



**THE DATASHEET OF  
ECS-147.4-20-3X-EN-TR**



The CSM-3X is the miniature low profile resistance weld type SMD quartz crystal. Reduces footprint of CSM-7X (HC-49USX SMD) by 50%.

# CSM-3X SMD CRYSTAL

Request a Sample

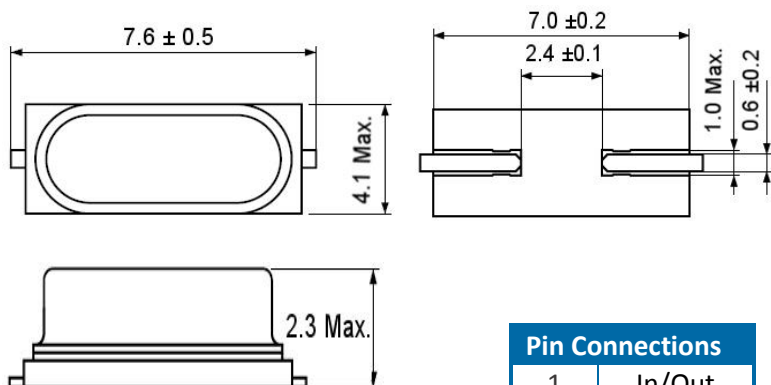


- Cost Effective
- Low Profile
- Extended Temp. Range Option
- Pb Free/RoHS Compliant

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	CSM-3X			UNITS
		MIN	TYP	MAX	
Frequency		12.000		40.000	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			100	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)	ESR Ω Max.
12.000 ~ 15.999	60
16.000 ~ 29.999	50
30.000 ~ 40.000	40

Pin Connections	
1	In/Out
2	Out/In

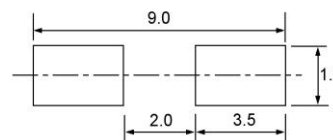


Figure 1) Top, Side, and Bottom

Figure 2) Suggested land

Crystal is symmetrical, pin 1 & 2 are interchangeable.

## PART NUMBERING GUIDE: Example ECS-200-20-3X-TR

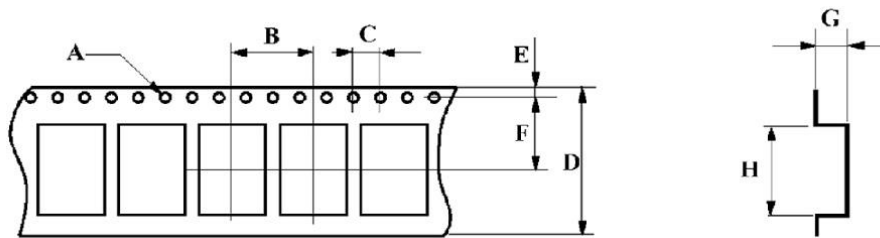
ECS - FREQUENCY ABBREVIATION	LOAD CAPACITANCE	PACKAGE	AVAILABLE OPTIONS			PACKAGING	
			Tolerance	Stability	Temp Range		
ECS	200 = 20.000 MHz See P/N Guide	20 = 20 pF S = Series	3X = CSM-3X	Blank = Std A = ± 25 ppm J = ± 20 ppm R = ± 15 ppm C = ± 10 ppm	Blank = Std D = ± 100 ppm E = ± 50 ppm G = ± 30 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 3K/Reel

\* Specify available options in P/N.

† Contact ECS for availability over extended temp range.

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**POCKET TAPE DIMENSIONS (mm)**



TAPE SPECIFICATIONS (mm)								
MODEL	A	B	C	D	E	F	G	H
CSM-3X	φ 1.5	8.0	4.0	16.0	2.50	7.5	2.5	9.4

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

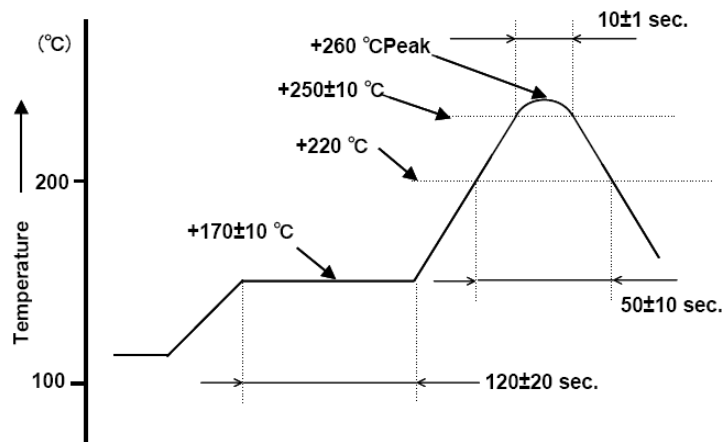



Figure 1) Suggested Reflow Profile

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

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