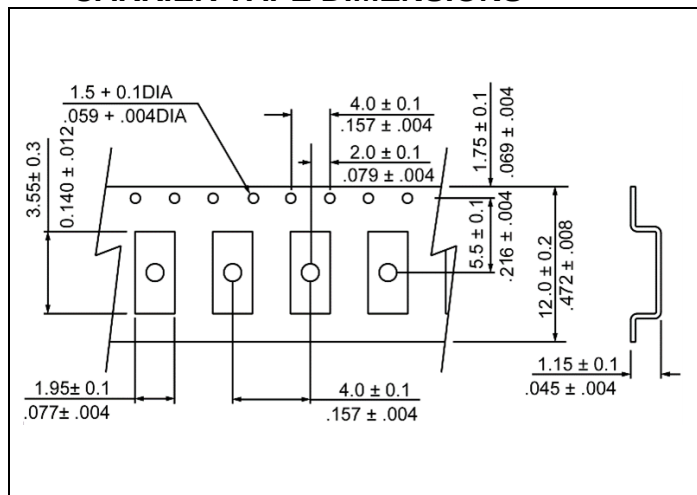


Photo not actual part

MECHANICAL SPECIFICATION



CARRIER TAPE DIMENSIONS



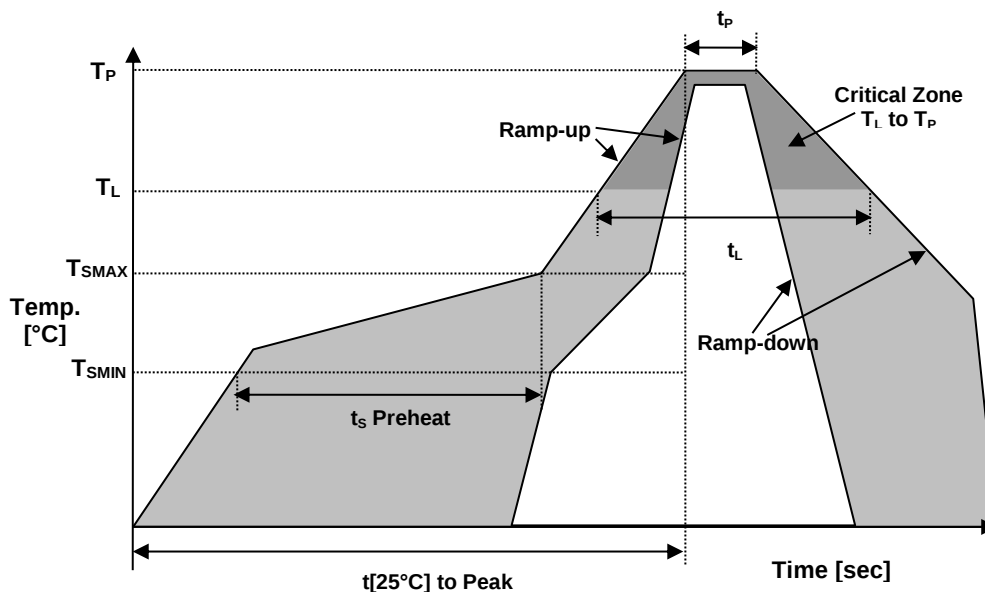
NOTE: REFER TO EIA-481 FOR DIMENSIONS

PACKAGING

180 mm REEL DIAMETER
12 mm TAPE WIDTH, 4 mm PITCH
QUANTITY: 3000 PIECES PER REEL

IN ACCORDANCE WITH EIA-481

REFLOW PROFILE



Reflow profile		
Temperature Min Preheat	T _{SMIN}	150°C
Temperature Max Preheat	T _{SMAX}	200°C
Time (T _{SMIN} to T _{SMAX})	t _s	60-180 sec.
Temperature	T _L	217°C
Peak Temperature	T _P	260°C
Ramp-up rate	R _{UP}	3°C/sec max.
Ramp-down rate	R _{DOWN}	6°C/sec max.
Time within 5°C of Peak Temperature	t _p	10 sec.
Time t[25°C] to Peak Temperature	t[25°C] to Peak	480 sec.
Time	t _L	60-150 sec.

ENVIRONMENTAL

PARAMETER	VALUE
MOISTURE SENSITIVITY LEVEL	1
RoHS	Compliant
REACH SVHC	Compliant
HALOGEN-FREE	Compliant
ESD CLASSIFICATION LEVEL	N/A
TERMINATION FINISH	Au



● MARKING

Xywwx

X – Internal Production ID code (J, R, T, Y, M, R, N, AA)
y – Year code
ww – Week code
x – 1 or 2 digits as Lot code

ymxxx

y – Year code
m – Month code, Jan ~ Sep: 1 ~ 9, Oct: X Nov: Y Dec: Z
xxx – Lot code

XLzymbd

X – Internal Production ID code (J, R, T, Y, M, R, N, AA)
L – Load capacitance code (A: 12.5pF B: 9pF C: 7pF Z: others)
z – Lot code
y – Year code
m – Month code, Jan ~ Sep: 1 ~ 9, Oct: X Nov: Y Dec: Z
d – Day code

