

● **FEATURES**

- COMPACT DESIGN
- HIGH ACCURACY
- EXCELLENT FOR HIGH DENSITY SURFACE MOUNTING



● **SPECIFICATIONS**

| PARAMETER | VALUE |
|--------------------------------------|--|
| FREQUENCY RANGE | 12.00 MHz to 55.00 MHz |
| MODE OF OSCILLATION | FUNDAMENTAL ONLY |
| FREQUENCY TOLERANCE AT 25°C | ±50 PPM MAXIMUM (±10, AND ±20 PPM AVAILABLE) |
| FREQUENCY STABILITY OVER TEMPERATURE | ±50 PPM MAXIMUM (±10, AND ±20 PPM AVAILABLE) |
| OPERATING TEMPERATURE RANGE | -10°C TO +60°C STANDARD ¹ -40°C TO +85°C EXTENDED ¹ |
| STORAGE TEMPERATURE RANGE | -40°C TO +85°C |
| AGING | ±3 PPM PER YEAR MAXIMUM |
| LOAD CAPACITANCE | 8 pF to 32 pF OR SERIES |
| EQUIVALENT SERIES RESISTANCE | SEE TABLE 1 |
| SHUNT CAPACITANCE | 7 pF MAXIMUM |
| DRIVE LEVEL | 500 µW MAXIMUM |
| 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 |



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

TABLE 1

| FREQUENCY (MHz) | MODE | MAX ESR (OHMS) |
|------------------|------|----------------|
| 16.000 TO 18.999 | FUND | 90 |
| 19.000 TO 24.999 | FUND | 80 |
| 25.000 TO 31.999 | FUND | 60 |
| 32.000 TO 50.000 | FUND | 50 |

■ **PART NUMBERING SYSTEM**

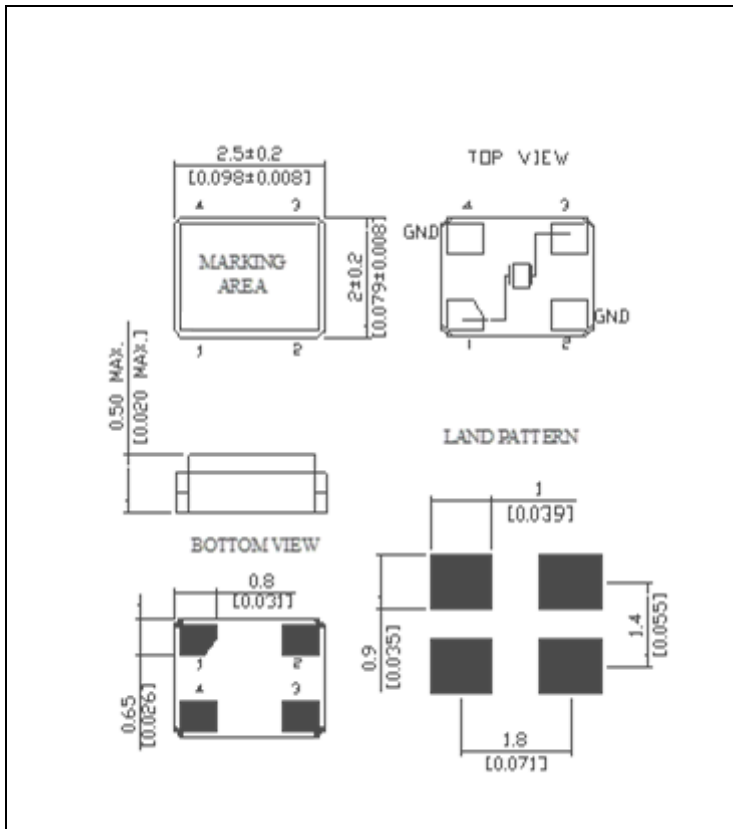
| TYPE | FREQUENCY | LOAD CAPACITANCE | MODE | TOLERANCE/STABILITY (PPM/PPM) |
|-------|-----------|---------------------------------------|--|--|
| R2520 | IN MHz | 10 TO 32 pF FOR PARALLEL S FOR SERIES | Blank FOR < 24.576 MHz F FOR ≥ 24.576 MHz | Blank FOR MAXIMUM PPM/PPM Example: 1020, 2050 |

