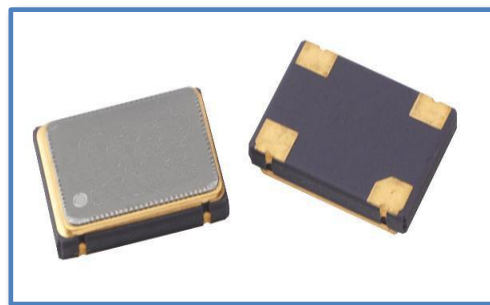# Surface Mount Clock Oscillator 3.2 x 2.5

Features

- **Ultra-Small Package**

- **RoHS Compliant**

- **Low Supply Voltage to 1.8 VDC**

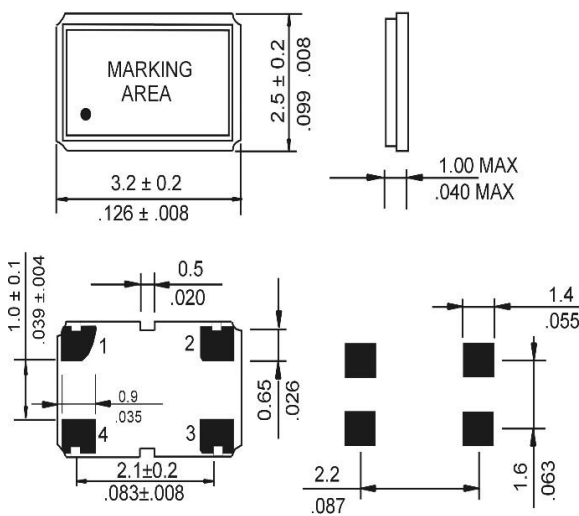## ❖ Specifications

Parameter		1.8 VDC	2.5 VDC	3.3 VDC
Frequency Range (MHz)		1.544 to 60.000		
Frequency Stability over Temp Range		±25 ppm ±50 ppm ±100 ppm	±25 ppm ±50 ppm ±100 ppm	±25 ppm ±50 ppm ±100 ppm
Temperature Range	Operating	-10 °C to +70 °C		
	Extended	-40 °C to +85 °C		
	Storage	-55 °C to +125 °C		
Input	Voltage	+1.8 VDC	2.5 VDC	3.3 VDC
	Current	1.544 to 9.999 MHz: 5 mA max 10.000 to 31.99 MHz: 6 mA max 32.000 to 60.00 MHz: 15 mA max	1.544 to 9.999 MHz: 6 mA max 10.000 to 31.99 MHz: 8 mA max 32.000 to 60.00 MHz: 20 mA max	1.544 to 9.999 MHz: 7 mA max 10.000 to 31.99 MHz: 10 mA max 32.000 to 60.00 MHz: 20 mA max
Output	Load	CMOS 15 pF		
	Symmetry	Normal: 40% to 60% Tight: 45% to 55%		
	Level	Logic "0"	10% Vdd max		
		Logic "1"	90% Vdd min		
	Rise/Fall Time (20% to 80%)	5 nsec max		20 nsec max
Enable/Disable Function		Pin 1: High or Open – Pin 3 Enabled Pin 1: Low – Pin 3 Disabled		
Start up Time		10 msec max		
Standby Current		10 µA max		
Shock		10 g, 0.35 msec, ½ sinewave with 3 shocks in 3 axis		

CD PRODUCT FAMILY

❖ Mechanical Specification

MARKING AREA

2.5 ± 0.2 / .099 .008

3.2 ± 0.2 / .126 ± .008

1.00 MAX / .040 MAX

1.0 ± 0.1 / .039 ±.004

0.5 / .020

1.4 / .055

0.9 / .035

0.65 / .026

2.1±0.2 / .083±.008

2.2 / .087

1.6 / .063

1 2
4 3

SOLDER PATTERN

PIN Connection
1: Enable/Disable
2: Ground
3: Output
4: Supply Voltage

❖ Carrier Tape Dimension

1.75 ± 0.1 / .069 ± .004

ø 1.5 / ø .059

ø 1.15 / ø .045

4.0 ± 0.1 / .157 ± .004

2.0 ± 0.05 / .079 ± .002

0.25 ± 0.05 / .010 ± .002

3.5 ± 0.1 / .138 ± .008

3.5 ± 0.05 / .138 ± .002

4.0 ± 0.1 / .157 ± .004

2.8 ± 0.1 / .110 ± .004

8.0 ± 0.2 / .315 ± .008

1.0 ± 0.1 / .039 ± .004
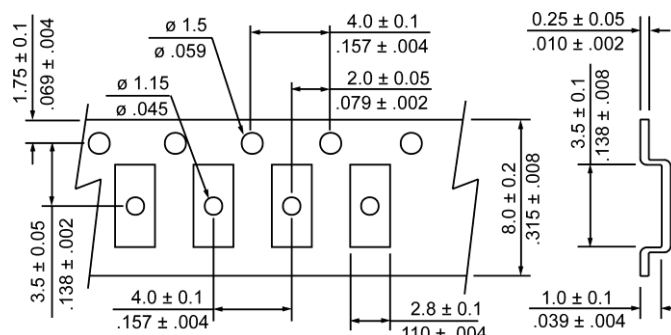
NOTE: REFER TO EIA-481 FOR DIMENSIONS