XzymF_{xx}^{xx}

X – Internal Production ID code (J, R, T, Y, M, R, N, AA)
z – Frequency code
y – Year code
m – Month code, Jan ~ Sep: 1 ~ 9, Oct: X Nov: Y Dec: Z
_{xx}^{xx} – Lot code

Xywwx 32.768

X – Internal Production ID code (J, R, T, Y, M, R, N, AA)
y – Year code
ww – Week code
x – 1 or 2 digits as Lot code

32.768

3Xyx

3 – Item code
X – Internal Production ID code (J, R, T, Y, M, R, N, AA)
y – Year code
x – 1 or 2 digits as Lot code

APPROVAL

Drawn By:	FP, 20 January 2014
Approved By:	FP, 20 January 2014
Revision:	A, Initial Release B, KJ, 7/26/16 Corrected Tape Width to 12mm; Peak Temperature 260°C C, Updated to current spec levels KJ 5/15/17, Updated to current spec levels by XL 5/10/2019 D, Added markings by XLiu, December 10, 2020 E, AR January 07, 2021 Updated the Carrier Tape Dimensions F, Add reliability conditions by XLiu, April 28, 2022

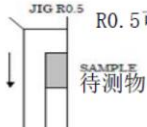
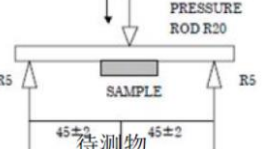
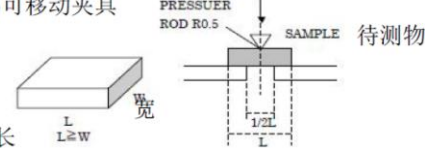
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RELIABILITY SPECIFICATIONS

Test Item	Test Methods/Conditions	Test Criteria
High Temp Storage	Temperature: 125°C ± 5°C for 1000 ± 12 hours. (If Customer's temperature request is higher than the standard, Temperature test must be done for customer requirements.) Then 25 ± 2°C over 2h before testing	ΔFreq. ≤ ±20ppm, ΔRR ≤ ±5kΩ or 20%
Low Temp Storage	-40°C ± 2°C for 500 ± 12 hours. (If Customer's temperature request is lower than the standard, Temperature test must be done for customer requirements.) Then 25 ± 2°C over 2h before testing	ΔFreq. ≤ ±10ppm, ΔRR ≤ ±5kΩ or 20%
High Temp. & Humidity	Temperature: 85°C ± 2°C Relative Humidity: 85% Time: 500 ± 12 hours. Then 25 ± 2°C over 2hours before testing	ΔFreq. ≤ ±10ppm, ΔRR ≤ ±5kΩ or 20% Insulation resistance 500M Ω min, at DC100V
Thermal Shock	The crystal unit shall be subjected to 100 successive change of Temperature cycles, then 25 ± 2°C over 2hours before testing, Each Cycle as bellow, -40°C +0/-6°C for 30 ± 3 minutes 25°C ± 2°C for 2~3 minutes 125°C +4/-0°C for 30 ± 3 minutes 25°C ± 2°C for 2~3 minutes	ΔFreq. ≤ ±10ppm, ΔRR ≤ ±5kΩ or 20%
Resistance to Soldering Heat	Reflows two times, then 25 ± 2°C over 2h before testing	ΔFreq. ≤ ±10ppm, ΔRR ≤ ±5kΩ or 20%
Drop Test	Free drop from 100cm for 3 times on hardWood.	ΔFreq. ≤ ±10ppm, ΔRR ≤ ±5kΩ or 20%

RT3215-32.768-6-TR

Vibration	Frequency: 10 to 55Hz, full wave Amplitude: $1.5 \pm 15\%$ mm (Peak to Peak) Sweep/Cycle: 2~3 minutes, 3 Directions: X,Y,Z Duration: 2 hours in each direction	Δ Freq. $\leq \pm 10$ ppm, Δ RR $\leq \pm 5k\Omega$ or 20%
Solderability	The lead is immersed in a $260 \pm 5^\circ\text{C}$ solder bath for 2 ± 0.6 seconds.	The new uniform solder coating coverage 95 % minimum.
Fine Leak	Helium bombing 5~5.5 kgf/cm ² for 2 hours, then tested with a helium mass spectrometry leak detector.	Air Leak rate $< 1 \times 1\text{E-}9\text{Pa.m}^3/\text{s}$
Mechanical Shock	100g, 6ms	Δ Freq. $\leq \pm 10$ ppm, Δ RR $\leq \pm 5k\Omega$ or 20%
Sticking Tendency	A R0.5 pressurized bar shall be used to apply a 10N load in the center of element and retain it for 10seconds. 	Δ Freq. $\leq \pm 5$ ppm, Δ RR $\leq \pm 5k\Omega$ or 15%
Board Flex Test	Shall be pressurized at a speed of approx. 0.5mm/sec. in the direction indicated by the arrow until bending width 3mm and held for 5 seconds. 	Δ Freq. $\leq \pm 10$ ppm, Δ RR $\leq \pm 5k\Omega$ or 20%
Element Assembly Strength Test	A R0.5 pressurized bar shall be used to apply a 10N load in the center of element and retain it for 10seconds. R0.5可移动夹具 	Δ Freq. $\leq \pm 10$ ppm, Δ RR $\leq \pm 5k\Omega$ or 20%