



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



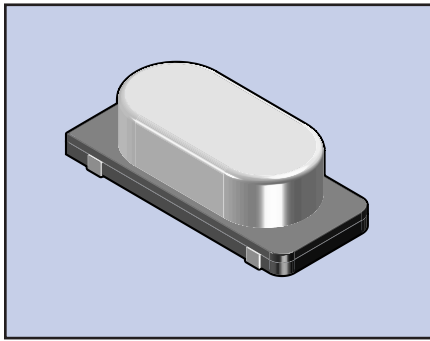
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The CSM-4AX is a SMD version of the HC-49US leaded crystal. The CSM-4AX has a case height of 5 mm maximum in a resistance-weld metal package. The CSM-4AX is also pin out compatible with the EPSON MA-506.

FEATURES

- Cost effective
- Resistance-weld sealing
- Extended Temp range available
- Tape & Reel (1,000 pcs)
- PbFree/RoHS Compliant

PART NUMBERING GUIDE "EXAMPLE"

MANUFACTURER	FREQUENCY (4.000 MHz)	LOAD CAPACITANCE*	PACKAGE TYPE
ECS	40	20	28AX

* Load capacitance (xx=xx pF, S=series resonance) Package Type examples (-28AX= 5.0 mm max. height, -28ALX = 4.0 mm max. height)
 Note: See Product Selection Guide for additional options including tighter tolerances or extended temperature range.

OPERATING CONDITIONS/ELECTRICAL CHARACTERISTICS

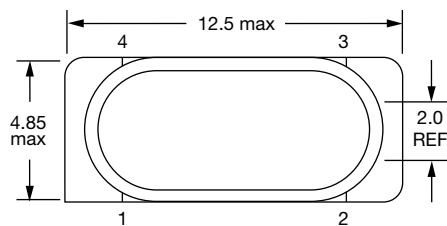
PARAMETERS	CONDITIONS	MINIMUM	TYPICAL	MAXIMUM	UNITS
FREQUENCY RANGE		3.579545		70.000	MHz
CALIBRATION TOLERANCE	@ +25°C			±30*	PPM
FREQUENCY STABILITY ref @25°C	-10 ~ +70°C			±50*	PPM
SHUNT CAPACITANCE				7	pF
LOAD CAPACITANCE	C _L (Customer Specified)	10	20.0 standard	Series	pF
DRIVE LEVEL	DL			500	µW
OPERATING TEMPERATURE	TOPR**	-10		+70	°C
STORAGE TEMPERATURE	TSTG	-30		+85	°C
AGING CHARACTERISTICS (Per Year)	@ +25°C ± 3°C per year			±5	PPM

* Tighter specifications are available. **Extended temperature range available.

EQUIVALENT SERIES RESISTANCE / MODE OF OSCILLATION

FREQUENCY RANGE (MHz)	MODE OF OSC	MAX ESR Ω	FREQUENCY RANGE (MHz)	MODE OF OSC	MAX ESR Ω
3.579545 ~ 4.999	Fundamental	200	9.000 ~ 12.000	Fundamental	60
5.000 ~ 5.999	Fundamental	150	13.000 ~ 19.999	Fundamental	40
6.000 ~ 6.999	Fundamental	100	20.000 ~ 30.000	Fundamental	30
7.000 ~ 8.999	Fundamental	80	27.000 ~ 80.000	3rd O/T	100

PACKAGE DIMENSIONS (mm)



Height "H" (max.)	
-28AX	5.0 mm
-28ALX	4.0 mm

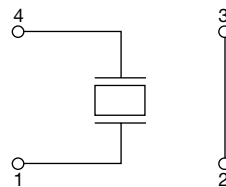


Figure 2) CSM-4AX Internal Connections

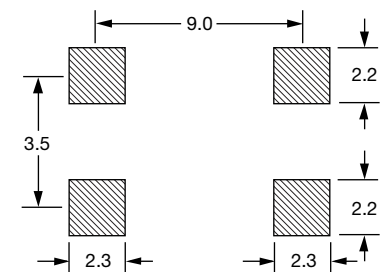


Figure 3) Land Pattern

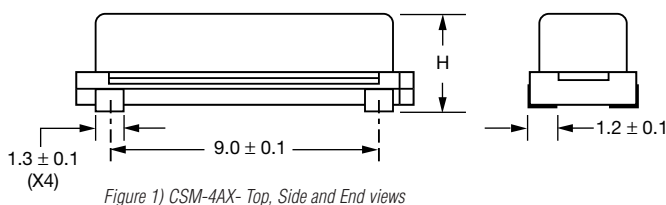


Figure 1) CSM-4AX - Top, Side and End views