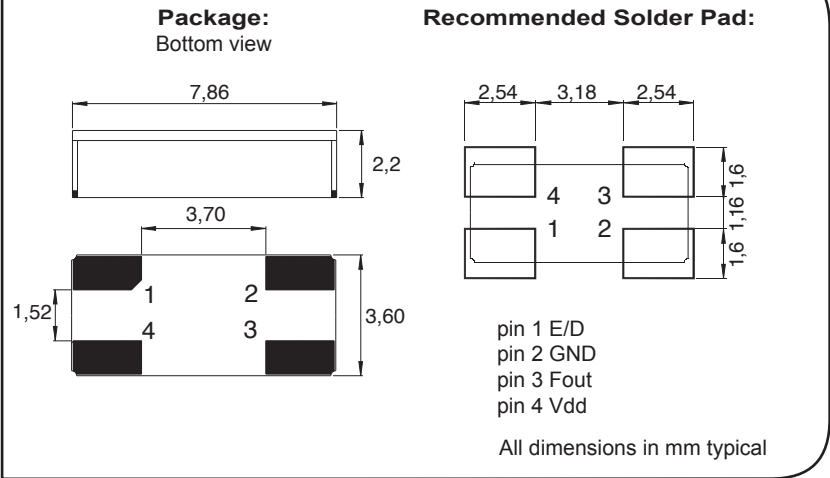




DIMENSIONS



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 | 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 < 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 K V - D 32kHz E/D T3 XXX

blank = Ceramic lids
K = Kovar 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

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.



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