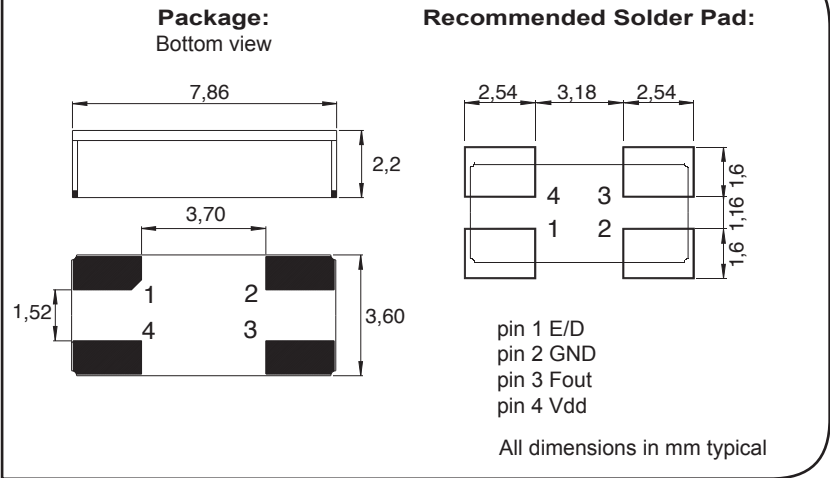




DIMENSIONS



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

Frequency stability Over temperature range C = -55 to +125°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 100$	ppm
Frequency stability Over temperature range E = -55 to +150°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 150$	ppm
Frequency stability Over temperature range D = -55 to +175°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 300$	ppm
Frequency stability 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: I_{dd}
(With load 10pF)

Frequency	F=32 kHz
W=V _{dd} = 2.5V	< 100µA
V=V _{dd} = 3.3V	< 110µA
blank=V _{dd} = 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 (survival)	10 to 2000Hz / 80g
Shocks resistance (survival)	10000g / 0.3ms / ½ sine

TERMINATIONS AND PROCESSING:

Reflow soldering	+260°C / 10s max
Package	Ceramic 8 x 4 x 2.2mm
Lids (standard)	Kovar
Lids (on request)	Ceramic (Kovar on version G)
Terminations option T3 on request (not available on G temperature range)	with tinned Ag/Cu/Sn
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 V_{dd} is setting on
- Disable option (consumption ≤5µA).

PRODUCT DESCRIPTION AND ORDERING INFORMATION:

MCS01EL C V - D 32kHz E/D T3 XXX

blank = Kovar lids
C = Ceramic lids

W = V_{dd} 2.5V
V = V_{dd} 3.3V
blank = V_{dd} 5V

C = -55 to 125°C
E = -55 to 150°C
D = -55 to 175°C
G = -55 to 200°C
X = custom

option 1 E/D enable / disable
option 2 blank Au plated
T3 = tinned

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.



Micro Crystal AG
Mühlestrasse 14
CH-2540 Grenchen
Switzerland

Tel. +41 32 655 82 82
Fax +41 32 655 82 83
sales@microcrystal.com
www.microcrystal.com