

PB Type Crystal Oscillator

Programmable 5.0 x 3.2 mm

Frequency 1MHz to 200MHz

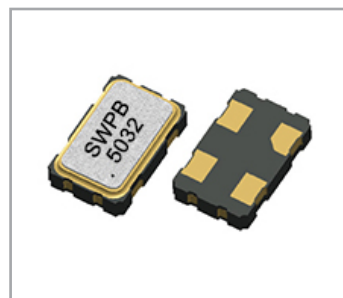
STARWAVE

FEATURE

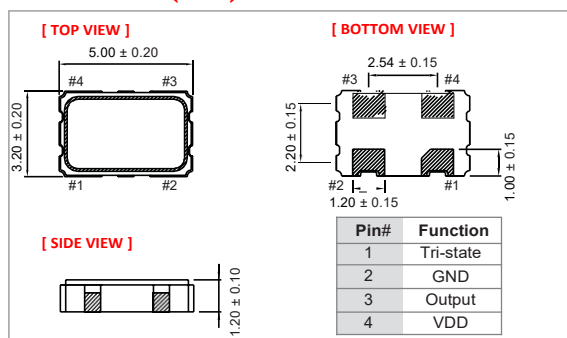
- Typical 5.0 x 3.2 x 1.2 mm ceramic SMD package
- Operation supply voltage: 1.8V, 2.5V and 3.3V
- FASTXO series, Fast delivery at any frequency
- Tri-State Enable/Disable
- Frequency Stability ± 25 ppm over -40°C to 105°C
- Pb-free/RoHS compliant

TYPICAL APPLICATION

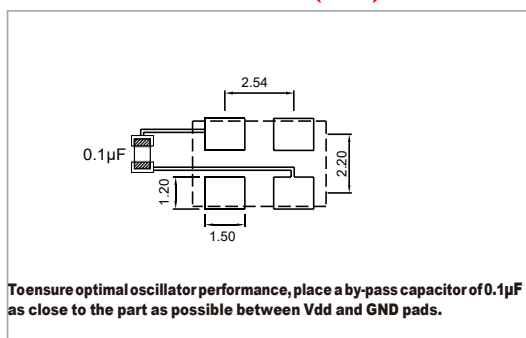
- Mobile Phone
- WLAN, Wireless, Fiber/10G-bit Ethernet
- Notebook, PDA, DSC



DIMENSION (mm)



SOLDER PAD LAYOUT (mm)



ELECTRICAL SPECIFICATION

| Parameter | 3.3V | | 2.5V | | 1.8V | | Unit |
|-----------------------------------|-----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | Min. | Max. | Min. | Max. | Min. | Max. | |
| Supply Voltage Variation | $V_{DD}-5\%$ | $V_{DD}+5\%$ | $V_{DD}-5\%$ | $V_{DD}+5\%$ | $V_{DD}-5\%$ | $V_{DD}+5\%$ | V |
| Frequency Range | 1 | 200 | 1 | 200 | 1 | 125 | MHz |
| Supply Current (@15pf Loading) | - | 35 | - | 30 | - | 20 | mA |
| Output Level | Output High | $90\%V_{DD}$ | - | $90\%V_{DD}$ | - | $90\%V_{DD}$ | V |
| | Output Low | - | $10\%V_{DD}$ | - | $10\%V_{DD}$ | - | $10\%V_{DD}$ |
| Transition Time | Rise Time / Fall Time | | - | 2 | - | 3 | nSec |
| Duty Cycle | 45 | 55 | 45 | 55 | 45 | 55 | % |
| Startup Time | - | 8 | - | 8 | - | 8 | mSec |
| Tri-State | Output Enable | $0.7 \times V_{DD}$ | - | $0.7 \times V_{DD}$ | - | $0.7 \times V_{DD}$ | V |
| | Output Disable | - | $0.3 \times V_{DD}$ | - | $0.3 \times V_{DD}$ | - | $0.3 \times V_{DD}$ |
| Stand by Current (@PD Mode) | - | 400 | - | 400 | - | 400 | uA |
| Stand by Current (@OE Mode) | - | 20 | - | 20 | - | 20 | mA |
| Output Loading | 15 | | 15 | | 15 | | pf |
| RMS Phase Jitter (12KHz to 20MHz) | - | 2 | - | 2 | - | 2 | pSec |
| Aging (@ 25°C, First Year) | - | ± 3 | - | ± 3 | - | ± 3 | ppm |
| Storage Temp. Range | -50 | +125 | -50 | +125 | -50 | +125 | $^{\circ}\text{C}$ |

Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.

