RT3215-32.768-6-TR

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

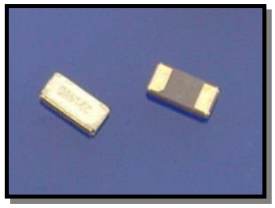
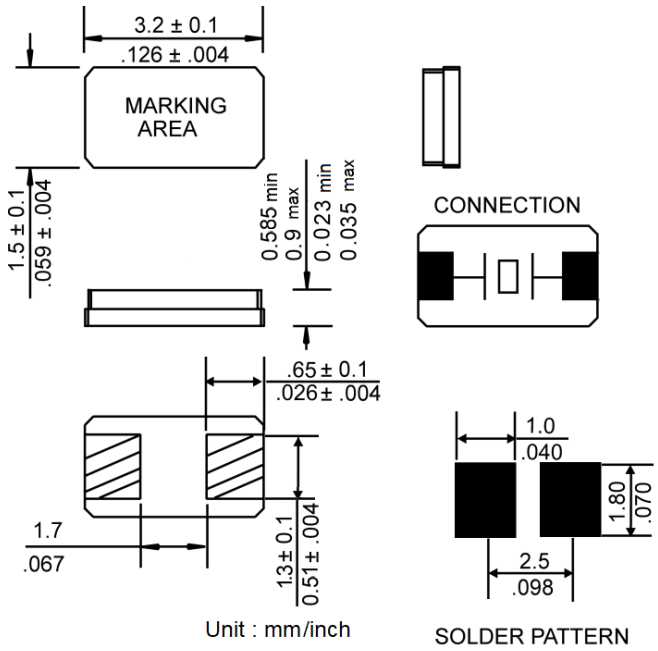
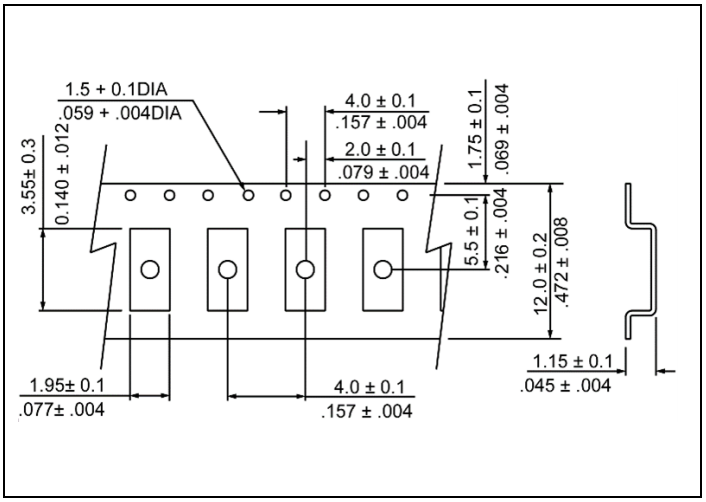


