- Low profile
- 8.0 x 4.5 mm Footprint
- Extended Temp Range Option
- RoHS Compliant

CSM-9

SMD QUARTZ CRYSTAL

The CSM-9 is a compact SMD Crystal. The 8.0 x 4.5 x 1.8 mm ceramic package is ideal for today's SMD manufacturing environment.

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	CSM-9			UNITS
		MIN	TYP	MAX	
Frequency Range		4.000		50.000	MHz
Frequency Tolerance	at +25°C			± 30	ppm
Frequency Stability	-20 to +70°C			± 30	ppm
Shunt Capacitance				5	pF
Load Capacitance	Specify in P/N	8	20	Series	pF
Drive Level				100	µW
Operating Temperature		-10		+70	°C
Storage Temperature		-55		+125	°C
Aging (Per Year)	@ +25°C ±3°C			±5	ppm

EQUIVALENT SERIES RESISTANCE/MODE OF OSCILLATION

FREQUENCY RANGE (MHz)	MODE OF OSC	MAX ESR Ω	FREQUENCY RANGE (MHz)	MODE OF OSC	MAX ESR Ω
4.00 ~ 7.999	Fundamental	300	12.000 ~ 12.999	Fundamental	80
8.000 ~ 9.999	Fundamental	200	13.000 ~ 50.000	Fundamental	50
10.000 ~ 11.999	Fundamental	100			

DIMENSIONS (mm)

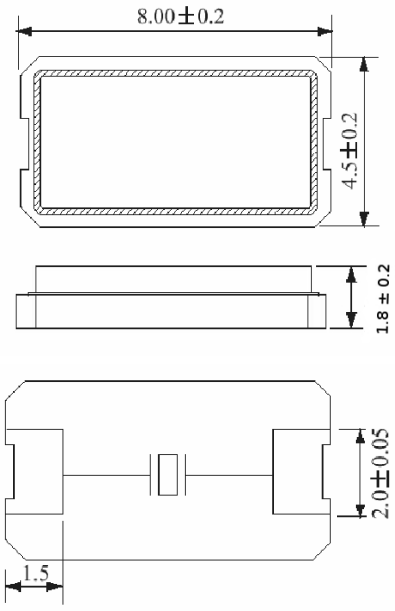

Figure 1) Top, Side, Bottom and End views

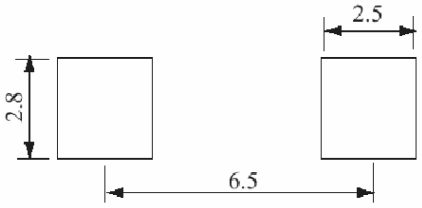

Figure 2) Suggested Land Pattern

PART NUMBERING GUIDE: Example ECS-200-20-35-TR

ECS - Frequency Abbreviation - Load Capacitance - Package | Custom Options: **Tolerance** | *** Stability** | **Temp Range** - **Packaging**

ECS - Frequency Abbreviation	Load Capacitance	Package	Tolerance	* Stability	Temp Range	Packaging
200 = 20.000 MHz See P/N Guide	20 =20 pF S=Series	35 = CSM-9	Blank = Std A = ± 25 ppm J = ± 20 ppm R = ± 15 ppm C = ± 10 ppm	Blank = Std D = ± 100 ppm E = ± 50 ppm G = ± 30 ppm H = ± 25 ppm T = ± 20 ppm W = ± 15 ppm K = ± 10 ppm	Blank = Std M = -20 ~ +70°C N = -40 ~ +85°C P = -40 ~ +105°C S = -40 ~ +125°C	TR= Tape & Reel 1K/Reel

**Consult Factory for available stability options over extended temp range.*

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