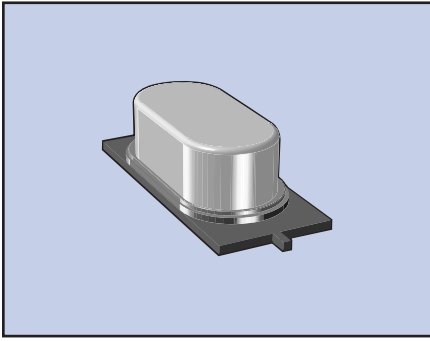




The CSM-7 is an excellent choice for the SMD version of the HC-49US leaded crystal. The CSM-7 has a case height of 4.3 mm maximum in a resistance weld metal package. A package profile of 3.2 mm maximum is also available.

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 add -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_0	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)

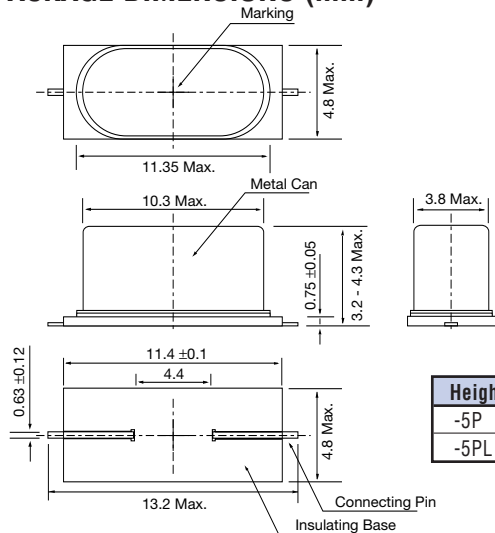


Figure 1) CSM-7 - Top, Side, Bottom and End views

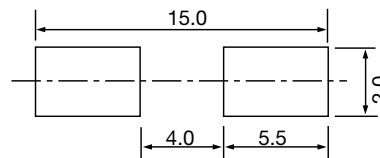


Figure 2) CSM-7 Land Pattern - Bottom view

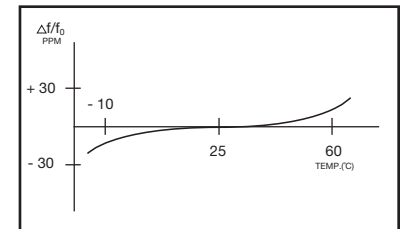


Figure 3) Frequency vs Temperature Curve

Mouser Electronics

Authorized Distributor

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ECS:

[ECS-36-20-5P-TR](#) [ECS-196.6-S-5P-TR](#) [ECS-200-20-5P-TR](#) [ECS-98.3-20-5P-TR](#) [ECS-184-18-5P-TR](#) [ECS-73-S-5P-TR](#) [ECS-52-S-5P-TR](#) [ECS-110.5-32-5P-TR](#) [ECS-184-S-5P-TR](#) [ECS-80-S-5P-TR](#) [ECS-147.4-S-5P-TR](#) [ECS-40.3-20-5P-TR](#) [ECS-92.1-20-5P-TR](#) [ECS-184-20-5P-TR](#) [ECS-147.4-20-5P-TR](#) [ECS-122.8-S-5P-TR](#) [ECS-245.7-20-5P-TR](#) [ECS-240-16-5P-TR](#) [ECS-200-S-5P-TR](#) [ECS-36-S-5P-TR](#) [ECS-51-20-5P-TR](#) [ECS-44-20-5P-TR](#) [ECS-98.3-S-5P-TR](#) [ECS-36-20-5PDN-TR](#) [ECS-42-16-5P-TR](#) [ECS-120-S-5P-TR](#) [ECS-61-32-5P-TR](#) [ECS-204.8-20-5P-TR](#) [ECS-180-S-5P-TR](#) [ECS-52-32-5P-TR](#) [ECS-40-20-5P-TR](#) [ECS-122.8-20-5P-TR](#) [ECS-120-32-5P-TR](#) [ECS-110.5-S-5P-TR](#) [ECS-480-20-5P-TR](#) [ECS-162.5-20-5P-TR](#) [ECS-110-S-5P-TR](#) [ECS-73-20-5P-TR](#) [ECS-160-20-5P-TR](#) [ECS-92.1-S-5P-TR](#) [ECS-80-18-5P-TR](#) [ECS-41-20-5P-TR](#) [ECS-42-12-5P-TR](#) [ECS-150-S-5P-TR](#) [ECS-240-20-5P-TR](#) [ECS-160-S-5P-TR](#) [ECS-51-S-5P-TR](#) [ECS-49-20-5P-TR](#) [ECS-120-18-5P-TR](#) [ECS-110.5-20-5P-TR](#) [ECS-35-17-5P-TR](#) [ECS-50-20-5P-TR](#) [ECS-59.9-20-5P-TR](#) [ECS-40.3-S-5P-TR](#) [ECS-49-S-5P-TR](#) [ECS-162.5-S-5P-TR](#) [ECS-100-S-5P-TR](#) [ECS-50-S-5P-TR](#) [ECS-60-S-5P-TR](#) [ECS-40-S-5P-TR](#) [ECS-143-S-5P-TR](#) [ECS-80-32-5P-TR](#) [ECS-60-32-5P-TR](#) [ECS-143-20-5P-TR](#) [ECS-35-S-5P-TR](#) [ECS-60-32-5P-DN-TR](#) [ECS-240.001-18-5P-TR](#) [ECS-120-20-5P-DN-TR](#) [ECS-160.003-18-5P-TR](#) [ECS-35-17-5P-DN-TR](#) [ECS-120.003-18-5P-TR](#) [ECS-143-20-5P-DN-TR](#) [ECS-73-20-5P-DN-TR](#) [ECS-40-20-5P-DN-TR](#) [ECS-200-20-5P-DN-TR](#)