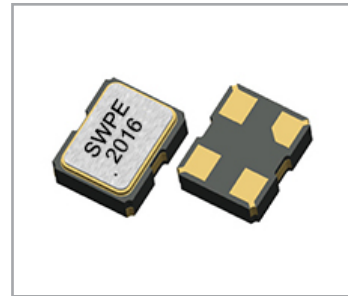


# PE Type Crystal Oscillator

## Programmable 2.0 x 1.6 mm

## Frequency 1MHz to 200MHz

# STARWAVE



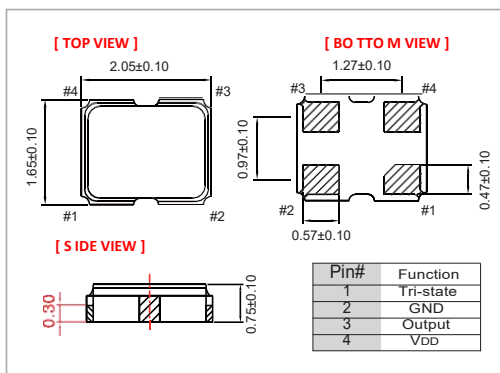
### FEATURE

- Typical 2.05 x 1.65 x 0.75 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  $\pm 25$ ppm over  $-40^{\circ}\text{C}$  to  $105^{\circ}\text{C}$
- Pb-free/RoHS compliant

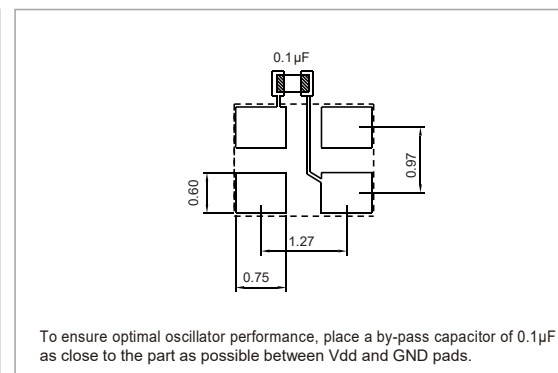
### TYPICAL APPLICATION

- Wearable device
- Mobile device
- IoT, Smartphone
- Game console

### 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 x $V_{DD}$	-	0.7 x $V_{DD}$	-	0.7 x $V_{DD}$	V
	Output Disable	-	0.3 x $V_{DD}$	-	0.3 x $V_{DD}$	-	0.3 x $V_{DD}$
Stand by Current (@PD Mode)	-	400	-	400	-	400	$\mu\text{A}$
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)	-	$\pm 3$	-	$\pm 3$	-	$\pm 3$	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.

### FREQ. STABILITY vs. TEMP. RANGE

Temp. ppm (°C)	$\pm 15$	$\pm 20$	$\pm 25$	$\pm 50$
-20~+70	$\Delta$	$\circ$	$\circ$	$\circ$
-40~+85	$\times$	$\Delta$	$\circ$	$\circ$
-40~+105	$\times$	$\Delta$	$\circ$	$\circ$

\*O: Available  $\Delta$ : Conditional X: Not available

\*Inclusive of calibration @ 25  $^{\circ}\text{C}$ , operating temperature range, i Voltage variation, load variation, aging (1<sup>st</sup> year), shock, and vibrati

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

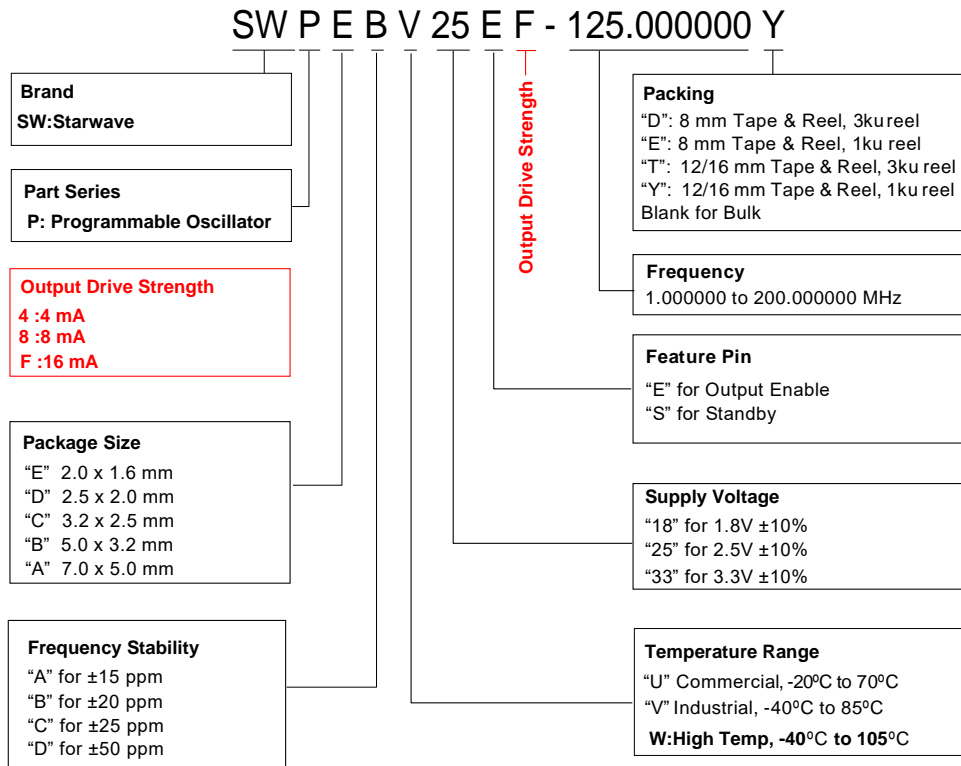
# PE Type Crystal Oscillator

## Programmable 2.0 x 1.6 mm

## Frequency 1MHz to 200MHz



### 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	-	-	-	-