

- ▶ Low profile
- ▶ 2.0 x 1.6 mm Footprint
- ▶ Extended Temp Range Option
- ▶ RoHS Compliant

# ECX-1637

## SMD CRYSTAL

The sub miniature ECX-1637 is a very compact SMD Crystal. The 2.0 x 1.6 x 0.45 mm ceramic package is ideal for today's SMD manufacturing environment.

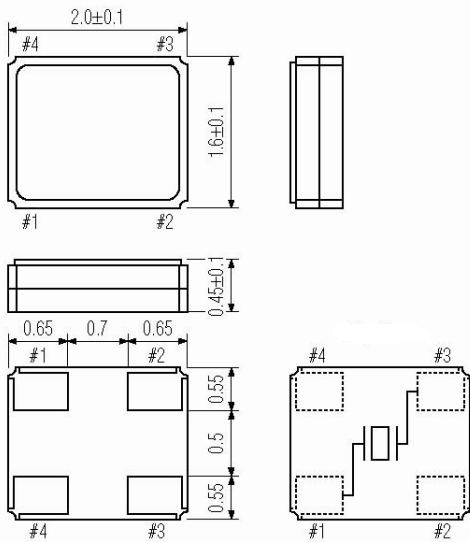
### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	ECX-1637			UNITS
		MIN	TYP	MAX	
Frequency Range		20.000		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
20.00 ~ 23.999	Fundamental	100	26.000 ~ 39.999	Fundamental	60
24.000 ~ 25.999	Fundamental	80	40.000 ~ 80.000	Fundamental	50

### DIMENSIONS (mm)



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

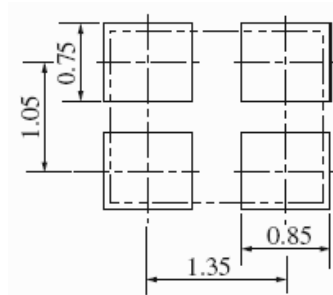


Figure 1) Top, Side, Bottom, End views and Crystal Connection (Top View)

Figure 2) Suggested Land Pattern

### PART NUMBERING GUIDE: Example ECS-240-8-37-TR

ECS - Frequency Abbreviation - Load Capacitance - Package

240 = 24.000 MHz  
See P/N Guide

8 = 8 pF  
S=Series

37 =  
ECX-1637

### 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

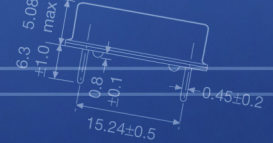
Temp Range

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.



### Frequency Abbreviations

FREQUENCY MHz	CODE
20.000	200
24.000	240
26.000	260
27.000	270
27.120	271.2
30.000	300
32.000	320
36.000	360
38.400	384
40.000	400
48.000	480

Sample P/N: ECS-240-8-37-TR

ECS = Mfg Code

240 = Frequency Code 24.000 MHz

-8 = Load Capacitance 8 pF

-37 = Package, ECX-1637

-TR=Tape & Reel packaging

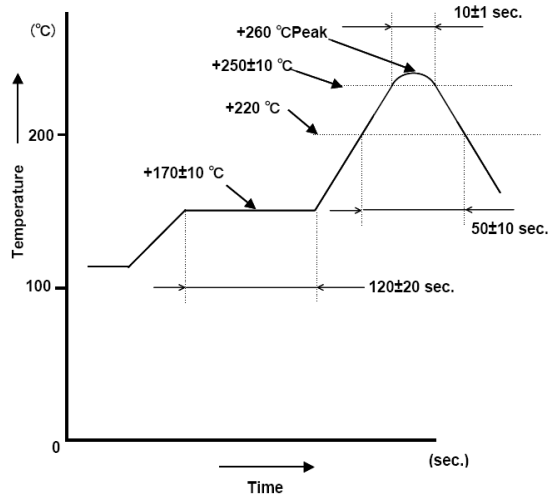
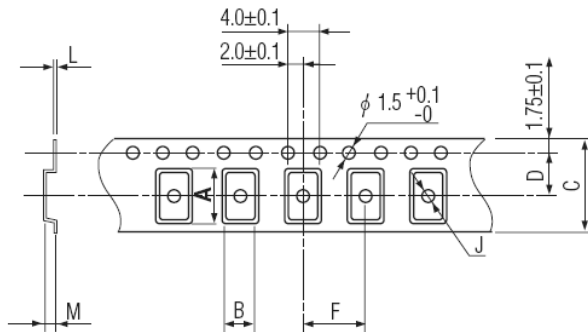


Figure 1) Suggested Reflow Profile

### POCKET TAPE DIMENSIONS (mm)



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
2.25	1.85	8.0	3.5	4.0	1.0	0.25	0.65	180	1000

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

Figure 2) Pocket Tape Dimensions