



- ► Low profile
- ➤ 3.2 x 2.5 mm Footprint
- ► Extended Temp Range Option
- RoHS Compliant

# ECX-32 SMD QUARTZ CRYSTAL

The sub miniature ECX-32 is a compact SMD Crystal. The  $3.2 \times 2.5 \times 0.8$  mm ceramic package is ideal for today's SMD manufacturing environment.

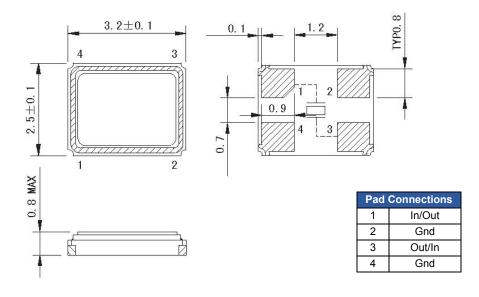
#### **OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS**

PARAMETERS	CONDITIONS	ECX-32			UNITS	
TANAMETERS	CONDITIONS	MIN	TYP	MAX	UNITS	
Frequency Range		12.000		50.000	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	10	20	Series	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
12.00 ~ 15.999	Fundamental	100	20.000 ~ 23.999	Fundamental	60
16.000 ~ 19.999	Fundamental	80	24.000 ~ 50.000	Fundamental	40

### **DIMENSIONS (mm)**



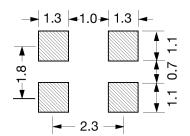


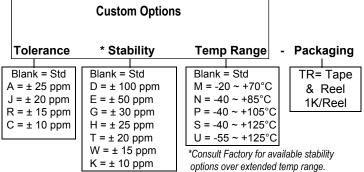
Figure 2) Suggested Land Pattern

Figure 1) Top, Side, and Bottom views

# PART NUMBERING GUIDE: Example ECS-200-20-33-TR

ECS - Frequency Abbreviation - Load Capacitance - Package

200 = 20.000 MHz See P/N Guide 20 =20 pF S=Series 33 = ECX-32







# ECX-32

# SMD CRYSTAL

## **Developed Frequencies**

FREQUENCY MHz	CODE
16.000	160
18.432	184
19.6608	196
20.000	200
24.000	240
25.000	250
27.000	270
30.000	300
32.000	320
36.000	360
40.000	400
48.000	480

Sample P/N: <u>ECS-200-20-33</u>

ECS = Mfg Code

200 = Frequency Code 20.000 MHz

-20 = Load Capacitance 20 pF

-33 = Package, ECX-32

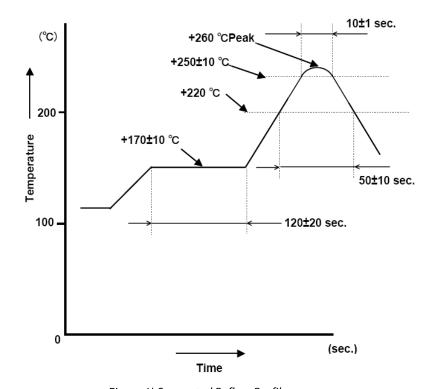
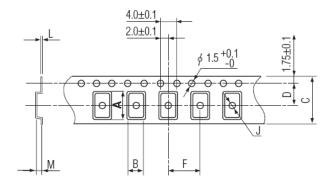


Figure 1) Suggested Reflow Profile

## POCKET TAPE DIMENSIONS (mm)



Α	В	С	D	F	J	L	М	Reel Dia.	Qty/Reel
3.5	2.8	8.0	3.5	4.0	1.1	0.25	1.0	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)				