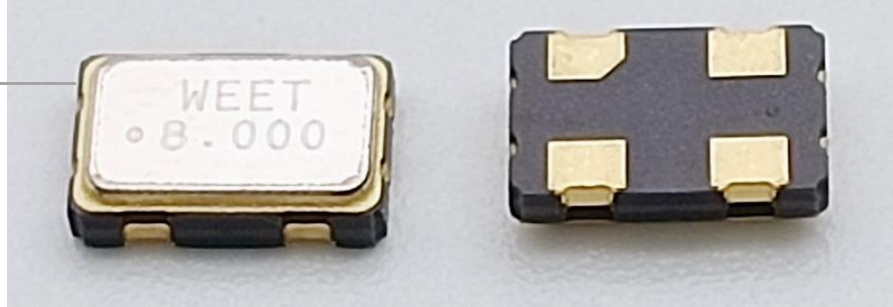


Features

- Ceramic surface mount with Metal Lid
- CMOS compatible logic levels
- Tri-state function available
- Supply voltage range:1.62V~5.5V(Compatible with 1.8V, 2.5V, 3.3V, 5.0V)
- RoHS Compliant/Pb Free

Applications

- Wireless Devices
- Internet of Things (IoT) devices
- Ethernet/Gigabit Ethernet
- Audio, Video, Gaming products
- Micro base station



Electrical Specifications

Item	Symb.	Min.	Typ.	Max.	Unit	Notes
Frequency Range	Freq.	1.000		160.000	MHz	
Operating Temperature	T _{use}	-20		70	°C	
		-40		85	°C	
Storage Temperature Range	T _{stg}	-55		125	°C	
Supply Voltage	V _{dd}	1.62	1.8/2.5/3.3/5.0	5.5	V	
Output Load	L _{CMOS}		15		pF	
Current Consumption	I _{cc}			10	mA	1MHz ≤ Freq. < 40MHz
				20		40MHz ≤ Freq. < 80MHz
				40		80MHz ≤ Freq. < 160MHz
Duty Cycle	SYM	45		55	%	50 % V _{dd} level, L _{CMOS} ≤ 15 pF
Rise / Fall Time	T _R / T _F			5	nS	10% V _{dd} to 90% Level
Start-up Time	T _{str}			5	mS	To 90% of Final Amplitude
High output voltage	V _{OH}	0.9V _{dd}			V	
Low output voltage	V _{OL}			0.1V _{dd}	V	
Enable Voltage High (Logic 1)	V _{IH}	0.7V _{dd}			V	Output will be disable if OE is Logic 0 Output will be enable if OE is Logic 1 or open
Enable Voltage Low (Logic 0)	V _{IL}			0.3V _{dd}	V	
Aging	f _{age}			3	ppm	1st. Year at 25°C

Frequency Stability & Operating Temperature Range

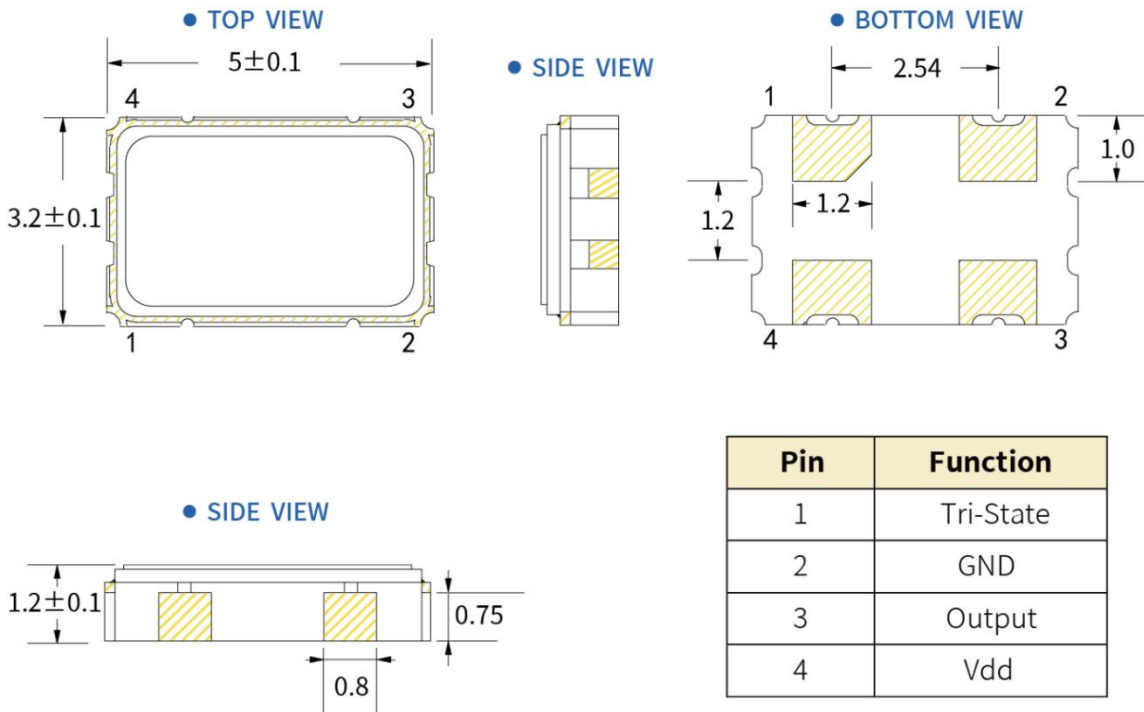
Temp.	FT	±20ppm	±25ppm	±30ppm	±50ppm
		-20°C to +70°C	△	★	★
-40°C to +85°C		△	★	★	

