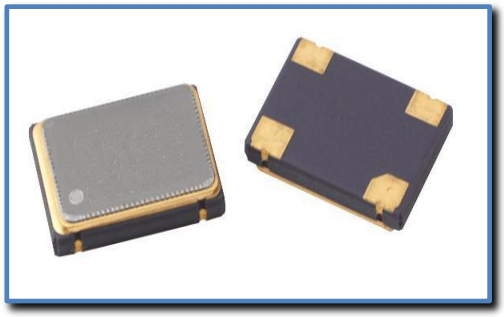
CA PRODUCT FAMILY

Surface Mount Clock Oscillator 2.0 x 1.6

Features

- **Ultra-Miniature Package**
- **RoHS Compliant**
- **Low Supply Voltage to 1.8 VDC**



❖ Specifications

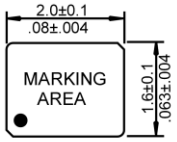
Parameter			1.8 VDC	2.5 VDC	3.3 VDC
Frequency Range (MHz)			1.500 to 50.000		
Frequency Stability[1] over Temp Range			±25 ppm ±30 ppm ±50 ppm ±100 ppm		
Temperature Range	Operating		-10 °C to +70 °C		
	Extended		-40 °C to +85 °C		
	Storage		-40 °C to +85 °C		
Input	Voltage		+1.8 VDC	2.5 VDC	3.3 VDC
	Current		1.50 to 23.99 MHz: 2.5 mA max 24.00 to 39.99 MHz: 3.5 mA max 40.00 to 50.00 MHz: 4.5 mA max	1.50 to 23.99 MHz: 3.0 mA max 24.00 to 39.99 MHz: 4.5 mA max 40.00 to 50.00 MHz: 5.0 mA max	1.50 to 23.99 MHz: 2.5 mA max 24.00 to 39.99 MHz: 3.5 mA max 40.00 to 50.00 MHz: 4.5 mA max
Output	Load		CMOS 15 pF		
	Symmetry		Tight: 45% to 55%		
	Level	Logic "0"	10% Vdd max		
		Logic "1"	90% Vdd min		
	Rise/Fall Time (20% to 80%)		10 nsec max		
Enable/Disable Function			Pin 1: High or Open – Pin 3 Enabled Pin 1: Low – Pin 3 Disabled (High impedance)		
Shock			10 g, 0.35 msec, ½ sinewave with 3 shocks in 3 axis		

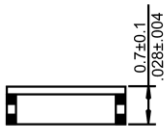
NOTES

[1]Not available at all frequencies. Contact factory.

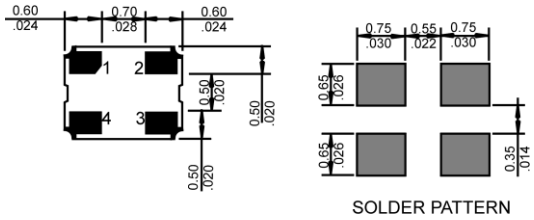
CA PRODUCT FAMILY

❖ Mechanical Specification



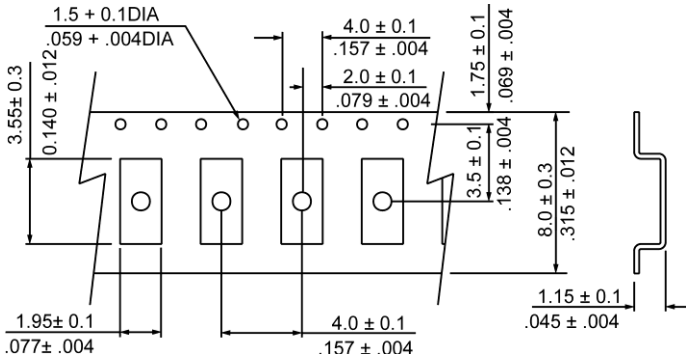


PIN	CONNECTION
1	Tri-state
2	Ground
3	Output
4	Vcc



SOLDER PATTERN

❖ Carrier Tape Dimension



NOTE: REFER TO EIA-481 FOR DIMENSIONS

❖ Packaging

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

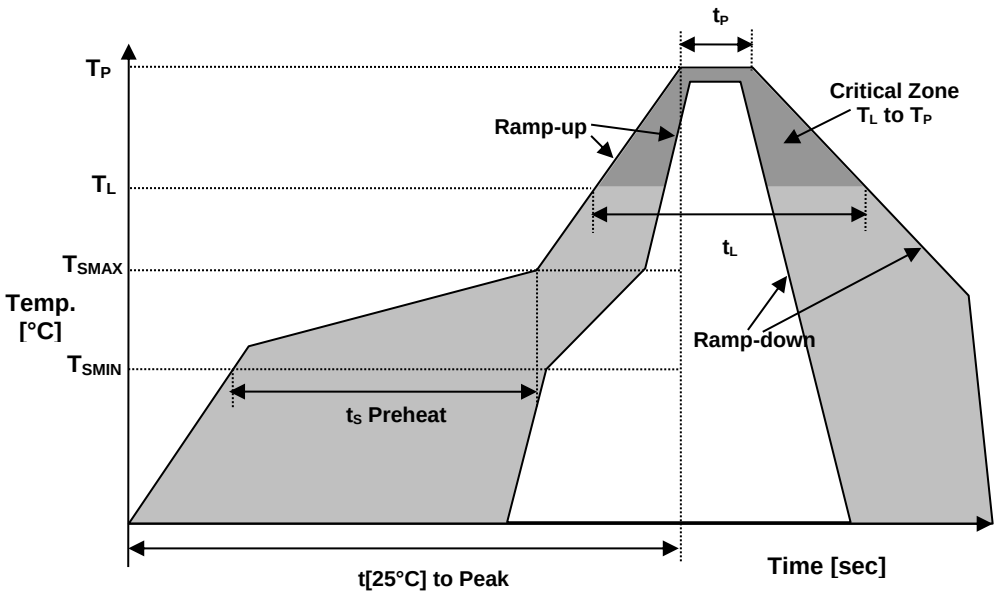
❖ Part Numbering

CA	-	24.000	-	3.3	-	XXX
Product Family		Frequency (MHz)		Voltage (V)		1) Stability, 2) symmetry, 3) Temperature Range Stability: 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: CA-24.000-3.3-C
Surface Mount Clock Oscillator, 2.0 x 1.6, 24.000 MHz, 3.3 volts, stability (±100 ppm), normal symmetry, standard Temperature range -10 °C to +70 °C

EXAMPLE: CA-48.000-1.8-BTE
Surface Mount Clock Oscillator, 2.0 x 1.6, 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)	-

CA PRODUCT FAMILY

MARKING

RFF.FE
•VTxyw

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

VOLTAGE CODE	
Voltage	Code
1.8	1
2.5	2
3.3	4

TOLERANCE CODE	
CODE	TOL (ppm)
C	±100
B	±50
F	±30
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