TSM22

RoHS Compliant

ULTRA MINIATURE SMD CMOS OSCILLATOR (2.5 x 2.0 x 1.0mm)



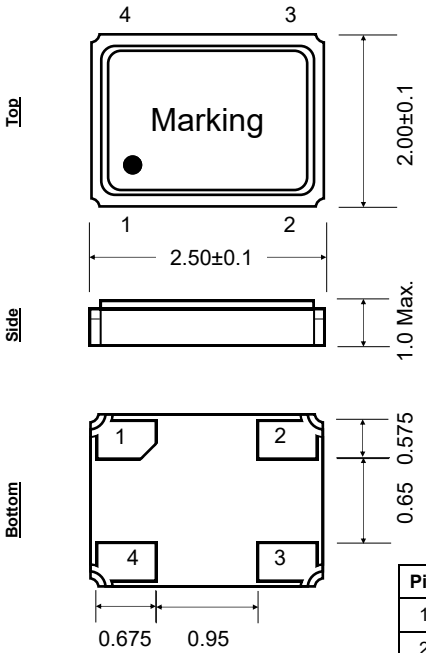
FEATURES:

- WIDE FREQUENCY RANGE
- LOW VOLTAGE / LOW CURRENT
- AEC-Q200 QUALIFIED OPTION

■ SPECIFICATION

FREQUENCY RANGE		25KHz ~ 156.250MHz
FREQUENCY STABILITY		±10ppm ~ ±100ppm
OPERATING TEMPERATURE RANGE		STD: -10°C ~ 70°C, Option: -40°C ~ 85°C (See P/N guide for other options)
STORAGE TEMPERATURE RANGE		-55°C ~ 125°C
SUPPLY VOLTAGE ±10%		$1.0V_{DC}$ ~ $5.0V_{DC}$ (See P/N guide for other options)
SUPPLY CURRENT		15mA max.
OUTPUT	**LOGIC FAMILY**	HCMOS
	LOAD	15pF
	LEVEL LOGIC '1' (V_{OH})	0.9 x V_{DD} min.
	LEVEL LOGIC '0' (V_{OL})	0.1 x V_{DD} max.
	SYMMETRY(DUTY CYCLE)	STD: 40% / 60% @ 1/2V_{DD} level, Option: 45% / 55%
	RISE AND FALL TIME (Tr/Tf)	3.0nS typ., 10nS max.
	START-UP TIME	10mS max.
STAND-BY VOLTAGE	**ENABLE (V_{IH})**	0.7 x V_{DD} ≤ V_{IH} ≤ V_{DD} or N/C
	DISABLE (V_{IL})	V_{IL} ≤ 0.3 x V_{DD}
ENABLE DELAY TIME		10mS max.
DISABLE DELAY TIME		150nS max.
AGING @ 25°C ± 3°C		±3.0ppm / 1st year max.
PHASE JITTER RMS (12kHz ~ 20MHz)		1.0pS max.

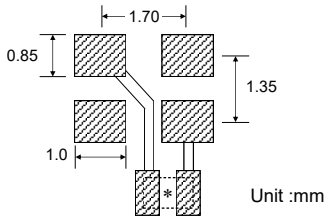
■ PACKAGE DIMENSIONS



Unit : mm

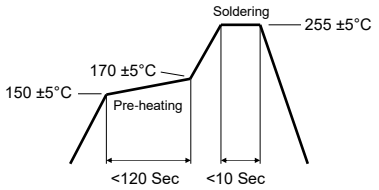
Pin Configuration	
1	En/Dis
2	GND
3	Output
4	V_{DD}

■ SOLDER PATTERN



*0.01µF to 0.1µF bypass capacitor recommended

■ REFLOW PROFILE



Note: Consult factory for detail

■ PART NUMBERING GUIDE

TSM22 – H 50 HM 33 S T – 12.000M – TR

Product series

Output
H: HCMOS

Stability
00: ± 100ppm
50: ± 50ppm
25: ± 25ppm
15: ± 15ppm
10: ± 10ppm
XX: Two digit for Stability

Operating Temperature

A: -55	**F:** -20	**M:** 70	**S:** 100
B: -50	**G:** -10	**N:** 75	**T:** 105
C: -40	**H:** 0	**P:** 80	**U:** 125
D: -35	**J:** 50	**Q:** 85	**X:**custom
E: -30	**K:** 60	**R:** 90	

Frequency
M: MHz

Tristate
T: En/Disable

Options
Q: AEC-Q200 Qualified
TR: Tape and Reel 3000/reel

Symmetry
R: 40/60%
S: 45/55%

Supply Voltage
10: 1.0 volt
15: 1.5 volt
18: 1.8 Volt
25: 2.5 Volt
33: 3.3 Volt
50: 5.0 Volt
YY: 1.62~3.63 Volt

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