

OB Series FULL SIZE Crystal Oscillator

OB : 20.4×12.8×4.9 mm | PXO-14

Feature

- 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 | | 100.000 | MHz | |
| Operating Temperature | T_use | -20 | | +70 | °C | |
| | | -40 | | +85 | °C | |
| Storage Temperature Range | T_stg | -55 | | +125 | °C | |
| Supply Voltage | Vdd | 1.62 | 1.8/2.5/3.3/5.0 | 5.5 | V | |
| Output Load | L_CMOS | | 15 | | pF | |
| Current Consumption | Icc | | | 25 | mA | 1MHz ≤ Freq. < 40MHz |
| | | | | 60 | | 40MHz ≤ Freq. < 80MHz |
| | | | | 80 | | 80MHz ≤ Freq. < 160MHz |
| Duty Cycle | SYM | 40 | | 60 | % | 50 % Vdd level, L_CMOS ≤ 15 pF |
| Rise / Fall Time | T _R / T _F | | | 5 | nS | 10% Vdd to 90% Level |
| Start-up Time | T_str | | | 10 | mS | To 90% of Final Amplitude |
| High output voltage | V _{OH} | 0.9Vdd | | | V | |
| Low output voltage | V _{OL} | | | 0.1Vdd | V | |
| Enable Voltage High (Logic 1) | V _{IH} | 0.7Vdd | | | 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} | | | 0.3Vdd | V | |
| Aging | f_age | | | 3 | ppm | 1st. Year at 25°C |

Frequency Stability & Operating Temperature Range

| Temp. | FT | ±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.

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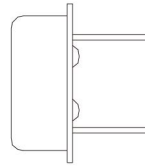
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Dimensions (UNIT:mm)

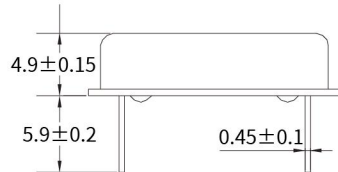
● TOP VIEW



● SIDE VIEW

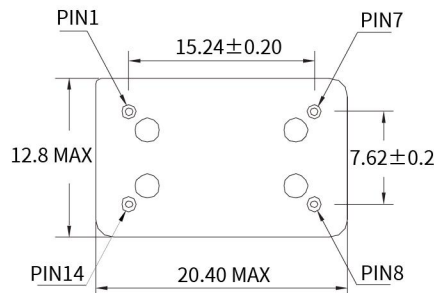


● SIDE VIEW



| PIN | FUNCTION |
|-----|--------------|
| 1 | NC/Tri-State |
| 4 | GND |
| 5 | Output |
| 8 | Vdd |

Solder pad layout (UNIT:mm)



Notes:

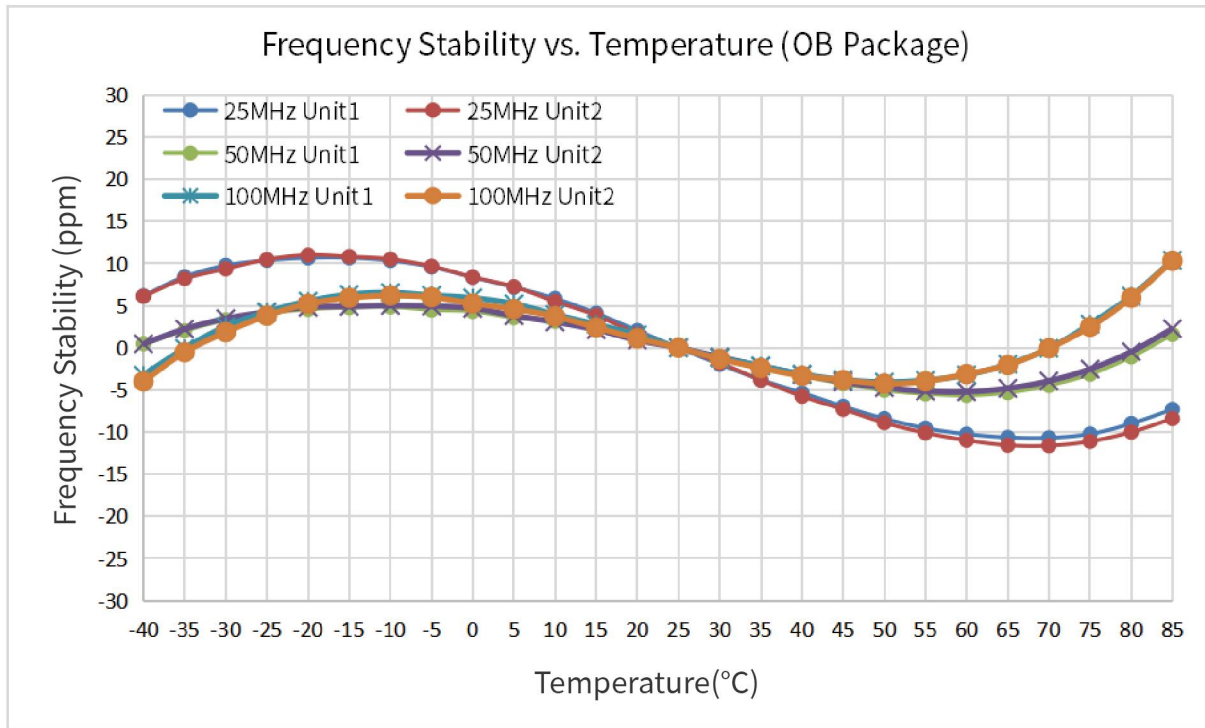
NC: If the product does not contain Tri-state function, no matter how PIN1 connected, the product is working properly.
Tri-state: PIN 1 connected to Vdd or floating, the product is working properly; connected to GND, stops working.