+ Transition times are measured between 10% and 90% of V_{DD} , with an output load of 15pF.

FREQUENCY STABILITY vs. TEMP. RANGE

| Temp. ppm (°C) | ± 15 | ± 20 | ± 25 | ± 50 |
|----------------|----------|----------|----------|----------|
| -20~+70 | △ | ○ | ○ | ○ |
| -40~+85 | × | △ | ○ | ○ |
| -40~+105 | × | △ | ○ | ○ |

*O: Available △: Conditional X: Not available

*Inclusive of calibration @ 25 °C, operating temperature range, i Voltage variation, load variation, aging (1st year), shock, and vibrati

Note: not all combination of options are available. Other specifications may be available upon request.

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Ordering Information

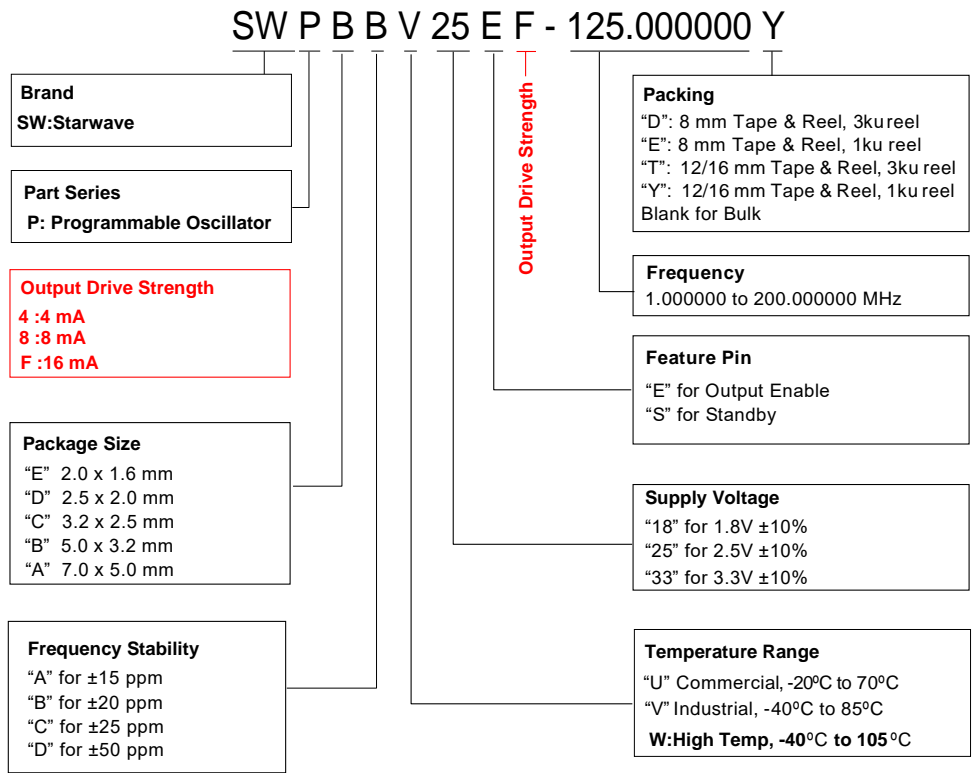


Table 13. Ordering Codes for Supported Tape & Reel Packing Method

| Device Size (mm x mm) | 16 mm T&R (3ku) | 16 mm T&R (1ku) | 12 mm T&R (3ku) | 12 mm T&R (1ku) | 8 mm T&R (3ku) | 8 mm T&R (1ku) |
|-----------------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| 2.0 x 1.6 | - | - | - | - | D | E |
| 2.5 x 2.0 | - | - | - | - | D | E |
| 3.2 x 2.5 | - | - | - | - | D | E |
| 5.0 x 3.2 | - | - | T | Y | - | - |
| 7.0 x 5.0 | T | Y | - | - | - | - |