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

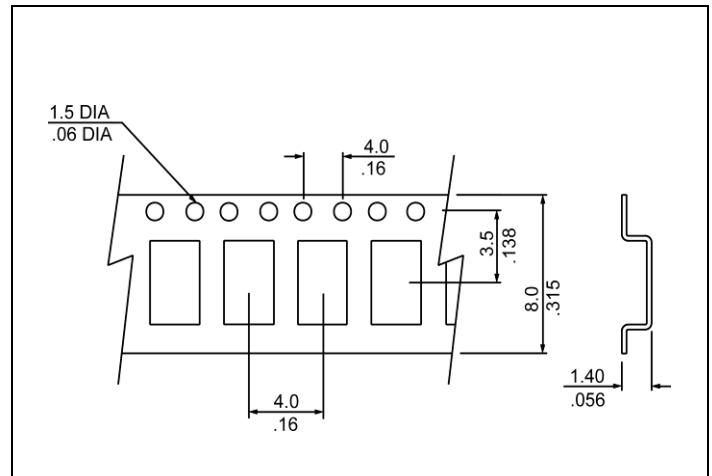
EXAMPLE: R2520-20.000-10-2020-TR

Surface Mount Crystal, 2.5 mm x 2.0 mm package, 20.000 MHz, 10 pF load, ±20 ppm Tolerance, ±20 ppm Stability over the Operating Temperature from -10°C to +60°C, Tape and Reel packaging

● **MECHANICAL SPECIFICATION**



● **CARRIER TAPE DIMENSIONS**



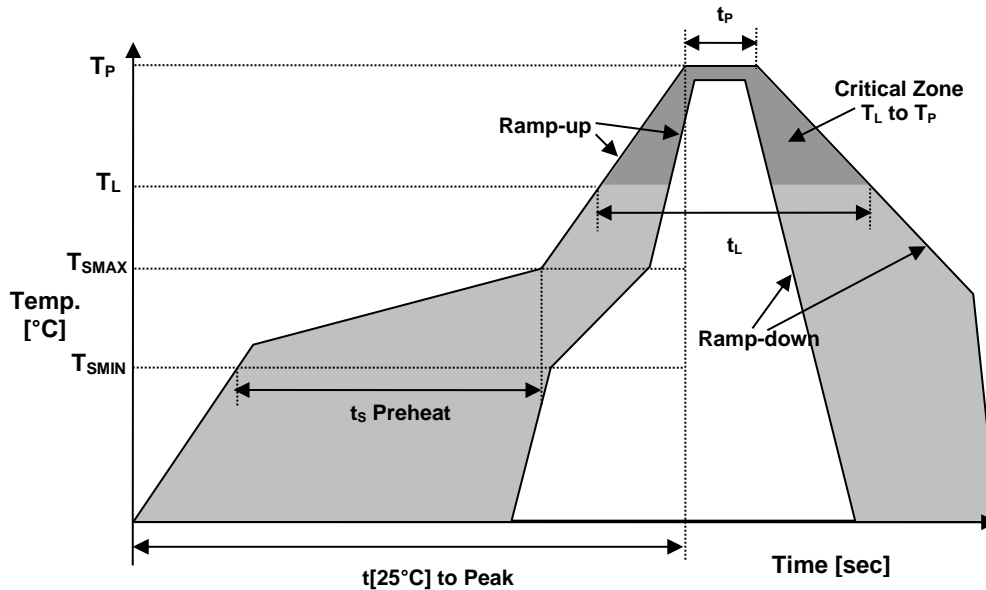
NOTE: REFER TO EIA-481 FOR DIMENSIONS

● **PACKAGING**

178 mm REEL DIAMETER
8 mm TAPE WIDTH, 4 mm PITCH
QUANTITY: 1000 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 $t[25^\circ\text{C}]$ 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-2 | 6/6 COMPLIANT & LEAD FREE |
| REACH SVHC | COMPLIANT |
| HALOGEN-FREE | COMPLIANT |
| ESD CLASSIFICATION LEVEL | N/A |
| TERMINATION FINISH | Au |

