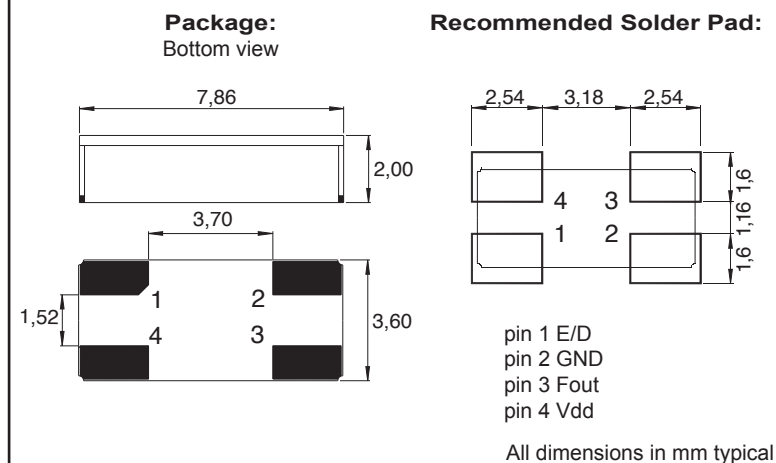




100% Leadfree, RoHScompliant:

## DIMENSIONS



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

## 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

## ELECTRICAL CHARACTERISTICS AT +25°C

<b>Frequency stability</b> Over temperature range C = -55 to +125°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 100$	ppm
<b>Frequency stability</b> Over temperature range E = -55 to +150°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 150$	ppm
<b>Frequency stability</b> Over temperature range D = -55 to +175°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 300$	ppm
<b>Frequency stability</b> Over temperature range G = -55 to +200°C (see ordering info) Including 2)* 3)*	$\Delta F/F$	$\leq \pm 400$	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 (load 15pf 20% to 80%)		25	ns
Level "0" & "1"		$<0.4 > V_{dd} - 0.5$	V
Start-up time	t	<5	ms
Load min / max		3/27	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

\* 3) Only available with Supply voltage 5V

**TABLE 1: Idd**  
(With load 10pF)

Frequency	F=32 kHz
W=Vdd = 2.5V	< 100µA
V=Vdd = 3.3V	< 110µA
blank=Vdd = 5V	< 120µA

**STANDARD FREQUENCIES:**

Frequency «kHz»
32.768
Other frequencies from up to 50 kHz 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 MCSO1ELC
Terminations option T3 on request (not available on G temperature range)	with tinned Ag/Cu/Zn
E/D option 1 on request Reaction time < 5mS	Pin 1 open → Pin 3 Clock H → Clock L → Low

- No power E/D function (pin 1) before Vdd is setting on
- Disable option (consumption ≤5µA).

**PRODUCT DESCRIPTION AND  
ORDERING INFORMATION:**

MCSO1EL	C	V	-	D	32kHz	E/D	T3	XXX
C = Ceramic lids blank = Kovar lids						option 1 E/D enable / disable		
W = Vdd 2.5V V = Vdd 3.3V blank = Vdd 5V						option 2 blank Au plated T3 = tinned		
C = -55 to 125°C E = -55 to 150°C D = -55 to 175°C G = -55 to 200°C X = custom						customer spec N°		
Frequency								
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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