CSM-4AX
SMD CRYSTAL

RoHS COMPLIANT

The CSM-4AX is an excellent choice for a low cost SMD crystal. The CSM-4AX (28AX) has a case height of 5.0 mm Max. in a resistance weld metal package. Lower profile package height of 4.0 mm Max. is available with the (28ALX) package.

ECS INC INTERNATIONAL®

CSM-4AX SMD CRYSTAL

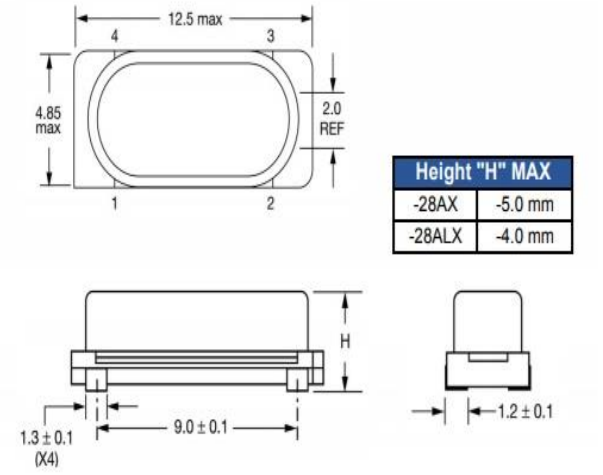


- Cost Effective
- Low Profile
- Industry Standard Footprint
- Pb Free/RoHS Compliant

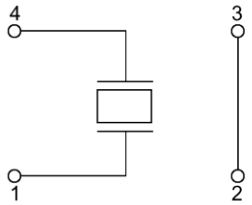
OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	CSM-4AX			UNITS
		MIN	TYP	MAX	
Frequency		3.57		30.000	MHz
Mode of Oscillation	Fundamental				
Frequency Tolerance*	@ +25°C			± 30	ppm
Frequency Stability*	-10 ~ +70°C			± 50	ppm
Shunt Capacitance	Co			7	pF
Load Capacitance	Specify in P/N	10	20	Series	pF
Drive Level	DL			500	µW
Operating Temperature*	Topr	-10		+70	°C
Storage Temperature	Tstg	-55		+125	°C
Aging (First Year)	@ +25°C ±3°C			±5	ppm

DIMENSIONS (mm)



Height "H" MAX	
-28AX	-5.0 mm
-28ALX	-4.0 mm



Frequency (MHz)	ESR Ω Max.
3.57 ~ 4.999	200
5.000 ~ 5.999	150
6.000 ~ 6.999	100
7.000 ~ 8.999	80
9.000 ~ 12.999	60
13.000 ~ 19.999	40
20.000 ~ 30.000	30

Figure 1) *Top, Side, and End*

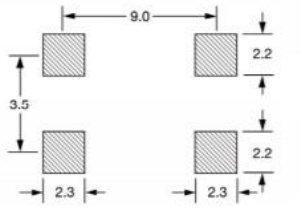


Figure 2) *Suggested land*

PART NUMBERING GUIDE: Example ECS-200-20-28AX-TR

ECS -	FREQUENCY ABBREVIATION	LOAD CAPACITANCE	PACKAGE	AVAILABLE OPTIONS			PACKAGING
				Tolerance	Stability	Temp Range	
ECS	200 = 20.000 MHz See P/N Guide	20 = 20 pF S = Series	28AX = 5.0 mm 28ALX = 4.0 mm	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 L = -10 ~ +70°C M = -20 ~ +70°C Y = -30 ~ +85°C N = -40 ~ +85°C P = -40 ~ +105°C S = -40 ~ +125°C U = -55 ~ +125°C	TR = Tape & Reel 1K/Reel

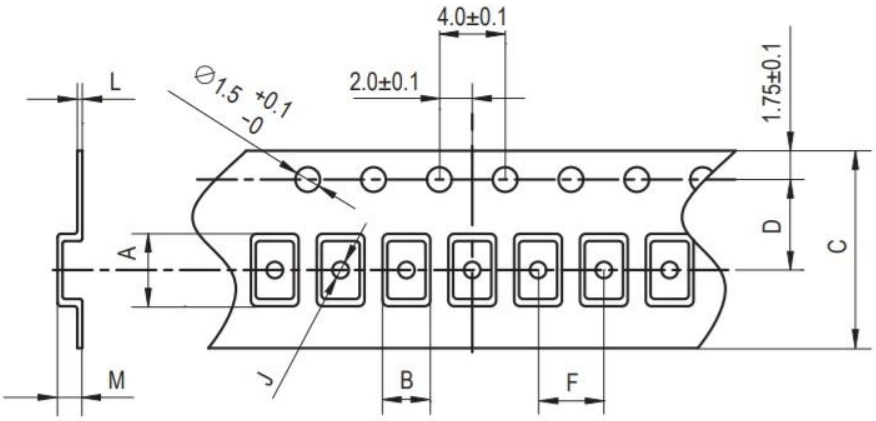
* Specify available options in P/N.

† Contact ECS for availability over extended temp range.

Rev.2017

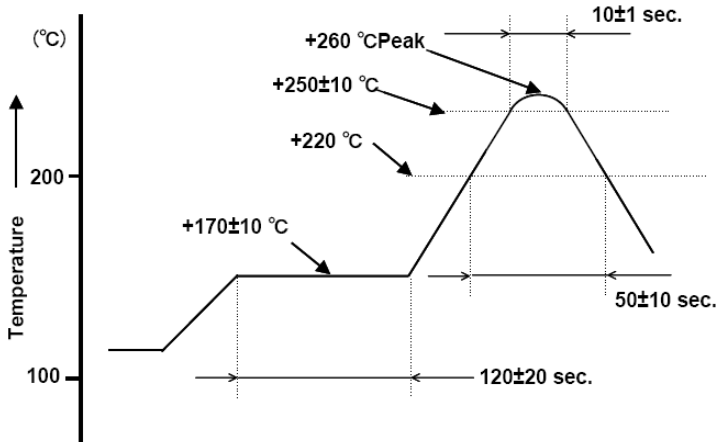
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POCKET TAPE DIMENSIONS (mm)



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
13.1	5.3	24.0	11.5	12.0	2.2	0.4	5.4	300	1000pcs

SOLDER PROFILE
Peak solder Temp +260°C Max 10 sec Max.
2 Cycles Max.
MSL 1, Lead Finish Ag



DEVELOPED FREQUENCIES	
Abbreviation	Frequency (MHZ)
036	3.6864
040	4.000
060	6.000
073	7.3728
080	8.000
100	10.000
110.5	11.0592
120	12.000
122.8	12.288
143	14.31818
147.4	14.7456
160	16.000
184	18.432
200	20.000
240	24.000
250	25.000

Figure 1) *Suggested Reflow Profile*