Photo not actual part

MECHANICAL SPECIFICATION



CARRIER TAPE DIMENSIONS



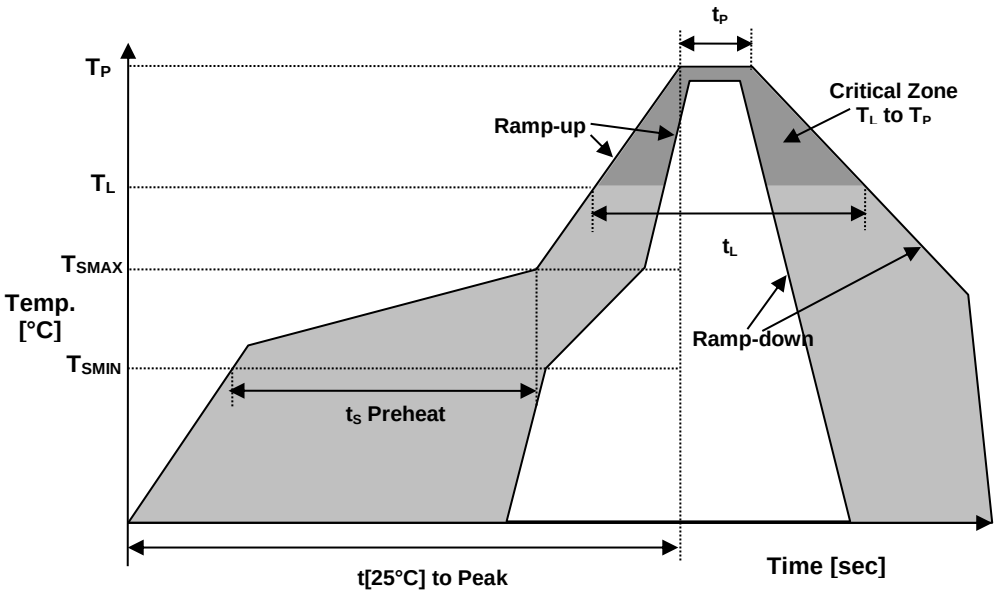
NOTE: REFER TO EIA-481 FOR DIMENSIONS

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

XLzymd

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

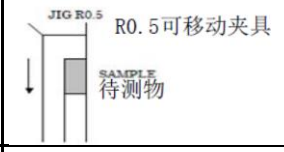
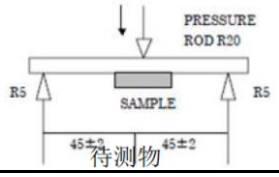
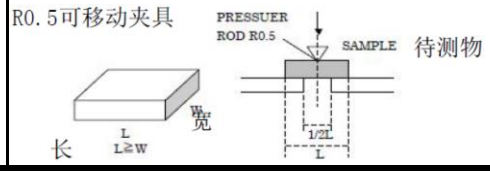
3 – Item code
X – Internal Production ID code (J, R, T, Y, M, R, N, AA)
y – Year code
x – 1 or 2 digits as Lot code

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

RELIABILITY SPECIFICATIONS

Test Item	Test Methods/Conditions	Test Criteria
High Temp Storage	Temperature: 125℃ ± 5℃ 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℃ over 2h before testing	⊿Freq.≤±20ppm, ⊿RR ≤±5kΩ or 20%
Low Temp Storage	-40℃±2℃ 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℃ over 2h before testing	⊿Freq.≤±10ppm, ⊿RR ≤±5kΩ or 20%
High Temp. & Humidity	Temperature: 85℃ ±2℃ Relative Humidity: 85% Time: 500 ±12 hours. Then 25 ±2℃ over 2hours before testing	⊿Freq.≤±10ppm, ⊿RR ≤±5kΩ or 20% Insulation resistance 500MΩ min, at DC100V
Thermal Shock	The crystal unit shall be subjected to 100 successive change of Temperature cycles, then 25±2℃ over 2hours before testing, Each Cycle as bellow, -40℃ +0/-6℃ for 30 ±3 minutes 25℃ ±2℃ for 2~3 minutes 125℃ +4/-0℃ for 30 ±3 minutes 25℃ ±2℃ for 2~3 minutes	⊿Freq.≤±10ppm, ⊿RR ≤±5kΩ or 20%
Resistance to Soldering Heat	Reflows two times, then 25 ±2℃ over 2h before testing	⊿Freq.≤±10ppm, ⊿RR ≤±5kΩ or 20%
Drop Test	Free drop from 100cm for 3 times on hardWood.	⊿Freq.≤±10ppm, ⊿RR ≤±5kΩ or 20%

Vibration	Frequency: 10 to 55Hz, full wave Amplitude: 1.5 ±15% mm (Peak to Peak) Sweep/Cycle: 2~3 minutes, 3 Directions: X,Y,Z Duration: 2 hours in each direction	⊿Freq.≤±10ppm, ⊿RR ≤±5kΩ or 20%
Solderability	The lead is immersed in a 260±5℃ solder bath for 2 ±0.6 seconds.	The new uniform solder coating coverage 95 % minimum.
Fine Leak	Helium bombing 5~5.5 kgf/cm2 for 2 hours, then tested with a helium mass spectrometry leak detector.	Air Leak rate<1 x 1E-9Pa.m3/s)
Mechanical Shock	100g, 6ms	⊿Freq.≤±10ppm, ⊿RR ≤±5kΩ 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. 	⊿Freq.≤±5ppm, ⊿RR ≤±5kΩ 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. 	⊿Freq.≤±10ppm, ⊿RR ≤±5kΩ 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. 	⊿Freq.≤±10ppm, ⊿RR ≤±5kΩ or 20%