

#### ● FEATURES

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

#### ● APPLICATIONS

- PAGERS
- CORDLESS TELEPHONES
- GPS
- BLUETOOTH



#### ● SPECIFICATIONS

PARAMETER		VALUE
FREQUENCY RANGE		8.000 MHz TO 120.000 MHz
MODE OF OSCILLATION	FUNDAMENTAL	8.000 MHz TO 50.000 MHz
	THIRD OVERTONE	45.000 MHz TO 120.000 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 <sup>1</sup> -30°C TO +85°C EXTENDED <sup>1</sup>
STORAGE TEMPERATURE RANGE		-40°C TO +90°C
AGING		±1 PPM PER YEAR MAXIMUM
LOAD CAPACITANCE		8 pF to 32 pF OR SERIES
EQUIVALENT SERIES RESISTANCE		SEE TABLE 1
SHUNT CAPACITANCE		7.0 pF MAXIMUM
DRIVE LEVEL		100 µW TYP, 500 µW MAX
SHOCK RESISTANCE		±5 PPM MAXIMUM 75 cm DROP TEST IN 3 AXES ONTO A HARD SURFACE
REFLOW CONDITIONS		260°C ±5°C FOR 10s MAXIMUM



<sup>1</sup> 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 11.99	FUND	40
12.00 TO 14.99	FUND	35
15.00 TO 19.99	FUND	30
20.00 TO 50.00	FUND	20
45.00 TO 59.99	3OT	55
60.00 TO 89.99	3OT	50
90.00 TO 120.00	3OT	45

**■ PART NUMBERING SYSTEM**

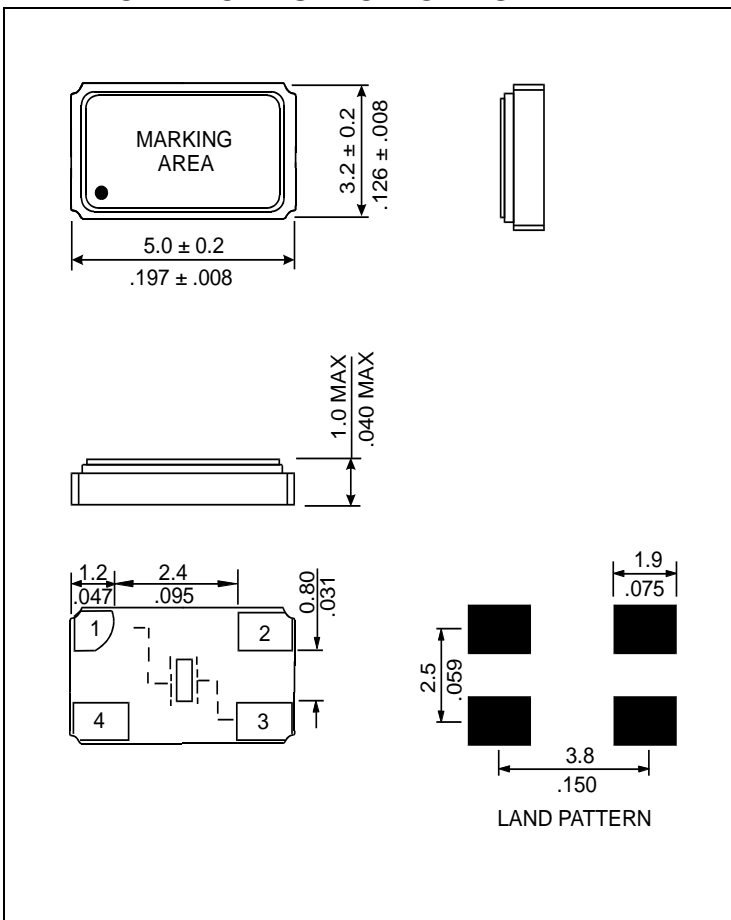
TYPE	FREQUENCY	LOAD CAPACITANCE	MODE	TOLERANCE/STABILITY (PPM/PPM)
H130B	IN MHz	8 TO 32 pF FOR PARALLEL S FOR SERIES	Blank FOR < 45.000 MHz F FOR ≥ 45.000 MHz 3OT THIRD OVERTONE	Blank FOR MAXIMUM PPMPPM Example: 1020, 2050

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

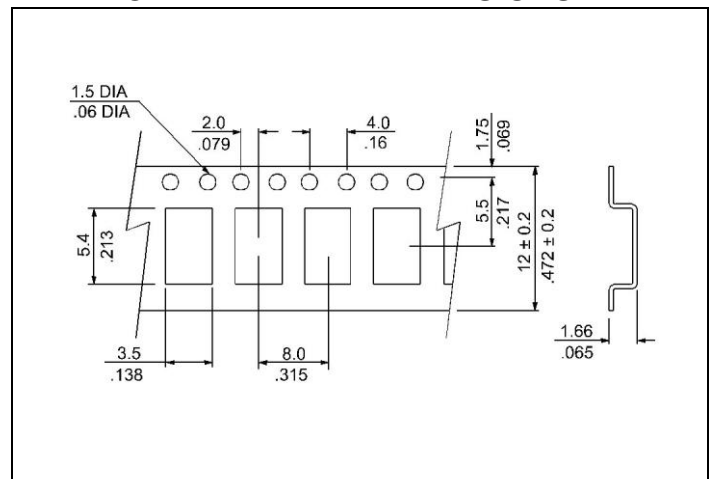
**EXAMPLE: H130B-24.000-18-TR**

Surface Mount Microprocessor Crystal, H130B 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**



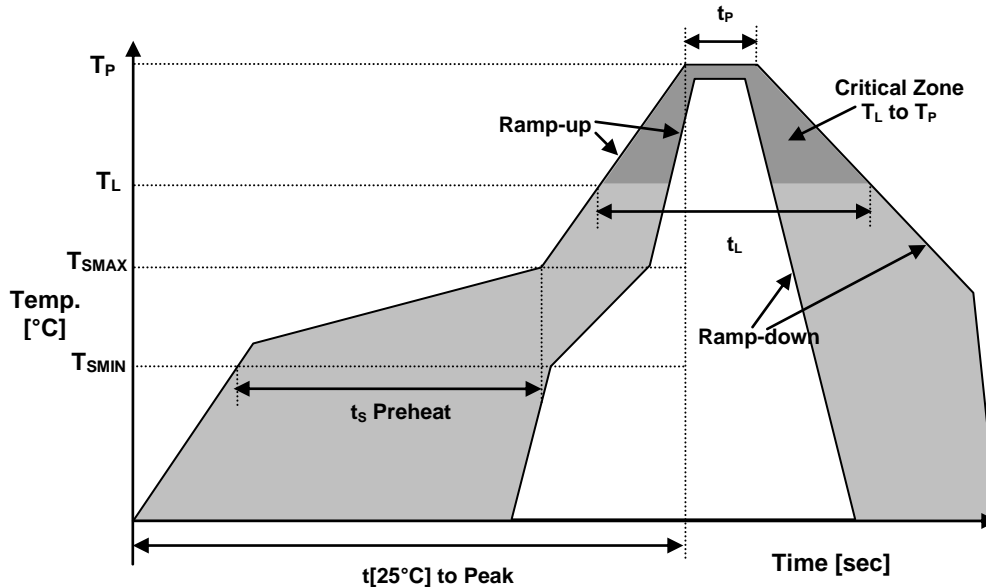
NOTE: REFER TO EIA-481 FOR NON-SPECIFIED DIMENSIONS

**● 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 $t_{[25^\circ\text{C}]}$ to Peak Temperature	$t_{[25^\circ\text{C}]}$ 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)	0.048

