

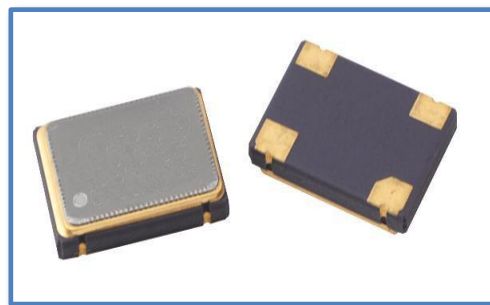


CE PRODUCT FAMILY

Surface Mount Clock Oscillator 5.0 x 3.2

Features

- Ultra-Small Package
- RoHS Compliant
- Low Supply Voltage to 1.8 VDC



❖ Specifications

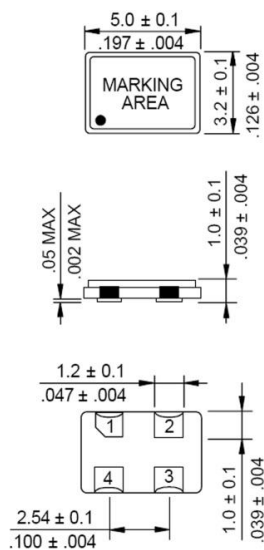
Parameter		3.3 VDC AND BELOW	3.3 VDC TO 5.0 VDC	
Frequency Range (MHz)		2.500 TO 55.000	1.544 TO 156.000	
Frequency Stability over Temp Range		±10 ppm ±15 ppm ±20 ppm ±25 ppm	±25 ppm ±30 ppm ±50 ppm ±100 ppm	
Temperature Range	Operating	-10 °C to +70 °C		
	Extended	-40 °C to +85 °C		
	Storage	-40 °C to +85 °C	-55 °C to +125 °C	
Input	Voltage	+1.8 to 3.3 VDC ±10%	2.5 VDC	
	Current	7 mA max	1.544 to 9.999 MHz: 15 mA max 10.000 to 34.99 MHz: 20 mA max 35.000 to 49.99 MHz: 35 mA max 50.000 to 156.000 MHz: 40 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	10 nsec max		
Enable/Disable Function		Pin 1: High or Open – Pin 3 Enabled Pin 1: Low – Pin 3 Disabled		
Enable/Disable Time		100 nsec max		
Standby Current		10 µA max	100 µA max	
Shock		10 g, 0.35 msec, ½ sinewave with 3 shocks in 3 axis		

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❖ Mechanical Specification

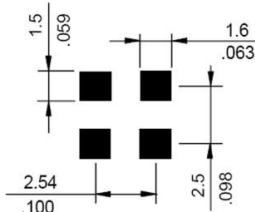


Scale none Dimension in $\frac{\text{mm}}{\text{inch}}$

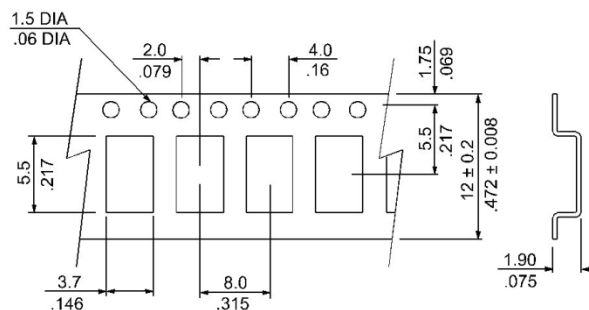
PIN CONNECTION

COM SERIES	
PIN	FUNCTION
1	CONTROL
2	GROUND
3	OUTPUT
4	VCC

SOLDER PATTERN



❖ Carrier Tape Dimension



NOTE: REFER TO EIA-481 FOR DIMENSIONS

❖ Packaging

178 mm Reel Diameter
12 mm Tape Width, 8 mm Pitch
Quantity: 1000 pcs per Reel

❖ Part Numbering

CE	-	24.000	-	3.3	-	XXX
Product Family		Frequency (MHz)		Voltage (V)		1) Stability, 2) symmetry, 3) Temperature Range Stability: E=±10 ppm, H=±15 ppm, D=±20 ppm, A=±25 ppm, F=±30 ppm, B=50 ppm, C=100 ppm Symmetry: blank = Normal (60/40), T = Tight Symmetry (45/55) Temperature range: blank standard, E=Extended Temp

EXAMPLE: CE-24.000-3.3-C

Surface Mount Clock Oscillator, 5.0 x 3.2, 24.000 MHz, 3.3 volts, stability (±100 ppm), normal symmetry, standard Temperature range -10 °C to +70 °C

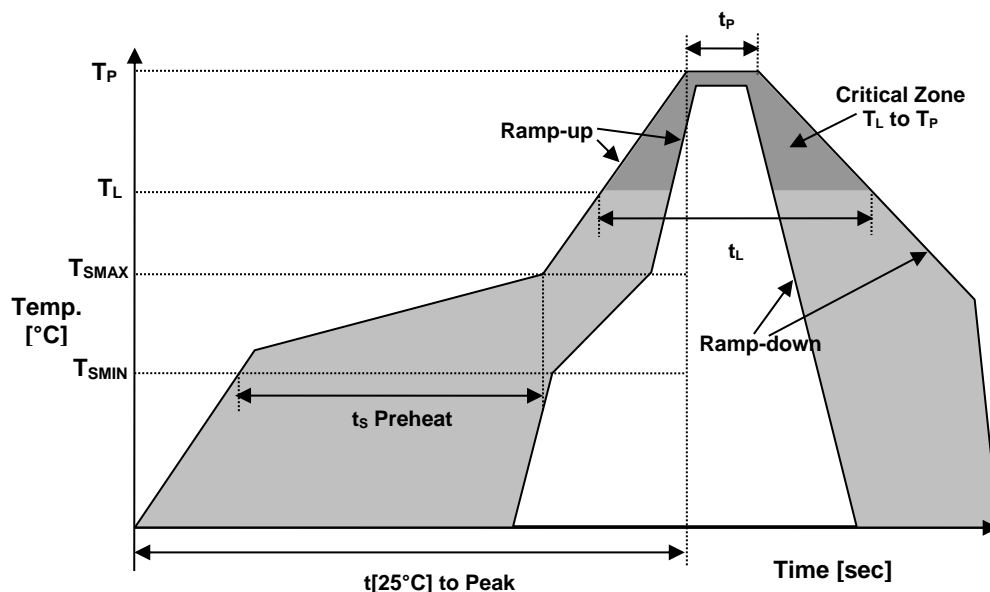
EXAMPLE: CE-48.000-1.8-BTE

Surface Mount Clock Oscillator, 5.0 x 3.2, 48.000 MHz, 1.8 volts, stability (±50 ppm), tight symmetry, Extended Temperature range -40 °C to +85 °C



CE PRODUCT FAMILY

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 $t[25^\circ\text{C}]$ to Peak Temperature	$t[25^\circ\text{C}]$ to Peak	480 sec.
Time	T_L	60 – 150 sec.

❖ Environmental

Parameter	Value
Moisture Sensitivity Level	1
RoHS	Compliant
REACH SVHC	Compliant
Halogen Free	Compliant
ESD Classification Level	H2 C6
Termination Finish	Au
Unit Weight (grams)	.066

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● 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	18
2.5	25
2.8	28
3.0	30
3.3	33
5.0	50

TOLERANCE CODE	
CODE	TOL (ppm)
C	±100
B	±50
F	±30
A	±25
D	±20
H	±15
E	±10

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

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