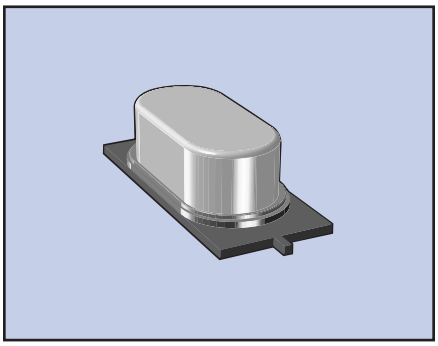
CSM-7 SMD QUARTZ CRYSTAL



The CSM-7 is an excellent choice for the SMD version of the HC-49US leaded crystal. The CSM-7 has a case height of 4.3 mm maximum in a resistance weld metal package. A package profile of 3.2 mm maximum is also available.

FEATURES

- **Cost effective**
- **Space saving design**
- **Low profile**
- **Tape & Reel (1,000 pcs)**

PART NUMBERING GUIDE *"EXAMPLE"*

	FREQUENCY (16.0000 MHz)		LOAD CAPACITANCE*		PACKAGE TYPE**
ECS	–	160	–	20	– 5P

** Load capacitance (xx=xx pF, S= series resonance), ** Package Type examples (-5P= 4.3mm max. height, -5PL= 3.2mm max. height)*
For extended temp range of -40 to +85˚C ad -DN suffix for example ECS-160-20-5P-DN
Note: See Product Selection Guide for additional options.

OPERATING CONDITIONS/ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	MINIMUM	TYPICAL	MAXIMUM	UNITS
FREQUENCY RANGE	f_O	3.57		70.000	MHz
FREQUENCY TOLERANCE	@ +25˚C			±30	PPM
FREQUENCY STABILITY, ref @ 25˚C	Standard -10 +70˚C			±50	PPM
	"DN" Option -40 +85˚C			±100	PPM
OPERATING TEMPERATURE	Standard	-10		+70	˚C
	"DN" Option	-40		+85	˚C
STORAGE TEMPERATURE (T_{STG})	T_{STG}	-40		+105	˚C
SHUNT CAPACITANCE (C_0)	C_0			7.0	pF
LOAD CAPACITANCE (C_L)	C_L (Customer Specified)	10	20.0 standard	Series	pF
DRIVE LEVEL	3.570 - 70.000 MHz			0.5	mW
AGING (FIRST YEAR)	@ +25˚C			±5.0	PPM

EQUIVALENT SERIES RESISTANCE

FREQUENCY RANGE (MHz)	MODE	MAX ESR Ω	FREQUENCY RANGE (MHz)	MODE	MAX ESR Ω
3.570 ~ 4.999	Fundamental	150	13.000 ~ 19.000	Fundamental	40
5.000 ~ 5.999	Fundamental	80	20.000 ~ 29.000	Fundamental	30
6.000 ~ 6.999	Fundamental	70	26.000 ~ 39.999	3rd O/T	100
7.000 ~ 8.999	Fundamental	60	40.000 ~ 70.000	3rd O/T	80
9.000 ~ 12.999	Fundamental	50			

PACKAGE DIMENSIONS (mm)

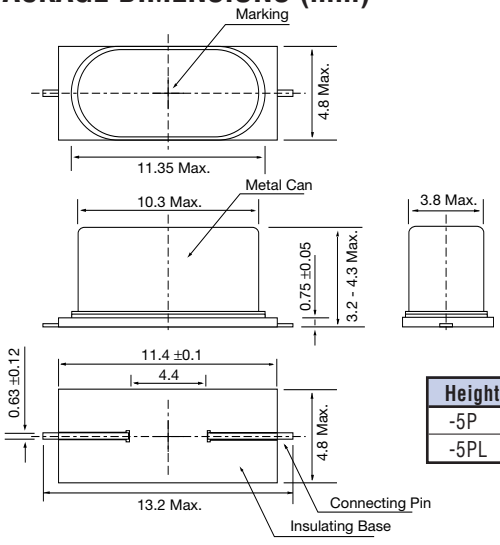


Figure 1) CSM-7 - Top, Side, Bottom and End views

Height "H" (max.)	
-5P	4.3 mm
-5PL	3.2 mm

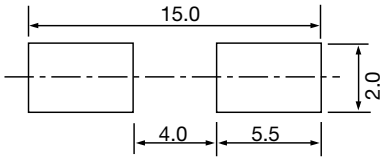


Figure 2) CSM-7 Land Pattern - Bottom view

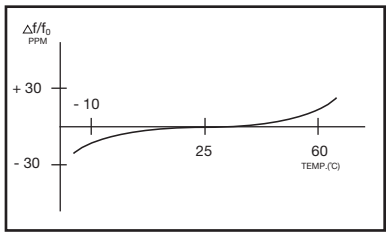


Figure 3) Frequency vs Temperature Curve