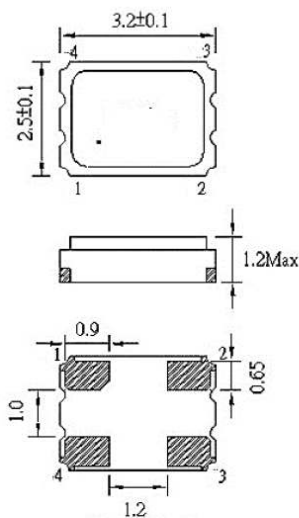


RTXE-104EF133-C-12.000-TR

ELECTRICAL SPECIFICATION

PARAMETER	SYMBOL	CONDITIONS	VALUE	UNIT
Nominal Frequency	f_o	$T_a=25^{\circ}\text{C}$	12.000	MHz
Supply Voltage	V_{CC}		3.3	VDC
Supply Current, max	I_s	$T_a=25^{\circ}\text{C}$	4.8	mA
Operating Temperature Range	T_a	---	-30 ~ +75	$^{\circ}\text{C}$
Storage Temperature Range	$T(\text{stg})$	Absolute max	-40 ~ +90	$^{\circ}\text{C}$
Frequency Stability vs. Temperature vs. Supply Voltage vs. Load vs. Aging Max	$\Delta f/f_o(T_a)$ $\Delta f/f_v$ $\Delta f/f_L$ $\Delta f/f_o(\text{year})$	Reference to +25 $^{\circ}\text{C}$, over Temperature Range $V_{CC} \pm 5\% V$ (Inside 2.375 ~ 3.63 V) Load $\pm 10\%$ Per Year at +25 $^{\circ}\text{C} \pm 2^{\circ}\text{C}$	± 2.5 ± 0.3 ± 0.2 ± 1.0	ppm ppm ppm ppm
Initial Frequency Calibration, max	f_c	Measured at 25 $^{\circ}\text{C}$, before shipment	± 1.0	ppm
Reflow Shift, max		2 consecutive reflows, after 2 hours relaxation	± 1.0	ppm
Output Level, HCMOS	--	"0" Level, max	$0.1V_{CC}$	V
	--	"1" Level, min	$0.9V_{CC}$	V
Symmetry	--	at $\frac{1}{2} V_{CC}$ level	45 / 55	%
Enable Disable Function	V_{IH}	min	2.1	V
	V_{IL}	max	0.9	V
Load	L		15	pF
Rise and Fall Time, max	t_r/t_f	10% V_{CC} to 90% V_{CC}	5	ns
Start-up time, max	t_s	$V_{OUT} \geq 90\% V_{P-P}$	10	ms
Phase noise @ freq. offset, typical.	$\mathcal{E}(\Delta f)$ $\mathcal{E}(\Delta f)$ $\mathcal{E}(\Delta f)$	$\Delta f=1\text{kHz}$ $\Delta f=10\text{kHz}$ $\Delta f=100\text{kHz}$	-135 -145 -150	dBc/Hz dBc/Hz dBc/Hz

MECHANICAL SPECIFICATION

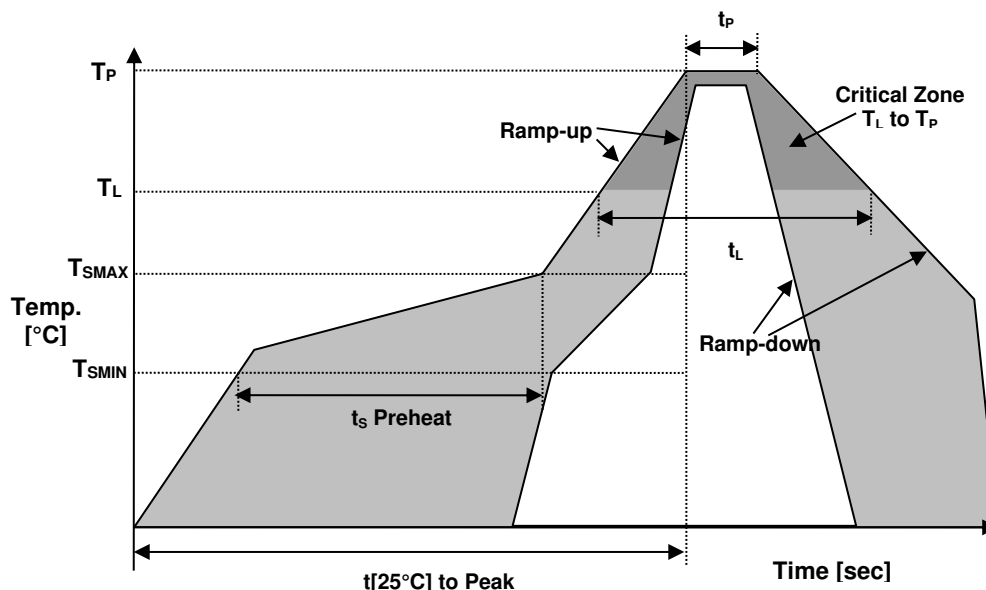


PIN FUNCTIONS:

- [1] E/D
- [2] GND
- [3] OUTPUT
- [4] VCC

A bypass 0.01 μF bypass capacitor is recommended

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 max.
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. max.
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
TERMINATION FINISH	Au



RTXE-104EF133-C-12.000-TR

MARKING

Rx12.00

• EF3yw

x – Internal Production ID code

y – Year code

w – Week code

YEAR CODE	
Year	Code
2019	9
2020	0
2021	1
2022	2
2023	3
2024	4
2025	5
2026	6
2027	7
2028	8
2029	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:	YL, May 26, 2021
APPROVED BY:	CP, May 26, 2021
REVISION:	A, Initial Release

Raltron Electronics / RAMI Technology USA, LLC, including its affiliates, employees, agents and other persons acting on its behalf (collectively Raltron/RAMI Tech), disclaim any and all liability for any errors or inaccuracies contained in this data sheet. While Raltron/RAMI Tech has made every reasonable effort ensure the accuracy of all product information, specifications and data contained herein, Raltron/RAMI Tech does not guarantee that the information is accurate, reliable or current. The product information is provided only for reference purposes only and is subject to change, correction or revision, at any time without notice. Raltron/RAMI Tech does not assume any liability arising out of an application or use of any product described herein and disclaims any warranties expressed or implied. The user of products in such applications shall assume all risks of such use and will agree to hold Raltron/RAMI Tech, harmless against all damages.

Copyright © 2016, Raltron Electronics / RAMI Technology USA, LLC. All rights reserved. No part of this document may be reproduced in any form without the prior written permission of Raltron Electronics / RAMI Technology USA, LLC.