Options and Part Identification : Example SXOB1.000B20F30TNN

| Company | Ceramic Package | Frequency Code [MHz] | Supply Voltage | Frequency Tolerance | Operating Temperature | Frequency Drift | Output | Current Consumption | Phase Noise |
|--------------|--|-------------------------------------|--------------------------------------|--------------------------|------------------------------------|-------------------------------------|---|---------------------|------------------|
| SX | OB | X.XXX | B | 20 | F | 30 | T | N | N |
| Code Company | | Frequency | | Code Frequency Tolerance | | Code Frequency Drift | | Code Current | |
| SX SCTF | | 1.000 13.560 19.200 37.125 | | 10 ±10ppm 20 ±20ppm | | 15 ±15ppm 20 ±20ppm 30 ±30ppm | | N Standard | |
| | | | Code Voltage | | Code Operating Temperature | | Code Output | | Code Phase Noise |
| | Code Ceramic Package | | D 1.8V H 2.5V B 3.3V A 5.0V | | E -20°C ~ +70°C F -40°C ~ +85°C | | T CMOS 15pF H CMOS 30pF G CMOS 50pF | | N Standard |
| | 1M 2.0×1.6×0.75mm 2M 2.5×2.0×0.81mm 3M 3.2×2.5×0.95mm 5M 5.0×3.2×1.2mm 7M 7.0×5.0×1.3mm OA 12.7×12.7×5.4 mm [PXO-8] OB 20.4×12.8×4.9 mm [PXO-14] | | | | | | | | |

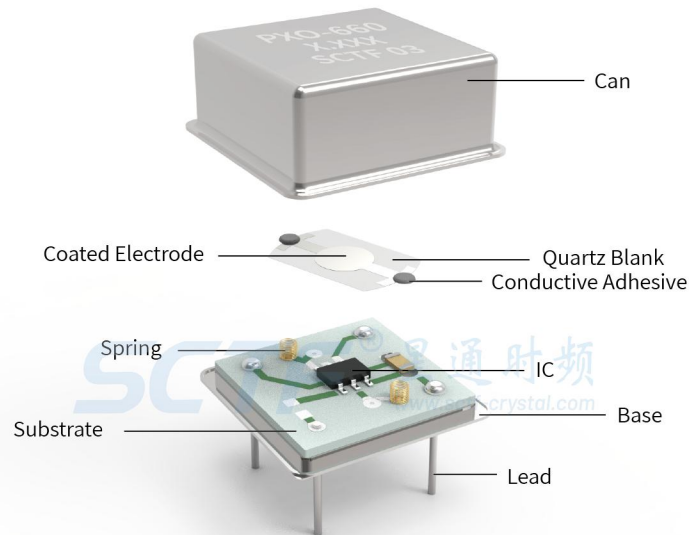
If you have other parameter requirements, you can contact **SCTF** at any time.