★: Available △: Conditional

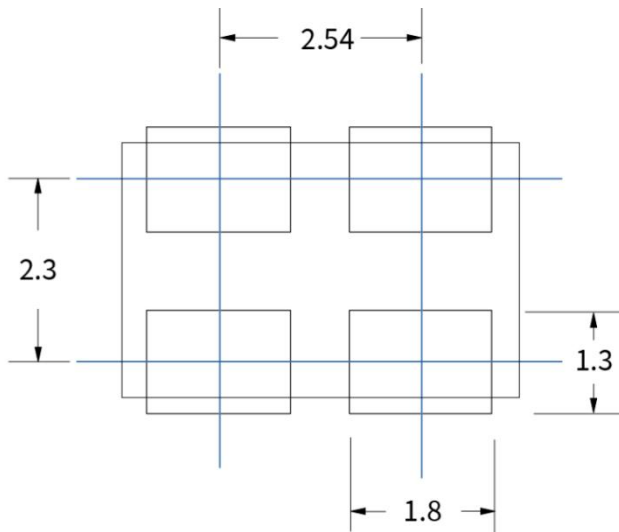
All condition: Include 25°C tolerance, operating temperature range , input voltage change, aging, load change.



Dimensions (mm)



Solder pad layout(mm)

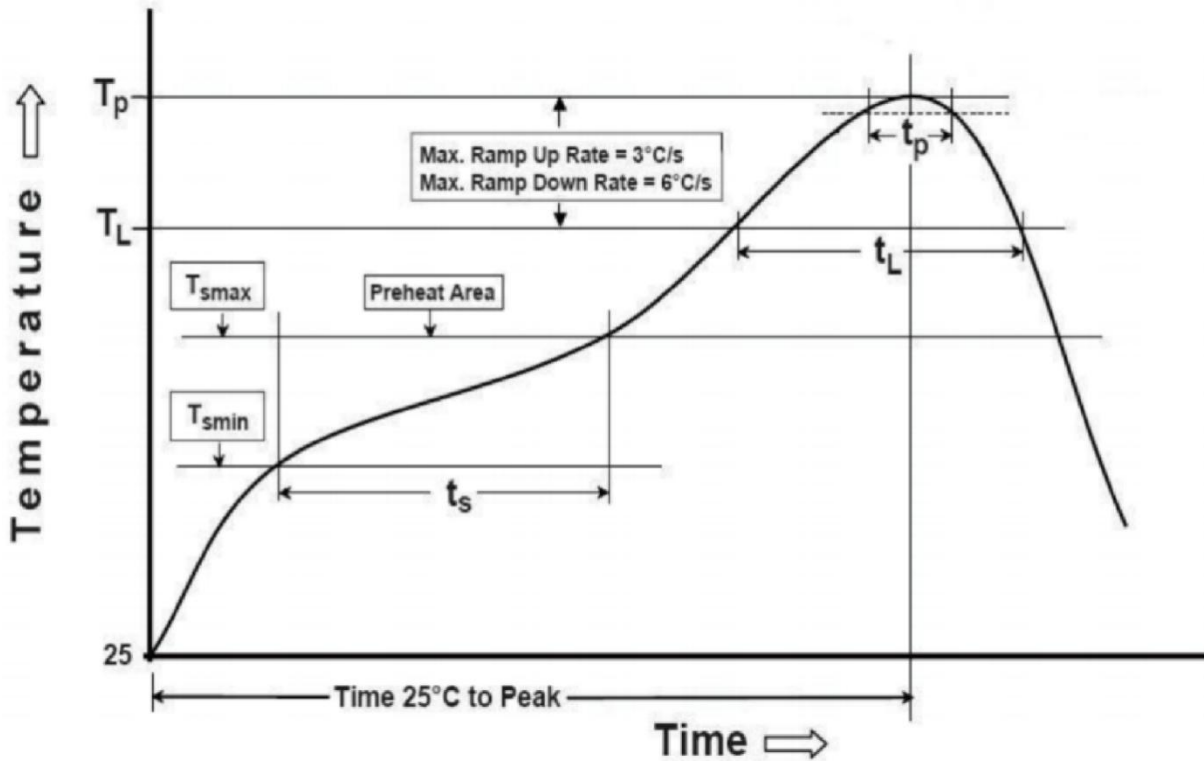


Product Structure

- Metal Lid
- Conductive Adhesive, Coated Electrode, Quartz Blank
- IC, Solder Pads, Ceramic Base



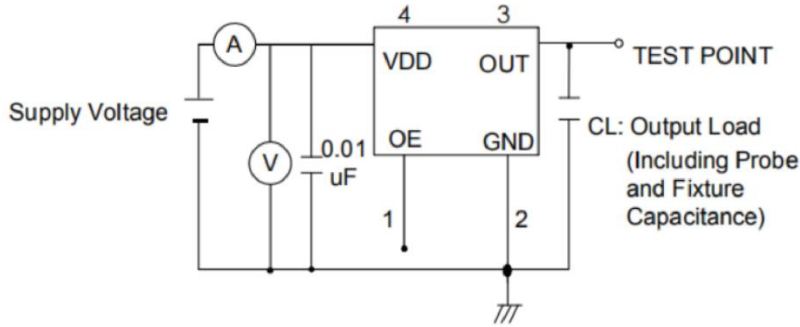
Suggested Reflow Profile



Profile Feature	Sn - Pb Eutectic Assembly	Preheat / Soak
Preheat / Soak ● Temperature Min (Ts min) ● Temperature Max (Ts max) ● Time (Ts min to Ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-120 seconds
Ramp - up rate (TL to Tp)	3°C/ second max.	3°C/ second max.
Time maintained above ● Liquidous temperature (TL) ● Time (tL) maintained above TL	183°C 60-150 seconds	217°C 60-150 seconds
Peak package body temperature (Tp)	235°C	260°C
Time within 5° C of the specified classification temperature (Tp)	20 seconds	30 seconds
Ramp - down rate (Tp to TL)	6°C/ second max.	6°C/ second max.
Time 25° C to peak temperature	6 minutes max.	8 minutes max.
Suggest reflow times	2 Times max.	

