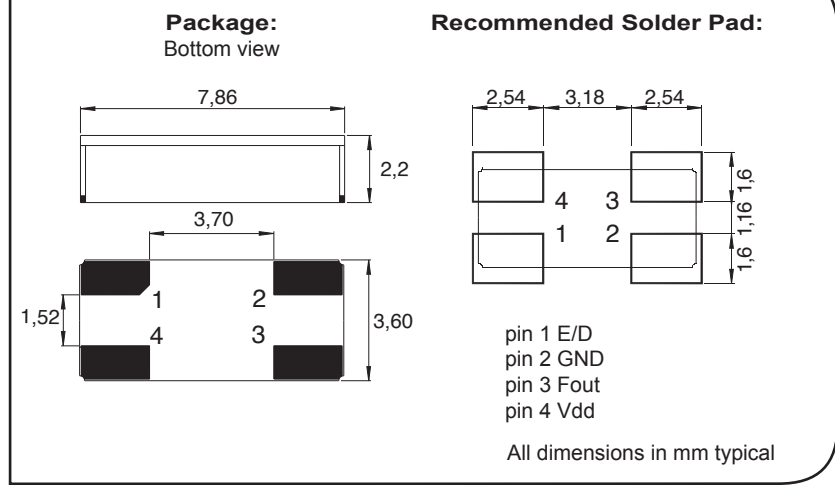




**DIMENSIONS**



- 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
- 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)*	ΔF/F	≤ ± 100	ppm
<b>Frequency stability</b> Over temperature range E = -55 to +150°C (see ordering info) Including 2)*	ΔF/F	≤ ± 150	ppm
<b>Frequency stability</b> Over temperature range D = -55 to +175°C (see ordering info) Including 2)*	ΔF/F	≤ ± 300	ppm
<b>Frequency stability</b> Over temperature range G = -55 to +210°C (see ordering info) Including 2)*	ΔF/F	≤ ± 400	ppm
Supply voltage ± 5%	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 ≤ 20MHz For F=32.768 kHz rise & fall time ≤ 150ns (load 15pf 20% to 80%)		≤7	ns
Rise & fall time ≥ 20MHz 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

**TABLE 1: I<sub>dd</sub>**  
**(Without load)**

Frequency	F=32 kHz	F=< 10MHz	≤ 20MHz	>20 to 100MHz
W=V <sub>dd</sub> = 2.5V	< 300μA	< 2mA	< 3mA	< 15mA
V=V <sub>dd</sub> = 3.3V	< 1mA	< 4mA	< 5mA	< 20mA
blank=V <sub>dd</sub> = 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 2.2mm
Lids (on request)	Kovar
Lids (standard)	Ceramic (Kovar on version G)
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 V<sub>dd</sub> 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:**

**MCS01E K H V - D 20MHz E/D T3 XXX**

blank = Ceramic lids  
K = Kovar lids

H > 20MHz  
blank ≤ 20MHz

W = V<sub>dd</sub> 2.5V  
V = V<sub>dd</sub> 3.3V  
blank = V<sub>dd</sub> 5V

C = -55 to 125°C  
E = -55 to 150°C  
D = -55 to 175°C  
G = -55 to 210°C  
X = custom

Frequency

option 1 E/D enable / disable

option 2 blank Au plated  
T3 = tinned

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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