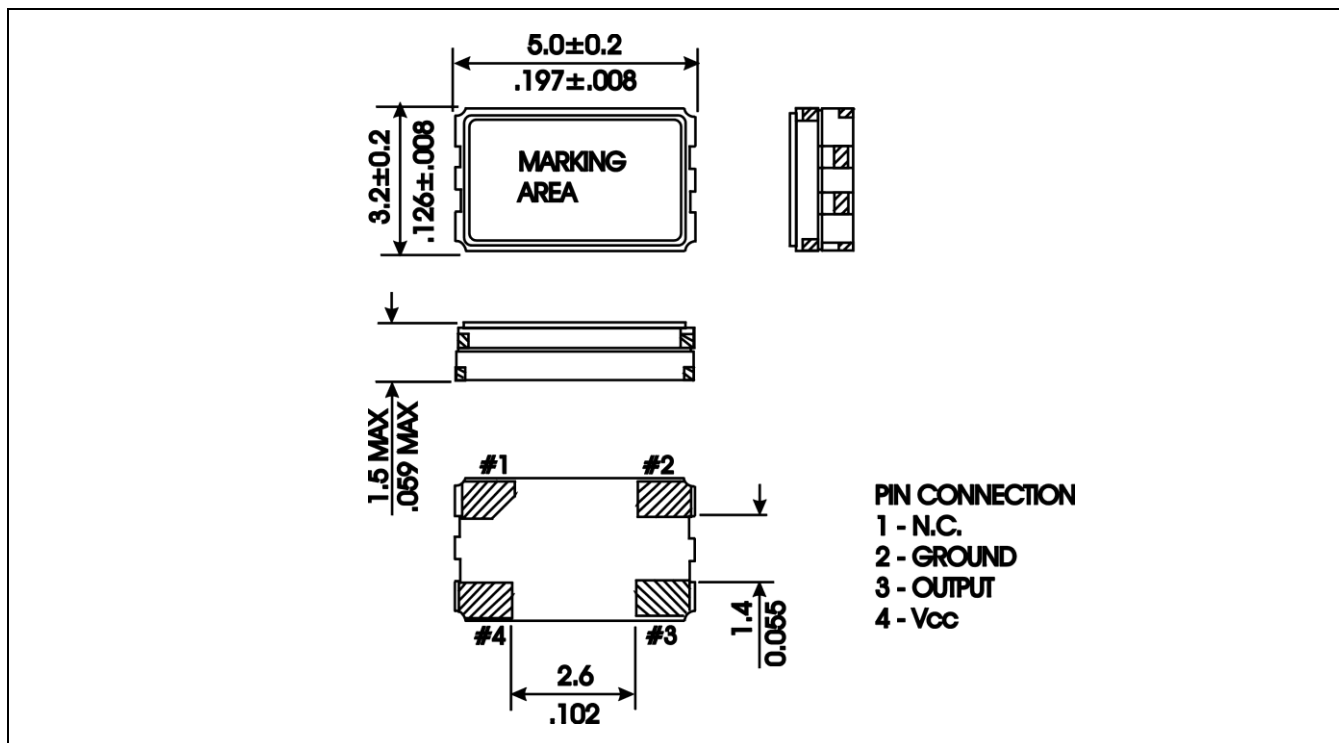


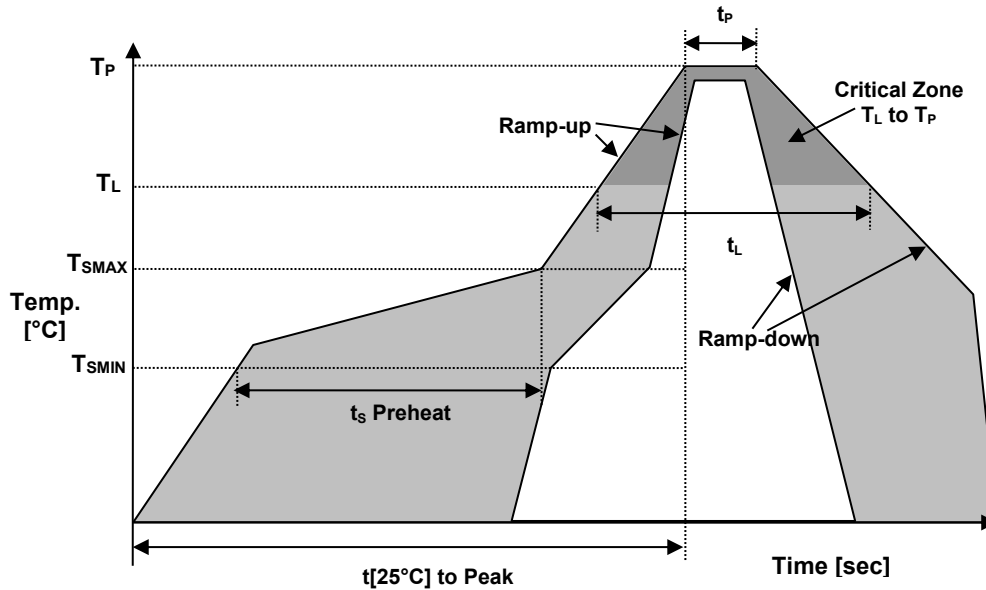
ELECTRICAL SPECIFICATION

PARAMETER	SYMBOL	CONDITIONS	VALUE	UNIT
Nominal Frequency	f_0	$V_{CC} \pm 5\%$	24.000	MHz
Supply Voltage, nom.	V_{CC}	$V_{CC} \pm 5\%$	3.3	VDC
Supply Current, max	I_s	$V_{CC} \pm 5\%$	2.0	mA
Operating Temperature Range	T_a		-30 ~ +85	°C
Storage Temperature Range	$T(stg)$	Absolute max	-40 ~ +85	°C
Frequency Stability				
vs. Temperature	$\Delta f/f_0(T_a)$	Reference to +25°C over Temperature Range	±2.5	ppm
vs. Supply Voltage	$\Delta f/f_V$	$V_{CC} \pm 5\%$	±0.3	ppm
vs. Load	$\Delta f/f_L$	Load ±5%	±0.3	ppm
vs. Aging max	$\Delta f/f_0(\text{year})$	First Year at +25°C ± 2°C	±1.0	ppm
Initial Frequency Calibration, max	f_c	Measured at 25°C, Reference to f_0	±2.0	ppm
Output Level, Clipped Sine Wave, min	-	10 kΩ // 10 pF ±5%	0.8	V_{P-P}
Start-up Time, max	t_s	$V_{OUT} \geq 90\% V_{P-P}$	2	ms
Phase Noise @ Freq. Offset, typical.	$\mathcal{L}(\Delta f)$	$\Delta f = 10 \text{ Hz}$	-85	dBc/Hz
