SERIES H130A

FEATURES

- SMALL PACKAGE OF 5.0 x 3.2 x 1.0 mm
- EXCELLENT TOLERANCE AND STABILITY
- CUSTOM SPECIFICATIONS AVAILABLE

RoHS Compliant

SPECIFICATIONS

PARAMETER		VALUE
FREQUENCY RANGE		8.000 MHz TO 150.000 MHz
MODE OF OSCILLATION	FUNDAMENTAL	8.000 MHz TO 50.000 MHz
	THIRD OVERTONE	40.000 MHz TO 150.000 MHz
FREQUENCY TOLERANCE AT 25°C		±50 PPM MAXIMUM (±10, ±20, AND ±30 PPM AVAILABLE)
FREQUENCY STABILITY OVER TEMPERATURE		±50 PPM MAXIMUM (±10, ±20, AND ±30 PPM AVAILABLE)
OPERATING TEMPERATURE RANGE		-20°C TO +70°C STANDARD -40°C TO +85°C EXTENDED [1]
STORAGE TEMPERATURE RANGE		-40°C TO +90°C
AGING		±3 PPM PER YEAR MAXIMUM
LOAD CAPACITANCE		8 pF to 32 pF OR SERIES
EQUIVALENT SERIES RESISTANCE		SEE TABLE 1
SHUNT CAPACITANCE		5.0 pF MAXIMUM
DRIVE LEVEL		100 µW TYP, 300 µW MAX
SHOCK RESISTANCE		±5 PPM MAXIMUM 75 cm DROP TEST IN 3 AXES ONTO A HARD WOOD SURFACE
REFLOW CONDITIONS		260°C ±5°C FOR 10s MAXIMUM

[1] NOTE: NOT ALL STABILITIES ARE AVAILABLE FOR ALL OPERATING TEMPERATURE RANGES. CONTACT FACTORY FOR AVAILABILITY.

TABLE 1

FREQUENCY (MHz)	MODE	MAX ESR (OHMS)
8.00 TO 9.99	FUND	85
10.00 TO 11.99	FUND	60
12.00 TO 15.99	FUND	35
16.00 TO 19.99	FUND	25
20.00 TO 50.00	FUND	20
40.00 TO 59.99	FUND	70
60.00 TO 150.00	3OT	60

SERIES H130A

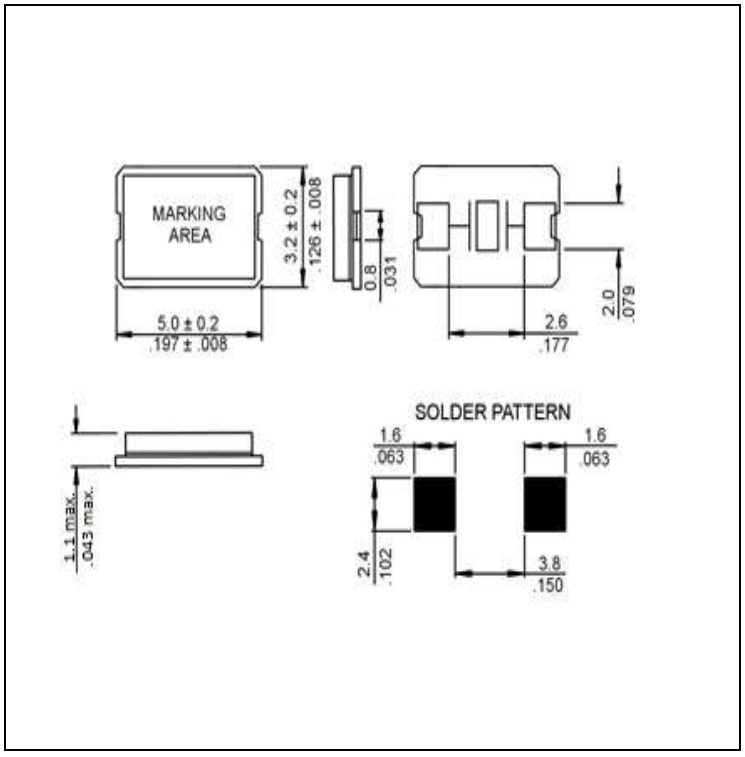
PART NUMBERING SYSTEM

TYPE	-	FREQUENCY	-	LOAD CAPACITANCE	-	MODE	-	TOLERANCE/STABLITY (PPM/PPM)
H130A	-	IN MHz	-	8 TO 32 pF FOR PARALLEL S FOR SERIES	-	Blank FOR < 24.576 MHz F FOR ≥ 24.576 MHz 3OT THIRD OVERTONE	-	Blank FOR MAXIMUM PPMPPM Example: 1020, 2050

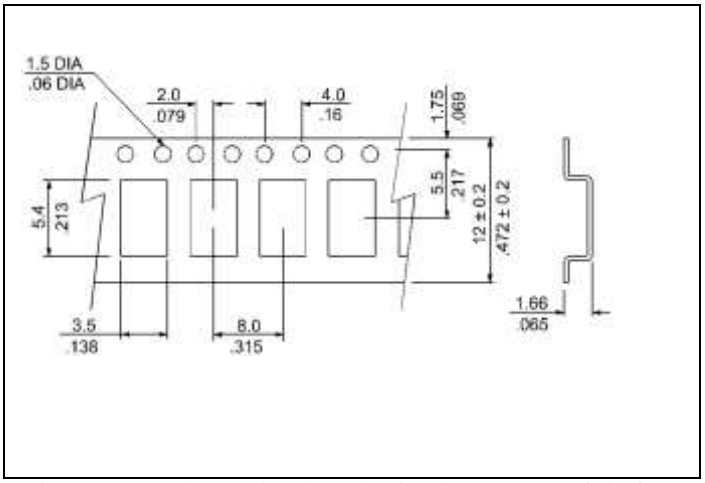
-	EXTENDED TEMPERATURE	-	TAPE & REEL
-	Blank FOR STANDARD EXT FOR EXTENDED	-	TR

