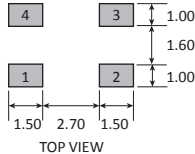


PAD	CONNECTION
1	Not connected or Enable/Disable
2	Ground
3	Output
4	Supply

SOLDER PAD LAYOUT



## Features

- ▶ Extreme temperature ranges up to 200°C
- ▶ High stability & low ageing under extremes
- ▶ Low current consumption
- ▶ High shock & vibration resistance
- ▶ Optional tinned pads (Ag/Cu/Zn)

## Enable / Disable Function

Input (pad 1)	Output (pad 3)
Open	Enabled
'1' level	Enabled
'0' level	No clock

Reaction time <5ms

## Supply current

Freq / Supply	2.5V	3.3V	5.0V
32kHz	110µA	120µA	130µA

Maximum values, 10pF load.

## Specifications

Parameters	Product	Option Codes
	MCSO2EL	
Frequency range:	32.768kHz 10.0 ~ 50.0kHz	
Supply voltage (V <sub>DD</sub> ):	+5.0V (±5%) +3.3V (±5%) +2.5V (±5%)	V W
Frequency stability (max)*:	±100ppm over -55 to +125°C ±150ppm over -55 to +150°C ±300ppm over -55 to +175°C ±400ppm over -55 to +200°C	C E D G
Storage temperature range:	-65 to +125°C	
Supply current:	See table	
Driving ability:	CMOS	
Load:	3pF min, 27pF max	
Logic levels:	'0' level = +0.4V max '1' level = V <sub>DD</sub> -0.5V min	
Start up time:	5ms max	
Waveform symmetry:	40:60 max @ 50%V <sub>DD</sub>	
Rise / fall times	25ns max @ 32.768kHz (load 15pF 20%~80%)	
Enable / disable function:	None (pad 1 NC) Active (control via pad 1)	E
Shock resistance:	10,000G, 0.3ms, ½ sine	
Vibration resistance:	40G rms 10.0 ~ 2,000Hz	
Soldering condition:	260°C, 10 sec max	
Terminations:	Gold plated pads Tinned Ag/Cu/Zn	T

■ Standard. □ Optional - Please specify required code(s) when ordering

\* Frequency stability is inclusive of calibration @ 25°C, operating temperature range, supply voltage change, load change and long term ageing (1000h @ T<sub>MAX</sub>). Option code G only available with 5.0V supply.

## Ordering Information

Product name + option codes + frequency

eg: **MCSO2EL/VDE 32.768kHz** 3.3V ±300ppm -55 to +175°C Enable/disable

**MCSO2EL/WE 32.768kHz** 2.5V ±150ppm -55 to +150°C no E/D

Option code X (eg MCSO2EL/X) denotes a custom specification.

♦ Packed in trays (128pcs/tray), or T&R 250 ~ 1,000pcs / reel

♦ A 47nF ceramic capacitor must be connected between GND and V<sub>DD</sub>