



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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- ▶ Low profile
- ▶ 2.5 x 2.0 mm Footprint
- ▶ Extended Temp Range Option
- ▶ RoHS Compliant

# ECX-2236

## SMD CRYSTAL

The miniature ECX-2236 is a very compact SMD Crystal. The 2.5 x 2.0 x 0.55 mm ceramic package is ideal for today's SMD manufacturing environment.

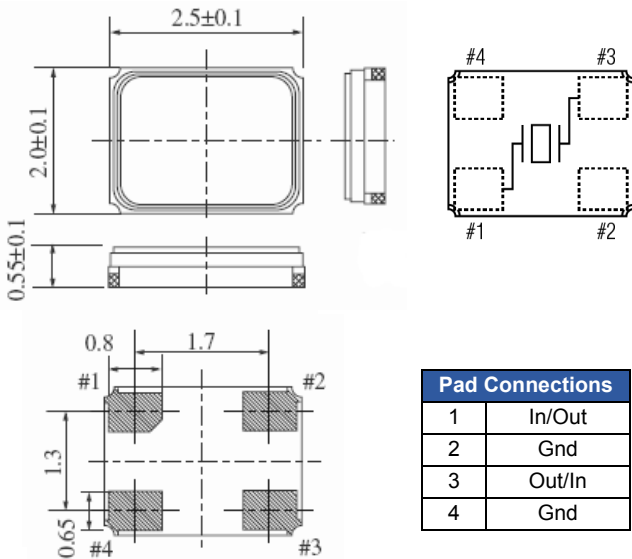
### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	ECX-2236			UNITS
		MIN	TYP	MAX	
Frequency Range		16.000		80.000	MHz
Frequency Tolerance	at +25°C			± 50 *	ppm
Frequency Stability	-20 to +70°C			± 50 *	ppm
Shunt Capacitance				5	pF
Load Capacitance	Specify in P/N		8		pF
Drive Level				100	µW
Operating Temperature		-20		+70	°C
Storage Temperature		-55		+125	°C
Aging (Per Year)	@ +25°C ±3°C			±5	ppm

### EQUIVALENT SERIES RESISTANCE/MODE OF OSCILLATION

FREQUENCY RANGE (MHz)	MODE OF OSC	MAX ESR Ω	FREQUENCY RANGE (MHz)	MODE OF OSC	MAX ESR Ω
16.00 ~ 19.999	Fundamental	80	30.000 ~ 34.999	Fundamental	50
20.000 ~ 29.999	Fundamental	60	35.000 ~ 80.000	Fundamental	40

### DIMENSIONS (mm)



Pad Connections	
1	In/Out
2	Gnd
3	Out/In
4	Gnd

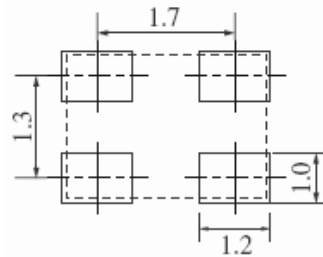


Figure 1) Top, Side, Bottom, End views and Crystal Connection (Top View)

Figure 2) Suggested Land Pattern

### PART NUMBERING GUIDE: Example ECS-240-8-36-TR

ECS - Frequency Abbreviation - Load Capacitance - Package

240 = 24.000 MHz  
See P/N Guide

8 = 8 pF  
S=Series

36 =  
ECX-2236

### Custom Options

Tolerance

Blank = Std  
A = ± 25 ppm  
J = ± 20 ppm  
R = ± 15 ppm  
C = ± 10 ppm

\* Stability

Blank = Std  
D = ± 100 ppm  
E = ± 50 ppm  
G = ± 30 ppm  
H = ± 25 ppm  
T = ± 20 ppm  
W = ± 15 ppm  
K = ± 10 ppm

Temp Range

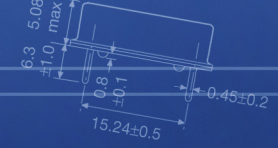
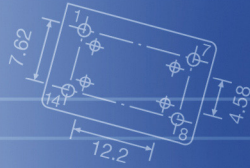
Blank = Std  
L = -10 ~ +70°C  
M = -20 ~ +70°C  
N = -40 ~ +85°C  
P = -40 ~ +105°C  
S = -40 ~ +125°C  
U = -55 ~ +125°C

Packaging

TR= Tape  
& Reel  
1K/Reel

\*Consult Factory for available stability options over extended temp range.