	$\mathcal{L}(\Delta f)$	$\Delta f = 100 \text{ Hz}$	-115	dBc/Hz
	$\mathcal{L}(\Delta f)$	$\Delta f = 1 \text{ kHz}$	-135	dBc/Hz
	$\mathcal{L}(\Delta f)$	$\Delta f = 10 \text{ kHz}$	-145	dBc/Hz
	$\mathcal{L}(\Delta f)$	$\Delta f = 100 \text{ kHz}$	-148	dBc/Hz

MECHANICAL SPECIFICATION



REFLOW PROFILE



Reflow profile		
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	$t_{[25^{\circ}\text{C}] \text{ to Peak}}$	480 sec.
Time	t_L	60-150 sec.

ENVIRONMENTAL

PARAMETER	VALUE
MOISTURE SENSITIVITY LEVEL	1
RoHS	COMPLIANT
REACH-SVHC	COMPLIANT
HALOGEN-FREE	COMPLIANT
TERMINATION FINISH	Au



• MARKING

Rxx24.000

- EF33yw

x – Internal Production ID code

y – Year code

w – Week code

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

ALPHA WEEK CODE TABLE					
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

RALTRON	
DRAWN BY:	LP, December 10, 2018
APPROVED BY:	Jl, December 10, 2018
REVISION:	A, Initial Release

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