

FEATURES

- Seam welded metal lid / ceramic package
- 1.3mm max. low profile
- Tight stability / high reliability
- Wide frequency range
- Tape & Reel (1,000 pcs)
- Glass sealed all ceramic package also available

SMD QUARTZ CRYSTAL

The 13SM is a 1.3mm max. low profile SMD quartz crystal. This seam welded metal lid/ceramic package crystal is ideal for PCMCIA ethernet and fax modem card applications.

PART NUMBERING GUIDE "EXAMPLE"

PART NUMBER	LOAD CAPACITANCE*	TAPE & REEL	FREQUENCY
13SM	- 20	R	- 10.000 MHz

* Load capacitance (xx=xx pF, S= series resonance)

Note: See Product Selection Guide for additional options.

OPERATING CONDITIONS/ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	MINIMUM	TYPICAL	MAXIMUM	UNITS
FREQUENCY RANGE		8.0		125.0	MHz
CALIBRATION TOLERANCE	@ +25°C	-30		+30	PPM
FREQUENCY STABILITY, ref @ 25°C	-10 ~ +70°C	-50		+50	PPM
SHUNT CAPACITANCE	C ₀			5.0	pF
LOAD CAPACITANCE (C _L)	(Customer Specified)	10.0	18.0 standard	Series	pF
DRIVE LEVEL (D _L)	8.0 ~ 100.0MHz			0.5	mW
OPERATING TEMPERATURE	T _{OPR}	-10		+70	°C
STORAGE TEMPERATURE	T _{STG}	-40		+85	°C
AGING (FIRST YEAR)	@ +25°C	-5.0		+5.0	PPM

EQUIVALENT SERIES RESISTANCE / MODE OF OSCILLATION

FREQUENCY RANGE (MHz)	MODE	MAX ESR Ω	FREQUENCY RANGE (MHz)	MODE	MAX ESR Ω
8.000 ~ 15.999	Fundamental	60	28.000 ~ 100.000	3rd O/T	60
16.000 ~ 42.000	Fundamental	40	84.000 ~ 125.000	5th O/T	80

PACKAGE DIMENSIONS (mm)

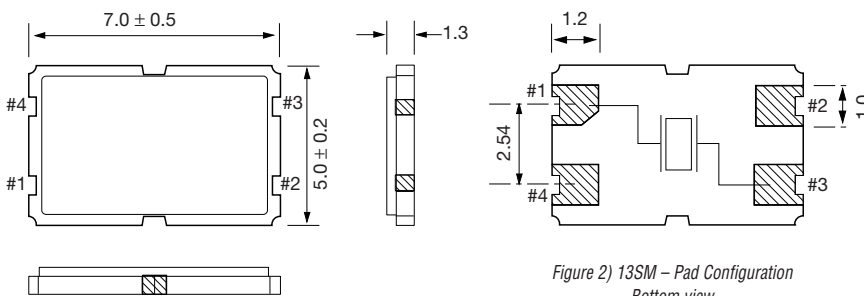


Figure 1) 13SM – Top and Side views

Figure 2) 13SM – Pad Configuration Bottom view

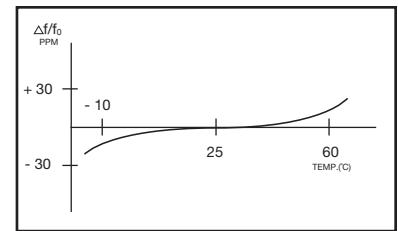


Figure 4) Frequency vs Temperature Curve

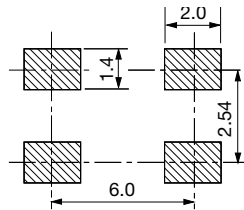


Figure 3) 13SM – Recommended Solder Pad Layout – Top view