### Developed Frequencies

FREQUENCY MHz	CODE
16.000	160
16.384	163.8
19.200	192
20.000	200
24.000	240
24.576	245.76
25.000	250
26.000	260
27.000	270
30.000	300
32.000	320
36.000	360
40.000	400
44.000	440
48.000	480

Sample P/N: ECS-200-8-36-TR  
 ECS = Mfg Code  
 200 = Frequency Code 20.000 MHz  
 -8 = Load Capacitance 8 pF  
 -36 = Package, ECX-2236  
 -TR=Tape & Reel

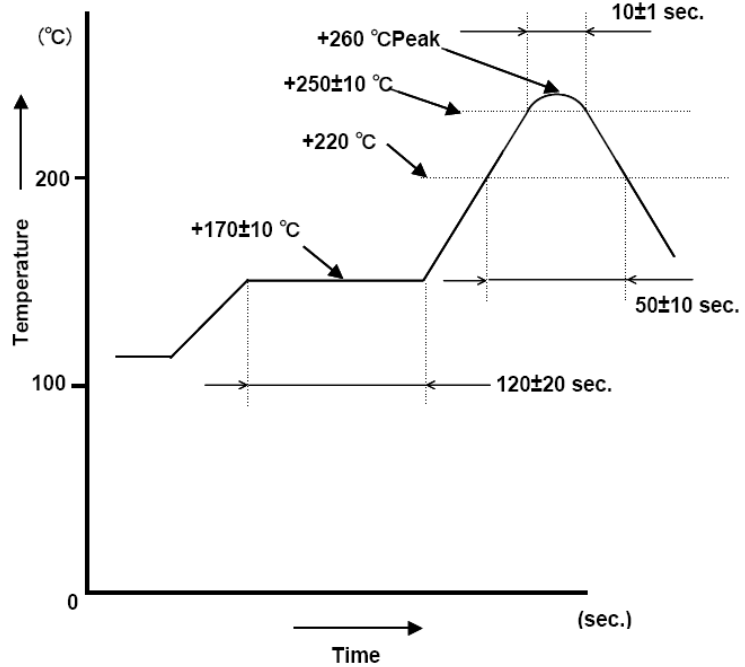
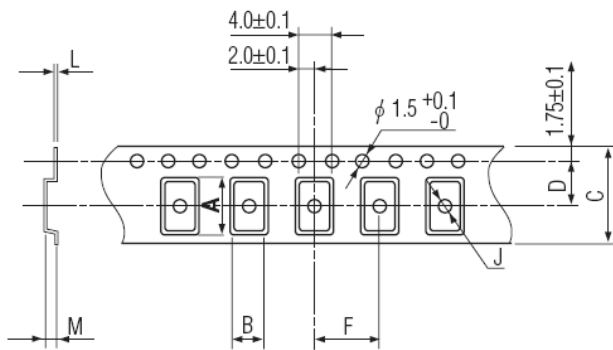


Figure 1) Suggested Reflow Profile

### POCKET TAPE DIMENSIONS (mm)



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
2.8	2.3	8.0	3.5	4.0	1.0	0.25	0.75	180	1000

Figure 2) Pocket Tape Dimensions

Package Data	
Item	Description
Lid	Metal
Base	Ceramic
Sealing	Seam/EB
Terminal	Tungsten (metalized)
Plating	Gold/Nickel Surface/Under
RoHS	Compliant (Pb Free)