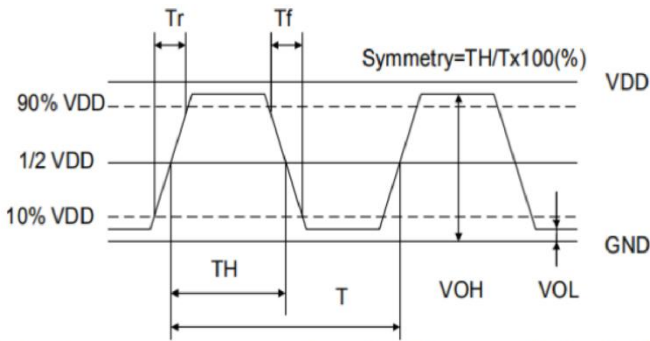


Testing circuit



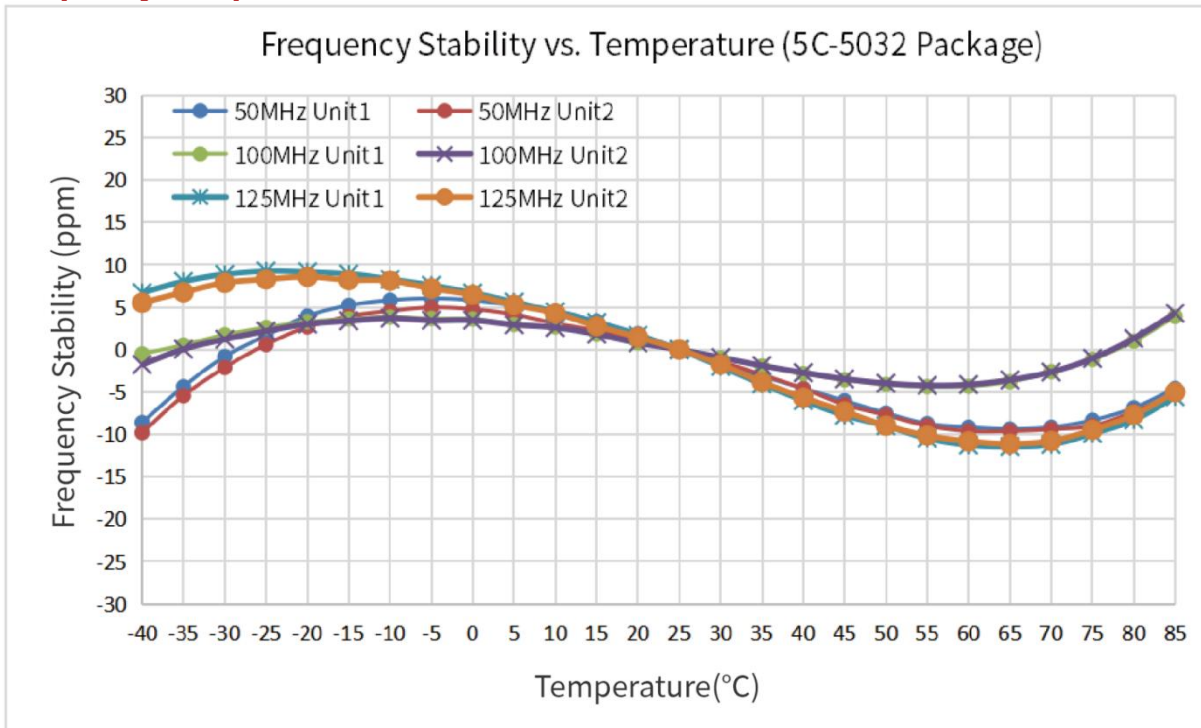
※ Notes: PIN 1 connected to Vdd or floating, the product is working properly; connected to GND, stops working.

Waveform Conditions



Waveform measurement system should have a min. bandwidth of 5 times the frequency being tested.

Frequency Temperature Characteristics



PN Structure:

WQS-OSC50321.000B20F30TNNTR

WQS-OSC5032 1.000MHz 3.3V ±20ppm -40+85C ±30ppm Tape Reel RoHS

WQS-	OSC5032	1.000	B	20	F	30	T	N	N	T	R
Series		<u>Frequency Code(MHz)</u>	<u>Supply Voltage</u>	<u>Frequency Tolerance</u>	<u>Operating Temperature</u>	<u>Frequency Drift</u>	<u>Output</u>	<u>Current Consumption</u>	<u>Phase Noise</u>	<u>Tape Reel</u>	<u>RoHS</u>
		1	2	3	4	5	6	7	8	9	10

1. Frequency Code(MHz)

1.000	1.8432	2.000	2.048	2.4576
2.500	3.2768	3.579545	3.6864	4.000
4.096	4.9152	5.5296	6.000	6.144
7.3728	8.000	8.192	10.000	11.0592
11.2896	12.000	12.288	13.560	14.31818
14.7456	16.000	16.384	18.432	19.200
20.000	20.480	22.1184	22.5792	24.000
24.576	25.000	25.00063	25.175	26.000
27.000	27.120	28.63636	29.4912	30.000
32.000	32.768	33.000	33.330	33.333
33.3333	36.000	36.864	37.125	38.400
40.000	40.680	45.1584	48.000	49.152
50.000	54.000	60.000	64.000	65.536
66.000	66.666	72.000	75.000	80.000
96.000	100.000	125.000	133.000	148.500
156.250				



2. Supply Voltage

D	1.8V
H	2.5V
B	3.3V
A	5.0V

3. Frequency Tolerance

10	±10ppm
20	±20ppm

4. Operating Temperature

E	-20+70C
F	-40+85C

5. Frequency Drift

15	±15ppm
20	±20ppm
30	±30ppm

6. Output

T	Squarewave
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7. Current Consumption

N	Standard
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8. Phase Noise

N	Standard
---	----------

9. Packing

T	Tape Reel
B	Bulk

10. RoHS

R	RoHS
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