❖ Packaging

178 mm Reel Diameter
8 mm Tape Width, 4 mm Pitch
Quantity: 3000 pcs per Reel

❖ Part Numbering

CD	-	24.000	-	3.3	-	XXX
Product Family		Frequency (MHz)		Voltage (V)		1) Stability, 2) symmetry, 3) Temperature Range Stability: C=100 ppm, B=50 ppm, A=±25 ppm Symmetry: blank = Normal (60/40), T = Tight Symmetry (45/55) Temperature range: blank standard, E=Extended Temp

EXAMPLE: CD-24.000-3.3-C
Surface Mount Clock Oscillator, 3.2 x 2.5, 24.000 MHz, 3.3 volts, stability (±100 ppm), normal symmetry, standard Temperature range -10 °C to +70 °C
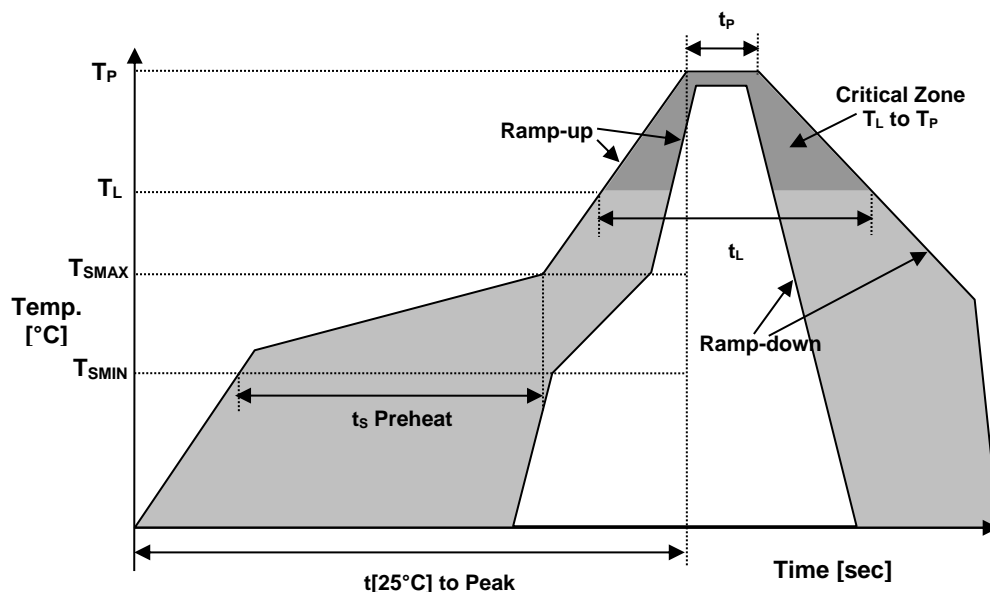
EXAMPLE: CD-48.000-1.8-BTE
Surface Mount Clock Oscillator, 3.2 x 2.5, 48.000 MHz, 1.8 volts, stability (±50 ppm), tight symmetry, Extended Temperature range -40 °C to +85 °C

Reflow Profile

Reflow Profile (Reference IPC/JEDEC J-STD-020)		
Temperature Min Preheat	T_{SMIN}	150°C
Temperature Max Preheat	T_{SMAX}	200°C
Time (T_{SMIN} to T_{SMAX})	t_S	60 – 180 sec.
Temperature	T_L	217°C
Peak Temperature	T_P	260°C
Ramp-Up Rate	R_{UP}	3°C / sec. max
Ramp-Down Rate	R_{DOWN}	6°C / sec. max
Time within 5°C of Peak Temperature	T_P	10 sec.
Time t[25°C] to Peak Temperature	t[25°C] to Peak	480 sec.
Time	T_L	60 – 150 sec.

❖ Environmental

Parameter	Value
Moisture Sensitivity Level	1
RoHS	Complaint
REACH SVHC	Compliant
Halogen Free	Compliant
ESD Classification Level	H2 C6
Termination Finish	Au
Unit Weight (grams)	0.025

CD PRODUCT FAMILY

● **MARKING**

RxFF.FFS
•VTEyw

FF.FF – Frequency in MHz
x – Internal Production ID code
S – Symmetry Code (blank=Normal, T=Tight)
V – Voltage code
T – Tolerance Code
E – Temperature Code (blank=Standard, E=Extended)
y – Year code
w – Week code

VOLTAGE CODE	
Voltage	Code
1.8	1
2.5	2
3.3	3

TOLERANCE CODE	
CODE	TOL (ppm)
C	±100
B	±50
A	±25

YEAR CODE	
Year	Code
2011	1
2012	2
2013	3
2014	4
2015	5
2016	6
2017	7
2018	8
2019	9
2020	0

ALPHA WEEK CODE					
Week	Code	Week	Code	Week	Code
1	a	19	s	37	K
2	b	20	t	38	L
3	c	21	u	39	M
4	d	22	v	40	N
5	e	23	w	41	O
6	f	24	x	42	P
7	g	25	y	43	Q
8	h	26	z	44	R
9	i	27	A	45	S
10	j	28	B	46	T
11	k	29	C	47	U
12	l	30	D	48	V
13	m	31	E	49	W
14	n	32	F	50	X
15	o	33	G	51	Y
16	p	34	H	52	Z
17	q	35	I		
18	r	36	J		

● **APPROVAL**

DRAWN BY	FP, 18 May 2017
APPROVED BY	FP, 18 May 2017
REVISION	A, Initial Release