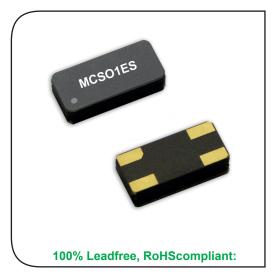
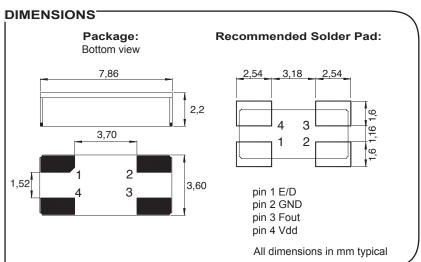


# MCSO1ES package 8×4 mm T range up to 210°C SC cut quartz crystal





SC cut quartz crystal SMT Clock oscillator in ceramic package Fundamental quartz mode frequency Ultra low stability High shock and vibration resistance Wide temperature range Low aging Ultra low internal MSL Very fast start-up Excellent solderability Swiss made quality Customer specification on request

## Frequency stability included 1000h at Tmax

ELECTRICAL CHARACTERISTICS AT +25°C

### **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
- Fire fighter equipments

The MCSO1's are supplied on trays (91 pcs / tray) For pick-and-place equipment, the parts are available in 16mm tapes with 250 parts min 1000 parts max

Frequency stability Over temperature range R = -10 to +150°C (see ordering info) Including 2)*	ΔF/F	≤± 50	ppm
<b>Frequency stability</b> Over temperature range S = -10 to +175°C (see ordering info) Including 2)*	ΔF/F	≤±100	ppm
<b>Frequency stability</b> Over temperature range T = -10 to +210°C (see ordering info) Including 2)*	ΔF/F	≤±150	ppm
Supply voltage ± 5% 1)*	Vdd	2.5 / 3.3 / 5	V
Input current	Idd	see table 1	
Output signal		HC-MOS compatible	
Symmetry at Vdd/2		40 / 60	%
Rise & fall time $\leq$ 30MHz For F=32.768 kHz rise & fall time $\leq$ 150ns (load 15pf 20% to 80%)		≤7	ns
Rise & fall time ≥ 30MHz for (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

\* 1) C = 47nF ceramic must be connected between GND & Vdd Operable over 2.3 to 5.5V

\* 2) adjustment at +25°C, long term aging 1000h at Tmax ordered over supply voltage ±5% and over load min to max

Frequency	F=32 kHz	F=< 10MHz	≤ 30MHz	>30 to 100MHz
W=Vdd = 2.5V	< 300µA	< 2mA	< 3mA	< 15mA
V=Vdd = 3.3V	< 1mA	< 4mA	< 5mA	< 20mA
blank=Vdd = 5V	< 2mA	< 6mA	< 7mA	< 30mA

#### STANDARD FREQUENCIES:

Frequency «MHz»						
0.032768	3.6864	4	8	10	12	12.8
14.7456	16	20	24	40	48	
Other frequencies from 32 kHz up to 100 MHz on request						

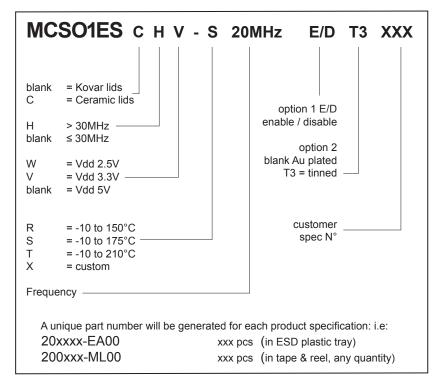
Storage temp. range	-65 to +125°C
Vibration resistance (survival)	10 to 2000Hz / 80g
Shocks resistance (survival)	10000g / 0.3ms / ½ sine

Reflow soldering	+260°C / 10s max		
Package	Ceramic 8 x 4 x 2.2mm		
Lids (standard)	Kovar		
Lids (on request)	Ceramic (Kovar on version T)		
Terminations option T3 on request (not available on T temperature range)	with tinned Ag/Cu/Sn		
E/D option 1 on request Reaction time < 1µs	$\begin{array}{ccc} \text{Pin 1 open} \rightarrow \text{Pin 3 Clock} \\ H \rightarrow & \text{Clock} \\ L \rightarrow & \text{Low} \end{array}$		

- 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).



All specifications subject to change without notice.

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CHARACTERISTICS:

**ENVIRONMENTAL** 

TERMINATIONS AND PROCESSING:

### PRODUCT DESCRIPTION AND ORDERING INFORMATION:



A COMPANY OF THE SWATCH GROUP