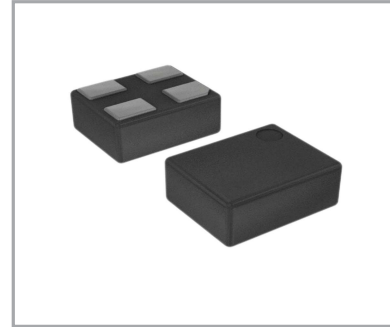


PF Type Crystal Oscillator

Programmable 1.6x 1.2mm

Frequency 1MHz to 200MHz

STARWAVE



FEATURE

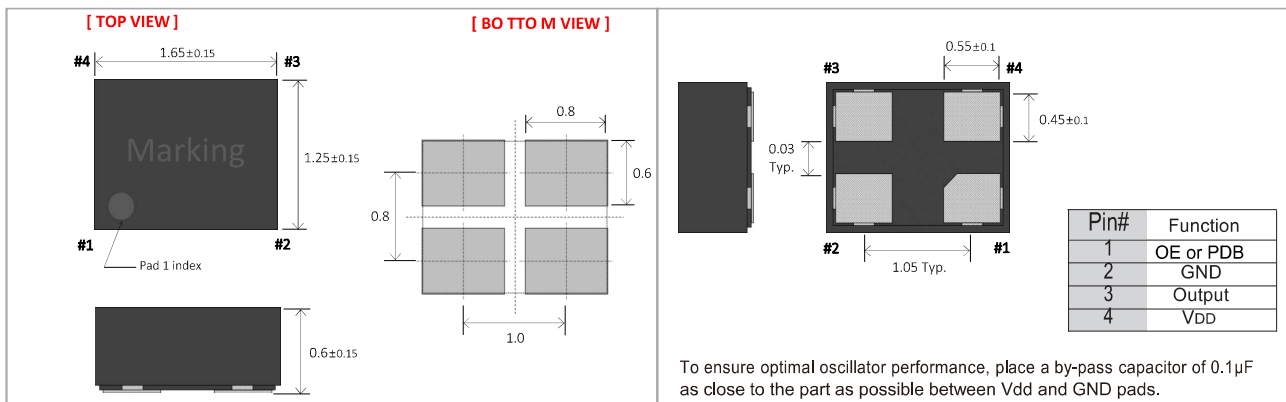
- Typical 1.65 x 1.25 x 0.8mm ceramic SMD package
- Operation supply voltage: 1.8V, 2.5V and 3.3V
- Enable/Disable
- Frequency Stability ± 60 ppm over -40°C to 85°C
- Pb-free/RoHS compliant

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)	-	25	-	25	-	25	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	-	5	-	5	-	5	nSec
		45	55	45	55	45	55	%
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}	V
Stand by Current (@PD Mode)		-	400	-	400	-	400	μA
Stand by Current (@OE Mode)		-	25	-	25	-	25	mA
Output Loading		15	15	15	15	15	pf	
RMS Phase Jitter (12KHz to 20MHz)		-	2.0	-	2.0	-	2.0	pSec
Aging (@ 25°C, First Year)		-	± 3	-	± 3	-	± 3	ppm
Storage Temp. Range		-55	+125	-55	+125	-55	+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)	± 30	± 50	± 60	± 80
-20~+70	○	○	○	○
-40~+85	○	○	○	○
-40~+105	×	△	△	○

*O: Available Δ : Conditional X: Not available

*Inclusive of calibration @ 25 $^{\circ}\text{C}$, 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.

PF Type Crystal Oscillator

Programmable 1.6x 1.2mm

Frequency 1MHz to 200MHz



Ordering Information

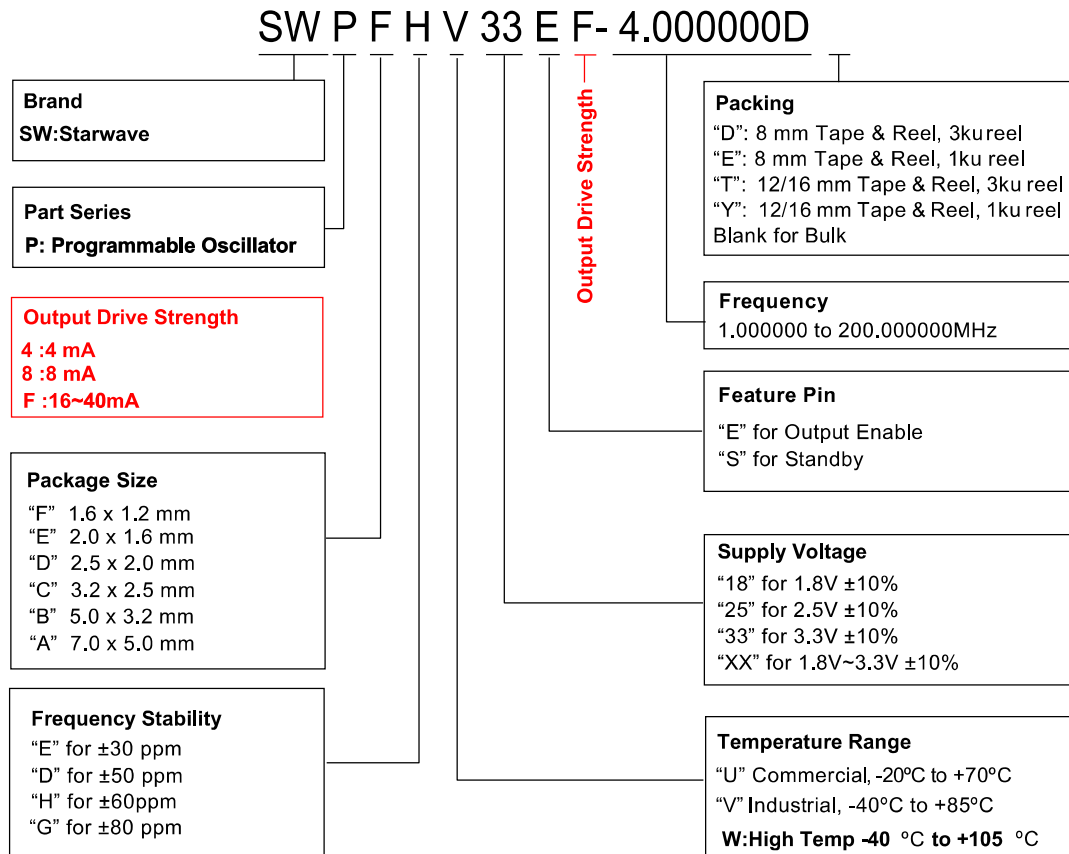


Table 13. Ordering Codes for Supported Tape & Reel Packing Method

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)
1.6 x 1.2	-	-	-	-	D	E
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	-	-	-	-