

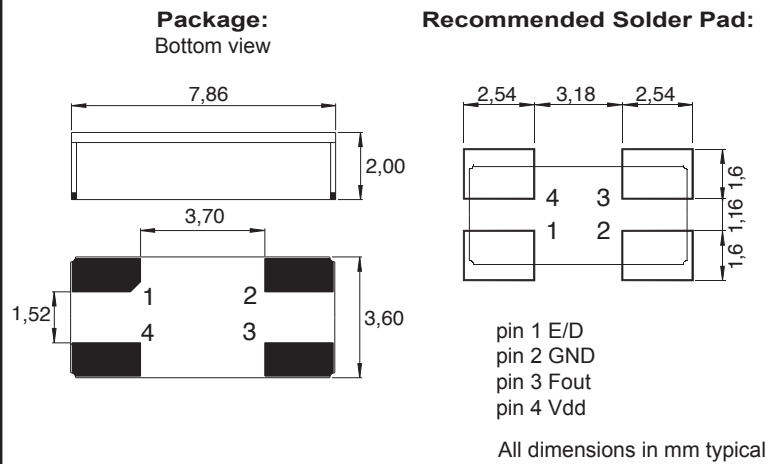
MCSO1ES

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



100% Leadfree, RoHScompliant:

DIMENSIONS



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 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:

- Downhole and Well drilling equipments
- Avionics
- Airbone equipments
- Geothermal 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)*	$\Delta F/F$	$\leq \pm 50$	ppm
Frequency stability Over temperature range S = -10 to +175°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 100$	ppm
Frequency stability Over temperature range T = -10 to +210°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 150$	ppm
Supply voltage $\pm 5\%$ 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 $\leq 30\text{MHz}$ For F=32.768 kHz rise & fall time $\leq 150\text{ns}$ (load 15pf 20% to 80%)		≤ 7	ns
Rise & fall time $\geq 30\text{MHz}$ for (load 15pf 10% to 90%)		≤ 3	ns
Level "0" & "1"		$<0.4>V_{dd}-0.5$	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 $\pm 5\%$ and over load min to max

**TABLE 1: Idd
(Without load)**

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						

**ENVIRONMENTAL
CHARACTERISTICS:**

Storage temp. range	-65 to +125°C
Vibration resistance	10 to 2000Hz / 40g
Shocks resistance	10000g / 0.3ms / ½ sine

**TERMINATIONS AND
PROCESSING:**

Reflow soldering	+260°C / 10s max
Package	Ceramic 8 x 4 x 2mm
Lids (standard)	Kovar
Lids (on request)	Ceramic Height 2.5mm type MCSO1ESC
Terminations option T3 on request (not available on G temperature range)	with tinned Ag/Cu/Zn
E/D option 1 on request Reaction time < 1µs	Pin 1 open → Pin 3 Clock H → Clock L → Low

- 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:**

MCSO1ES C H V - S 20MHz E/D T3 XXX						
C	= Ceramic lids					
blank	= Kovar lids					
H	> 30MHz				option 1 E/D enable / disable	
blank	≤ 30MHz				option 2 blank Au plated T3 = tinned	
W	= Vdd 2.5V					
V	= Vdd 3.3V					
blank	= Vdd 5V					
R	= -10 to 150°C					
S	= -10 to 175°C					
T	= -10 to 210°C					
X	= custom					
Frequency					customer spec N°	
A unique part number will be generated for each product specification: i.e:						
20xxxx-EA00			xxx pcs (in ESD plastic tray)			
200xxx-ML00			xxx pcs (in tape & reel, any quantity)			

All specifications subject to change without notice.



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