Frequency Temperature Characteristics



Product Structure & Marking Information

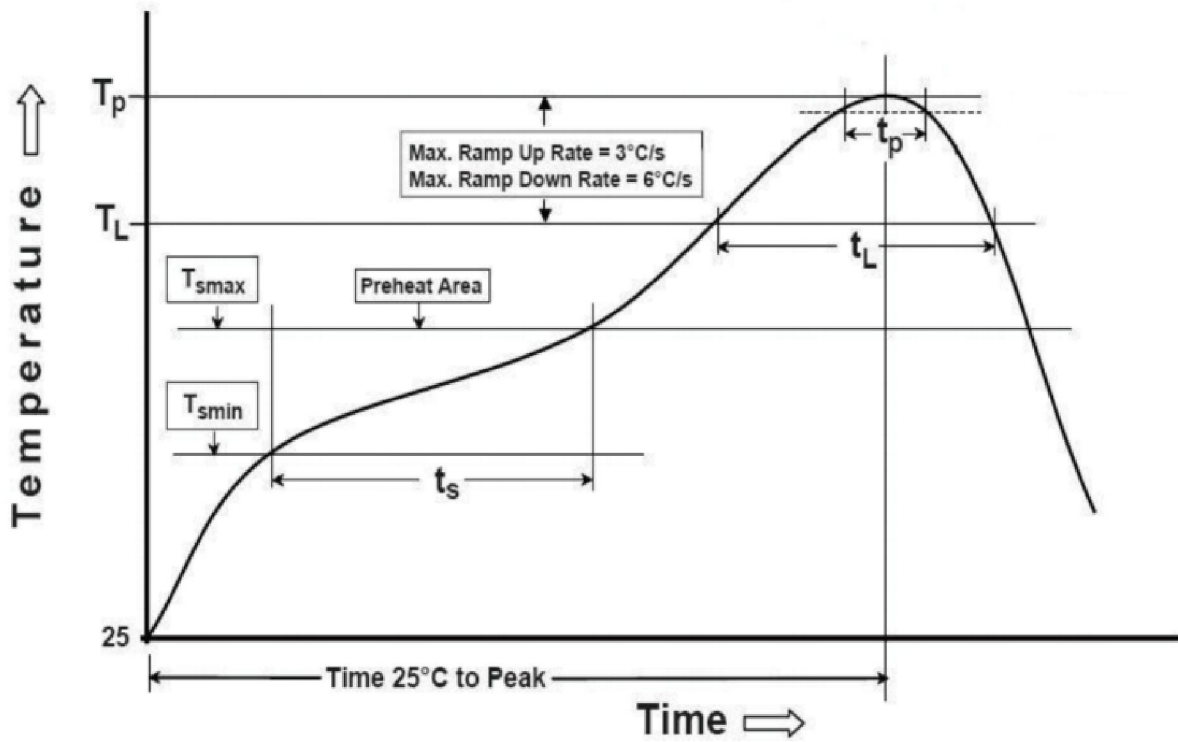
Product Structure



Marking Information



Suggested Reflow Profile

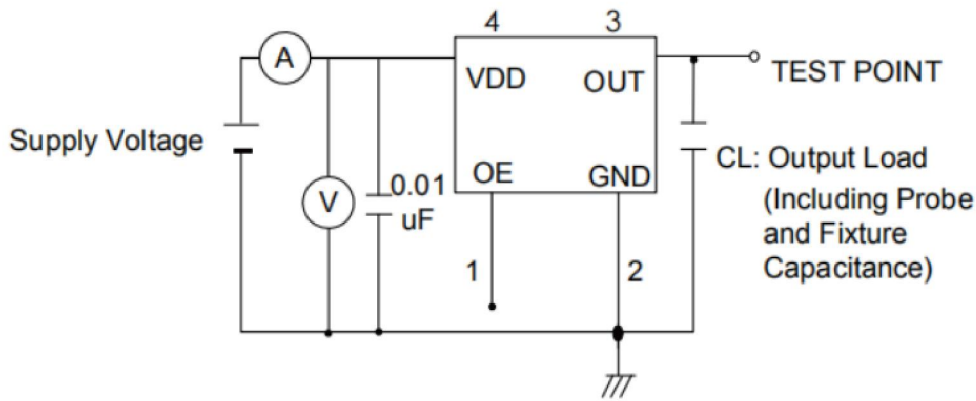


| Profile Feature | Sn - Pb Eutectic Assembly | Preheat / Soak |
|--|----------------------------------|----------------------------------|
| Preheat / Soak <ul style="list-style-type: none"> ● Temperature Min (Ts min) ● Temperature Max (Ts max) ● Time (Ts min to Ts max) | 100°C 150°C 60-120 seconds | 150°C 200°C 60-120 seconds |
| Ramp - up rate (TL to Tp) | 3°C/ second max. | 3°C/ second max. |
| Time maintained above <ul style="list-style-type: none"> ● 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. | |

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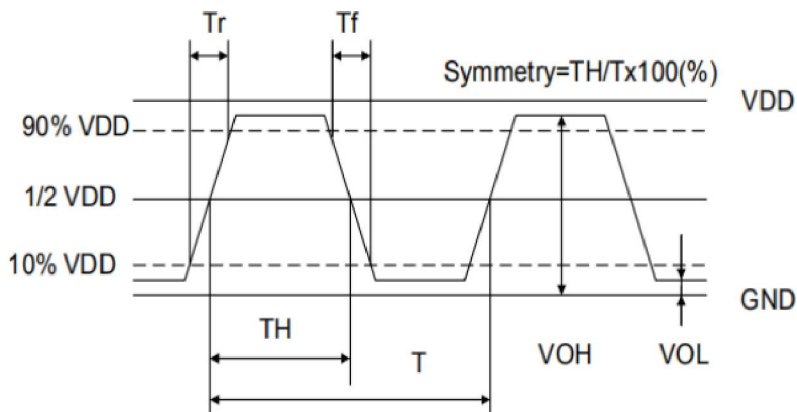
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Testing Circuit



※ 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.

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Packaging Information

T=Sheet and box (100pcs/sheet)



T=Sheet and box (500pcs/box)



Common Frequencies – MHz

| OB Series | | | | |
|-----------|----------|---------|--------|--------|
| 3.6864 | 4.000 | 4.9152 | 7.3728 | 8.000 |
| 8.192 | 10.000 | 11.0592 | 12.000 | 12.288 |
| 13.560 | 14.31818 | 16.000 | 18.432 | 20.000 |
| 22.1184 | 24.576 | 25.000 | 27.000 | 32.000 |
| 32.768 | 40.000 | 48.000 | 50.000 | |