

The CSM-8A Series is a very cost effective, low profile SMD quartz crystal. The glass sealed ceramic package is ideal for PCMCIA, ethernet and fax modem card applications.

### CSM-8A SMD CRYSTAL

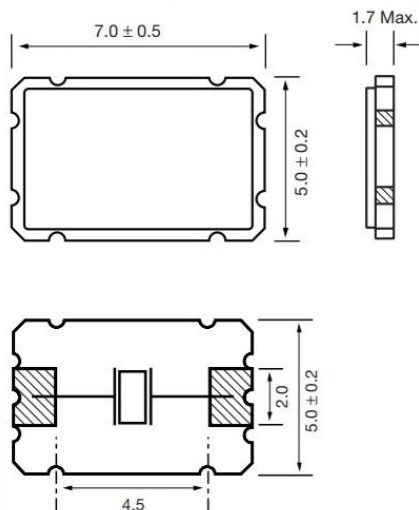


- Glass Sealed Ceramic Package
- Tight Stability/High Reliability
- Wide Frequency Range
- RoHS Compliant(7(c) Exemption)

### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	CSM-8A			UNITS
		MIN	TYP	MAX	
Frequency		6.000		100.000	MHz
Frequency Tolerance*	@ +25°C			± 30	ppm
Frequency Stability*	-10 ~ +70°C			± 50	ppm
Shunt Capacitance	Co			5	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	-40		+85	°C
Aging (First Year)	@ +25°C ±3°C			±5	ppm

### DIMENSIONS (mm)



Frequency (MHz) Max.	ESR Ω	Mode of Osc.
6.000 ~ 6.999	100	Fundamental
7.000 ~ 9.799	80	Fundamental
9.800 ~ 15.999	60	Fundamental
16.000 ~ 42.000	40	Fundamental
35.000 ~ 100.000	60	3 <sup>rd</sup> Overtone

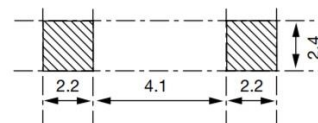


Figure 2) Suggested land

Figure 1) Top, Side, and Bottom

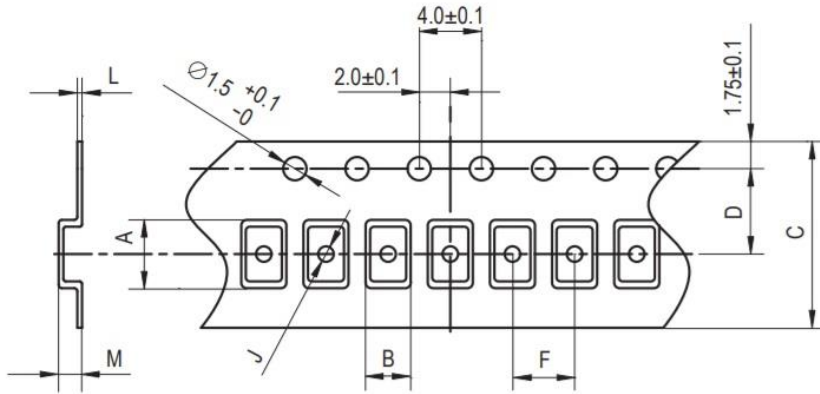
### PART NUMBERING GUIDE: Example ECS-160-20-20A-TR

ECS - FREQUENCY ABBREVIATION	LOAD CAPACITANCE	PACKAGE	AVAILABLE OPTIONS			PACKAGING	
			Tolerance	Stability	Temp Range		
ECS	160 = 16.000 MHz See P/N Guide	20 = 20 pF S = Series	20A = CSM-8A	Blank = ±30 ppm A = ± 25 ppm J = ± 20 ppm	Blank = ±50 ppm D = ±100 ppm E = ± 50 ppm G = ± 30 ppm † H = ± 25 ppm †	Blank = -10 ~ +70°C L = -10 ~ +70°C M = -20 ~ +70°C Y = -30 ~ +85°C N = -40 ~ +85°C	TR = Tape & Reel

\* Specify available options in P/N.

† Contact ECS for availability over extended temp range.

**POCKET TAPE DIMENSIONS (mm)**



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
7.4	5.4	16.0	7.5	8.0	1.5	0.3	1.8	178	1000pcs

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

DEVELOPED FREQUENCIES	
Abbreviation	Frequency (MHZ)
060	6.000
080	8.000
098.3	9.8304
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
196.6	19.6608
200	20.000
240	24.000
240.	24.00014
270	27.000
300	30.000
320	32.000
330	33.000
352.512	35.2512
360	36.000
400	40.000
403.2	40.320
480	48.000

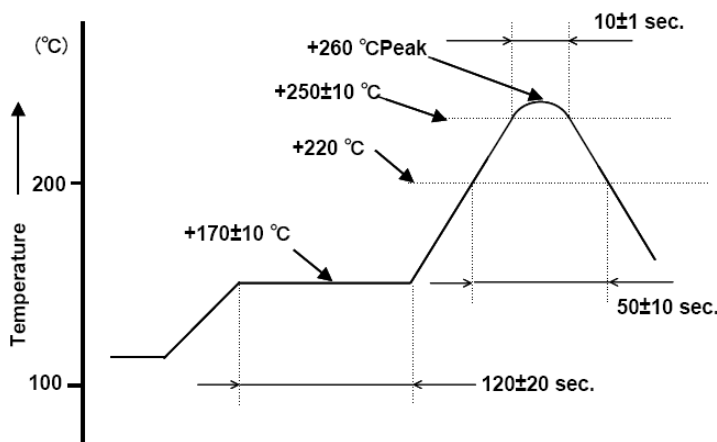


Figure 1) Suggested Reflow Profile