

OF Type Crystal Oscillator

Package Size 1.6x1.2mm

Frequency 1MHz to 54MHz

STARWAVE



FEATURE

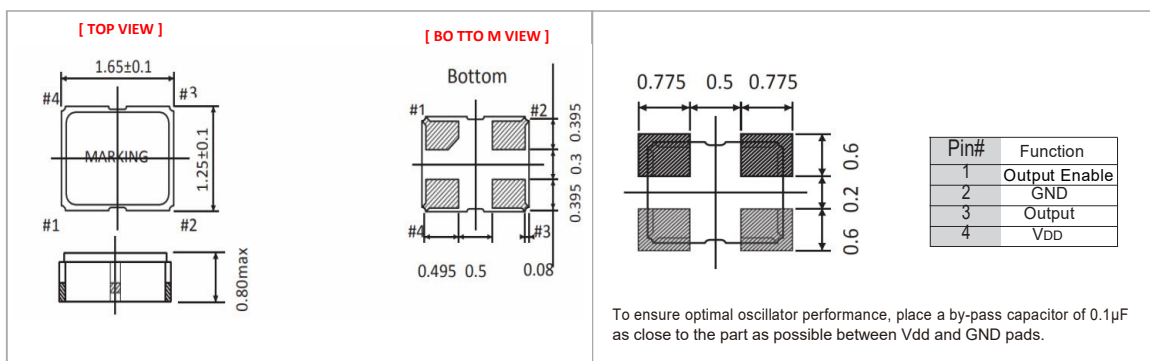
- Typical 1.65 x 1.25 x 0.8mm ceramic SMD package-
- Operation supply voltage: 1.8V, 2.5V and 3.3V
- Tri-State Enable/Disable
- Frequency Stability ± 30 ppm over -40°C to 105°C
- Pb-free/RoHS compliant

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}	V
Transition Time	Rise Time / Fall Time	-	5	-	5	-	5	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}	V
Stand by Current (@PD Mode)		-	400	-	400	-	400	uA
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	Δ	$\circ$	$\circ$	$\circ$
-40~+85	$\times$	Δ	$\circ$	$\circ$
-40~+105	$\times$	$\times$	$\times$	Δ

*O: Available Δ : Conditional X: Not available

*Inclusive of calibration @ 25 $^{\circ}\text{C}$, operating temperature range, 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

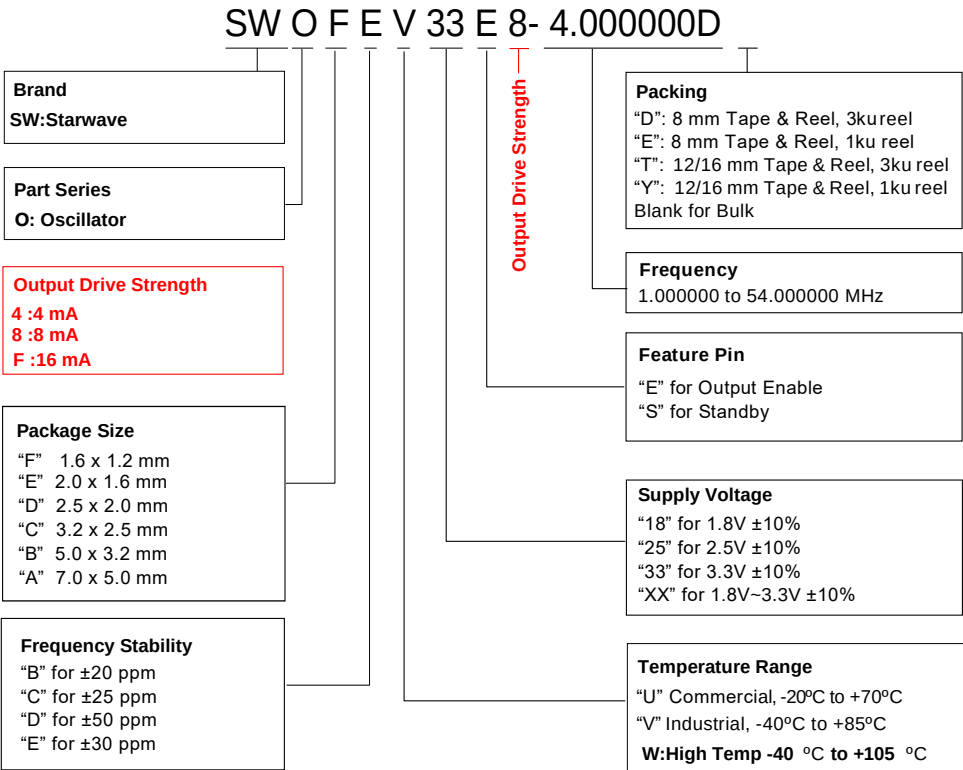


Table 13. Ordering Codes for Supported Tape & Reel Packing Method

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)
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	-	-	-	-