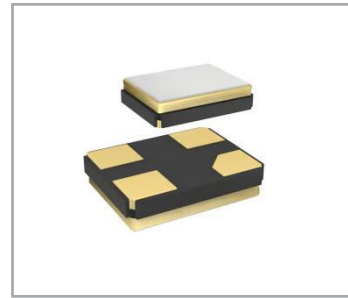


OF Type Crystal Oscillator

Package Size 1.6x 1.2mm

Frequency 1MHz to 54MHz

STARWAVE



FEATURE

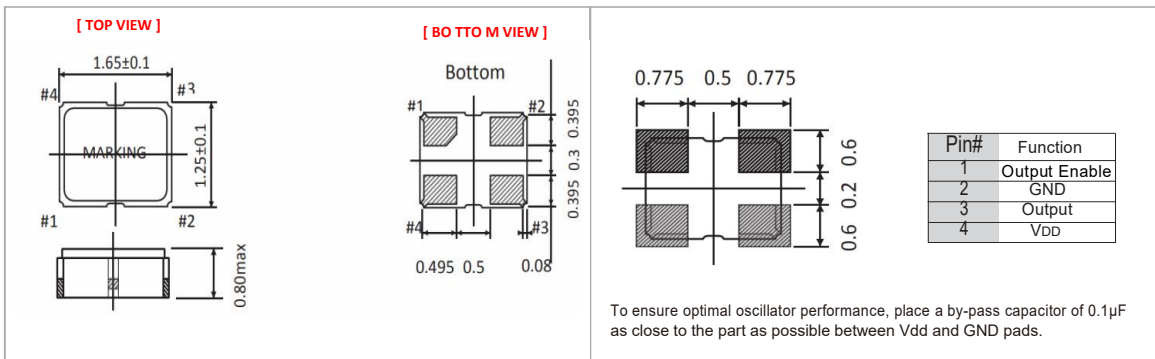
- Typical 1.65 x 1.25 x 0.8mm ceramic SMD package-
- Operation supply voltage: 1.8V, 2.5V and 3.3V
- Tri-State Enable/Disable
- Frequency Stability ± 30 ppm over -40°C to 105°C
- Pb-free/RoHS compliant

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	54	1	54	1	54	MHz
Supply Current (@15pf Loading)	-	10	-	10	-	10	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	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	µA
Stand by Current (@OE Mode)	-	10	-	10	-	10	mA
Output Loading	15		15		15		pf
RMS Phase Jitter (12KHz to 20MHz)	-	0.7	-	0.7	-	0.7	pSec
Aging (@ 25°C, First Year)	-	± 3	-	± 3	-	± 3	ppm
Storage Temp. Range	-55	+125	-55	+125	-55	+125	°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 VDD, with an output load of 15pF.

FREQ. 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.

OF Type Crystal Oscillator

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Ordering Information

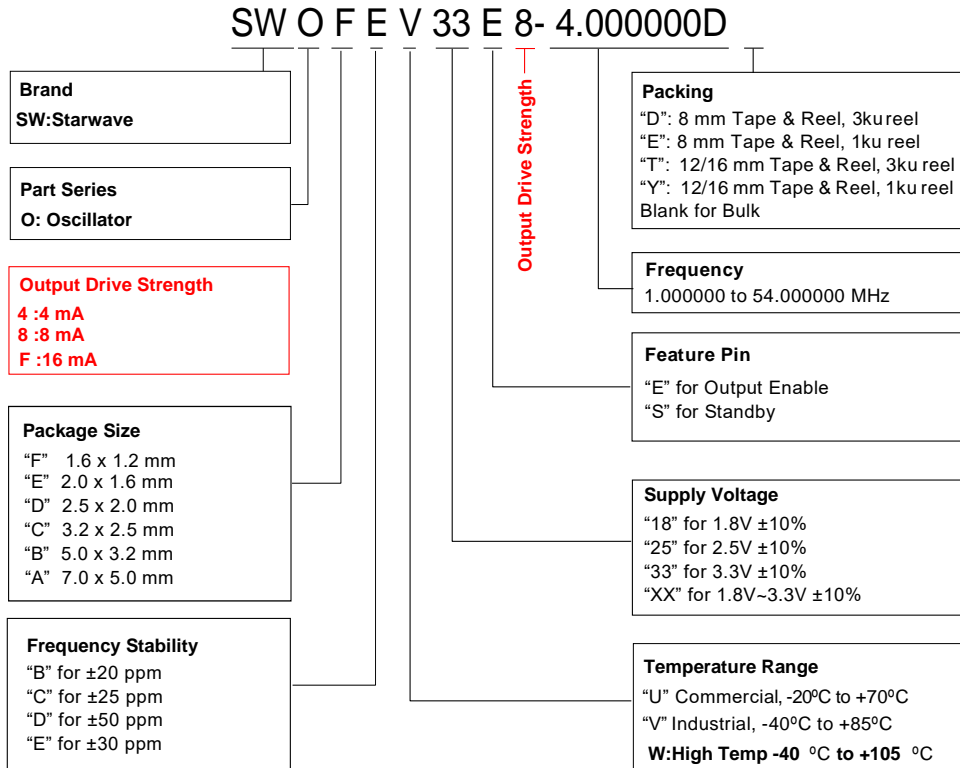


Table 13. Ordering Codes for Supported Tape & Reel Packing Method

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)
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	-	-	-	-