EXAMPLE: H130A-24.000-18-TR
Surface Mount Microprocessor Crystal, H130A package, 24.000 MHz, Fundamental mode, 18 pF load, ±50 ppm Tolerance, ±50 ppm Stability, from -20°C to +70°C, Tape and reel packaging

MECHANICAL SPECIFICATION



CARRIER TAPE DIMENSIONS



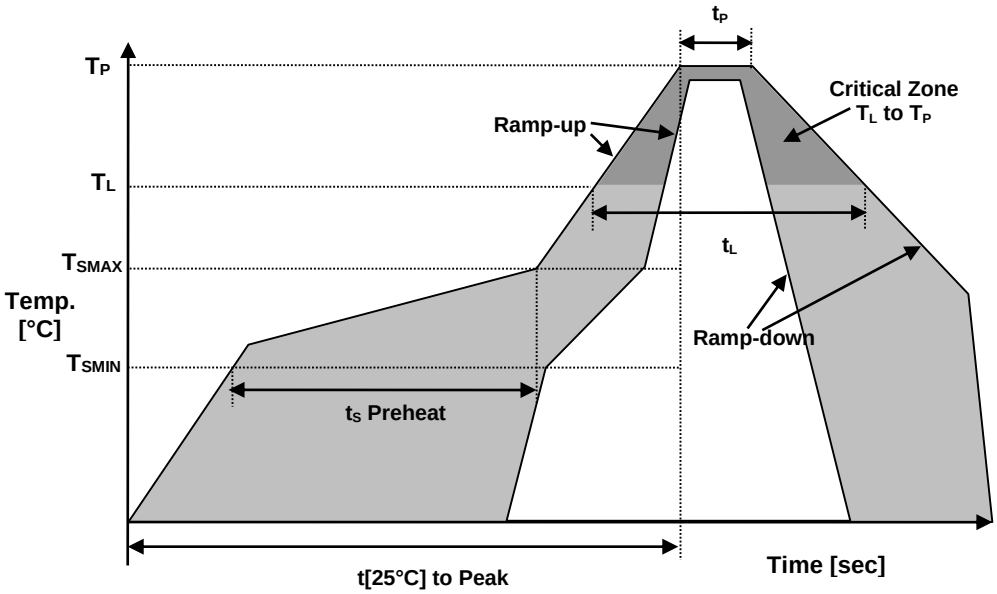
NOTE: REFER TO EIA-481 FOR NON-SPECIFIED DIMENSIONS

PACKAGING

180 mm REEL DIAMETER
12 mm TAPE WIDTH, 8 mm PITCH
QUANTITY: 1000 PIECES PER REEL

IN ACCORDANCE WITH EIA-481

REFLOW PROFILE



Reflow profile (Reference IPC/JEDEC J-STD-020)		
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	6/6 COMPLIANT & LEAD FREE
REACH SVHC	COMPLIANT
HALOGEN-FREE	COMPLIANT
ESD CLASSIFICATION LEVEL	N/A
TERMINATION FINISH	Au
UNIT WEIGHT (GRAMS)	0.051

Declaration of Conformity Recast Directive 2011/65/EU
Certificate of Compliance

Reference: H130A family of SMD Crystal

Raltron / RAMI Technology hereby certifies that the part(s)/product(s) listed above are compliant with the Recast Directive 2011/65/EU for the Restriction of the use of certain Hazardous Substances in electrical equipment as passed on July 21st, 2011. Any trace impurities of the RoHS substances in the part(s)/product(s) listed above are below the Recast specified levels.

The following table lists the restricted materials and their respective allowable limits:

Recast Restricted Substance	**Threshold Level** (at homogenous material level)
Cadmium (Cd)	0.01% or 100ppm
Hexavalent Chromium (Cr+6)	0.1% or 1000ppm
Lead (Pb)	0.1% or 1000ppm
Mercury (Hg)	0.1% or 1000ppm
Polybrominated Biphenyl (PBB)	0.1% or 1000ppm
Polybrominated Diphenyl Ether (PBDE)	0.1% or 1000ppm

January 2016

John D. Ivens

John D. Ivens
Quality Assurance Director
Raltron/RAMI Technology

Certificate of REACH SVHC

Revised 12/21/2015

Date: 21 December 2015
Ref: H130A family of Crystals

Raltron / RAMI Technology hereby certifies that its products, identified by the product family listed above; do not contain any of the REACH Substances of Very High Concern (SVHC) according to the Candidate list published by ECHA (European Chemical Agency) dated:

28 October 2008
13 January 2010
30 March 2010
18 June 2010
15 December 2010
20 June 2011
19 December 2011
18 June 2012
19 December 2012
20 June 2013
16 December 2013
16 June2014
17 December 2014
15 June 2015
17 December 2015

Regards,

Frank Parra

Frank Parra
Quality Assurance Director
Raltron /RAMI Technology