

## FEATURES

- ISO/TS 16949 CERTIFIED FACILITY
- RELIABILITY TESTING PER AEC-Q200
- PPAP DOCUMENTATION AVAILABLE
- SMALL PACKAGE OF 6.0 x 3.5 mm
- EXCELLENT TOLERANCE AND STABILITY
- CUSTOM SPECIFICATIONS AVAILABLE



## SPECIFICATIONS

PARAMETER		VALUE
FREQUENCY RANGE		8.000 MHz to 65.000 MHz
MODE OF OSCILLATION	FUNDAMENTAL	8.000 MHz to 65.000 MHz
FREQUENCY TOLERANCE AT 25°C		±50 ppm max (±10 ppm, ±15 ppm, ±20 ppm and ±30 ppm available)
FREQUENCY STABILITY OVER TEMPERATURE ‡		±50 ppm max (±10 ppm, ±15 ppm, ±20 ppm and ±30 ppm available, see Table 2)
OPERATING TEMPERATURE RANGE ‡		-20°C to +70°C Standard -40°C to +85°C Extended -40°C to +105°C Extended6 -40°C to +125°C Extended1
STORAGE TEMPERATURE RANGE		-55°C to +125°C
AGING		±1 ppm per year max
LOAD CAPACITANCE		6 pF to 32 pF or Series
EQUIVALENT SERIES RESISTANCE		See Table 1
SHUNT CAPACITANCE		5.0 pF max
DRIVE LEVEL		100 µW typ, 500 µW max
INSULATION RESISTANCE		500 MΩ min
SHOCK RESISTANCE		±5 ppm max 75 cm drop test in 3 axes onto a hard wood surface
REFLOW CONDITIONS		260°C for 10 s max



‡ Not all combinations of temperature and frequency stability available, consult factory.

**TABLE 1**

FREQUENCY (MHz)	MODE	ESR MAX (Ω)
8 ≤ F0 < 12	FUND	60
12 ≤ F0 < 20	FUND	45
20 ≤ F0 < 24	FUND	40
24 ≤ F0 < 30	FUND	35
30 ≤ F0 ≤ 65	FUND	30

**TABLE 2**

TEMP RANGE (°C)	STABILITY (ppm)				
	±10	±15	±20	±30	±50
-20 to +70	O	O	O	O	O
-40 to +85	×	O	O	O	O
-40 to +105	×	△	△	O	O
-40 to +125	×	×	×	△	O

Note: O: Available, △: Conditional, ×: Not available

### SERIES H10SA

#### PART NUMBERING SYSTEM

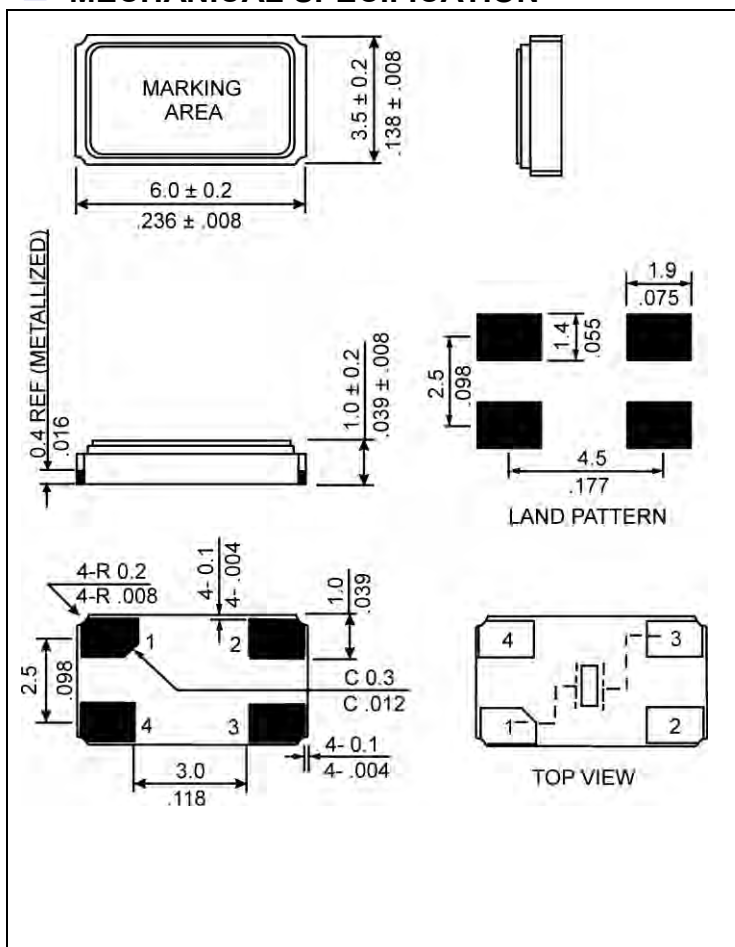
TYPE	-	FREQUENCY	-	LOAD CAPACITANCE	-	MODE	-	TOLERANCE/STABILITY (PPM/PPM)
H10SA	-	in MHz	-	8 to 32 pF for Parallel S for Series	-	Blank for < 24.576 MHz F for ≥ 24.576 MHz	-	Blank for max ppm Example: 1020, 2050

-	EXTENDED TEMPERATURE	-	TAPE & REEL
-	Blank for Standard EXT for Extended EXT6 for Extended6 EXT1 for Extended1	-	TR

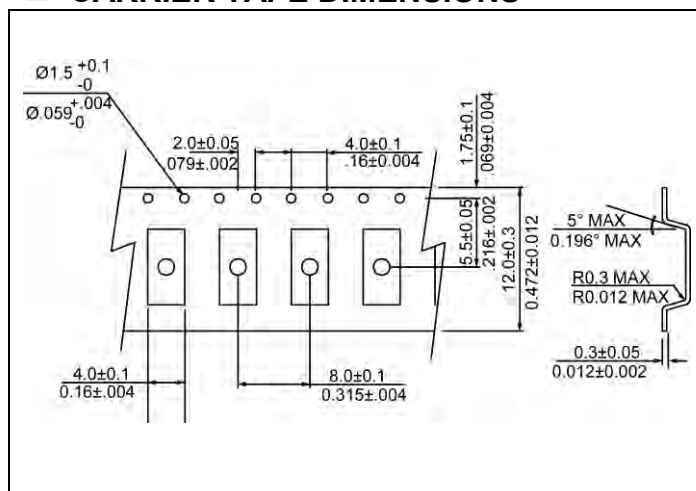
#### EXAMPLE: H10SA-24.000-18-3050-EXT1-TR

AUTOMOTIVE GRADE Surface Mount Microprocessor Crystal, H10SA package, 6.0 x 3.5 mm, 24.000 MHz, Fundamental mode, 18 pF Load, ±30 ppm Tolerance, ±50 ppm Stability from -40°C to +125°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