

# MCSO2 family package 5×3.2 mm From 10 kHz up to 225 MHz



#### **DIMENSIONS** Recommended Solder Pad: Package: Bottom view 5.00 16 3 1.6 2.35 2 2 pin 1 E/D 1.6 3.20 pin 2 GND 3 pin 3 Fout pin 4 Vdd All dimensions in mm typical

## SMT Clock oscillator in ceramic package Fundamental quartz mode frequency

High shock and vibration resistance
Wide temperature range
Low aging
Ultra low internal MSL
Very fast start-up
Excellent solderability

**Customer specification on request** 

ELECTRICAL
CHARACTERISTICS AT +25°C

Swiss made quality

#### **DESCRIPTION:**

This SMD oscillator in ceramic package has been specially designed for surface mount using infrared, vapor phase or epoxy techniques.

#### **APPLICATIONS:**

- Avionics
- Airbone equipments
- Remote control
- Security application
- Radio Transceiver
- Microprocessor clocks

The MCSO2's are supplied on trays (128 pcs / tray)
For pick-and-place equipment, the parts are available in 12mm tapes with 250 parts min 1000 parts min

(see orderd Including:	erature range ling info) adjustment at 25°C long term aging 10 years over supply voltage ±5% over load min to max	ΔF/F	≤±100	ppm
Frequency stability version T  Over temperature range (see ordering info) Including: adjustment at +25°C long term aging 1 year over supply voltage ±5% over load min to max		ΔF/F	≤ ± 50	ppm
Supply volta	age ± 5% 1)*	Vdd	1.8 / 2.5 / 3.3 / 5	V
Input current		ldd	see table 1	
Output signal			HC-MOS compatible	
Symmetry at Vdd/2			40 / 60	%
Rise & fall time ≤ 20MHz For F=32.768 kHz rise & fall time ≤ 150ns (load 15pf 20% to 80%)			≤7	ns
Rise & fall time ≥ 20MHz (load 15pf 10% to 90%)			≤3	ns
Level "0" & "1"			<0.4>Vdd-0.5	V
Start-up time		t	<5	ms
Load min / max			3/47	pF

<sup>\* 1)</sup> C = 47nF ceramic must be connected between GND & Vdd

TABLE 1: Idd (Without load)

Frequency	Fz 32 kHz	F=< 10MHz	≤ 20MHz	>20 to 225MHz
W = Vdd = 2.5V	< 300µA	< 2mA	< 3mA	< 25mA
V =Vdd = 3.3V	< 1mA	< 4mA	< 5mA	< 30mA
blank=Vdd = 5V	< 2mA	< 6mA	< 7mA	< 40mA

#### STANDARD FREQUENCIES:

Frequency «MHz»						
3.6864	4	8	10	12	12.8	14.7456
16	20	24	40	48		
Other frequencies from 10 kHz up to 225 MHz on request						

ENVIRONMENTAL CHARACTERISTICS:

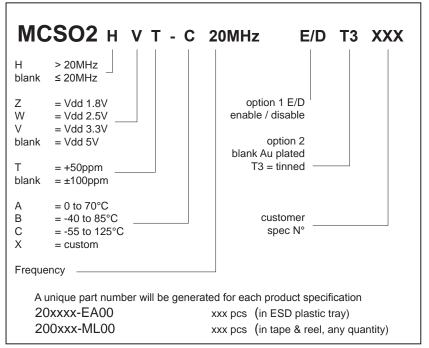
Storage temp. range	-65 to +125°C	
Vibration resistance	10 to 2000Hz / 20g	
Shocks resistance	5000g / 0.3ms / ½ sine	

TERMINATIONS AND PROCESSING:

Reflow soldering	+260°C / 10s max
Package	Ceramic 5 x 3.2 x 1.6mm
Lids	Ceramic
Terminations option T3 on request	with tinned Ag/Cu/Zn
E/D option 1 on request Reaction time < 1µs	$\begin{array}{ccc} \text{Pin 1 open} \rightarrow \text{Pin 3 Clock} \\ & \text{H} & \rightarrow & \text{Clock} \\ & \text{L} & \rightarrow & \text{Low} \end{array}$

- No power E/D function (pin 1) before Vdd is setting on
- E/D option not available for F < 500 kHz
- E/D option on request (very low consumption in disable mode).

### PRODUCT DESCRIPTION AND ORDERING INFORMATION:



All specifications subject to change without notice.







