

- ▶ Low Profile
- ▶ 8.0 x 4.5 mm Footprint
- ▶ Extended Temp. Range Option
- ▶ RoHS Compliant



CSM-9

SMD CRYSTAL

The CSM-9 is a compact SMD Crystal. The 8.0 x 4.5 x 1.6 mm ceramic package is ideal for today's SMD manufacturing environment.



OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	CSM-9			UNITS
		MIN	TYP	MAX	
Frequency	Fo	10.000		32.000	MHz
Frequency Tolerance	@ +25°C			± 30 *	ppm
Frequency Stability (ref @ 25°C)	-10 ~ +70°C			± 30 *	ppm
Shunt Capacitance				7.0	pF
Load Capacitance	Specify in P/N		20		pF
Equivalent Series Resistance Fundamental Model	10.000 ~ 11.999 MHz			80	Ω
	12.000 ~ 32.0000 MHz			50	Ω
Drive Level				300	μW
Operating Temperature	Topr	-10		+70	°C
Storage Temperature	Tstg	-40		+85	°C
Aging Characteristics (Per Year)	@ +25°C ± 3°C			± 5	ppm

PACKAGE DIMENSIONS (mm)

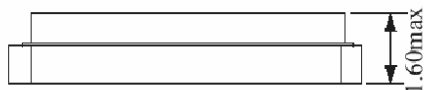
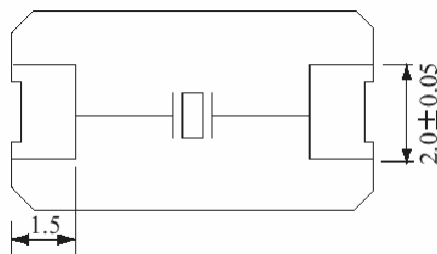
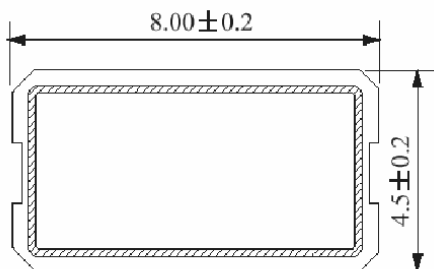


Figure 1) Top and Side Views

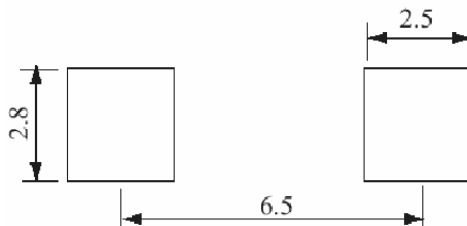


Figure 2) Bottom View and Suggested Land

PART NUMBERING GUIDE: Example ECS-160-20-35-TR

ECS - Frequency Abbreviation - Load - Package Type - Tolerance - Stability - Temp Range - Packaging

160 = 16.000 MHz
See P/N Guide for
Std Frequencies

20 = 20.0 pF
S = Series

-35 =
CSM-9

A = ± 25 ppm
C = ± 10 ppm

D = ± 100 ppm
E = ± 50 ppm
G = ± 30 ppm
H = ± 25 ppm
K = ± 10 ppm

L = -10 ~ +70°C
M = -20 ~ +70°C
N = -40 ~ +85°C
P = -40 ~ +105°C

-TR =
Tape & Reel
1K/Reel

* Tighter Tolerance/Stability Options Available (see custom options)
Not all stabilities are available at all temp ranges, consult ECS.