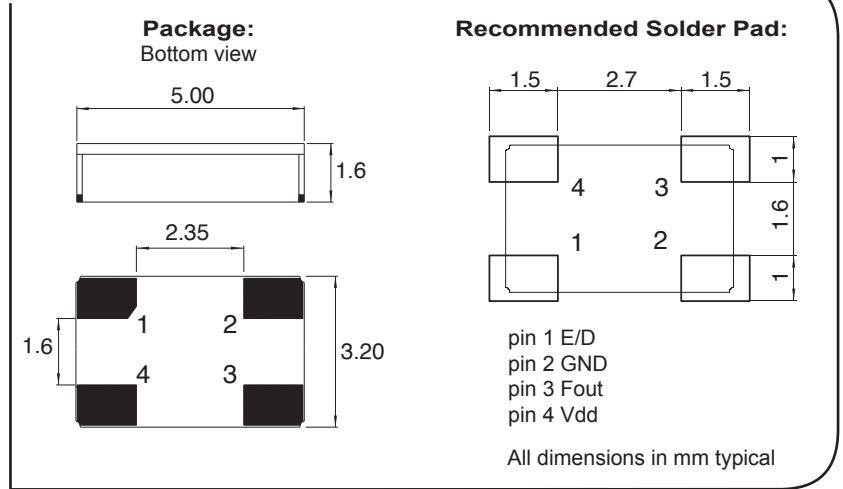


**DIMENSIONS**



- 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

**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 MCSO2's are supplied on trays (128 pcs / tray)  
For pick-and-place equipment, the parts are available in 12mm tapes with 250 parts min  
1000 parts min

**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)*	$\Delta F/F$	$\leq \pm 150$	
<b>Frequency stability</b> Over temperature range D = -55 to +175°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 300$	
<b>Frequency stability</b> Over temperature range G = -55 to +200°C (see ordering info) Including 2)* 3)*	$\Delta F/F$	$\leq \pm 400$	
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 1 year  
over supply voltage  $\pm 5\%$  and over load min to max  
\* 3) Only available with Supply voltage 5V

**TABLE 1: I<sub>dd</sub>**  
(With load 10pF)

Frequency	F=32 kHz
W=V <sub>dd</sub> = 2.5V	< 100µA
V=V <sub>dd</sub> = 3.3V	< 110µA
blank=V <sub>dd</sub> = 5V	< 120µA

**STANDARD FREQUENCIES:**

Frequency «kHz»
32.768
Other frequencies from up to 50 kHz on request

**ENVIRONMENTAL CHARACTERISTICS:**

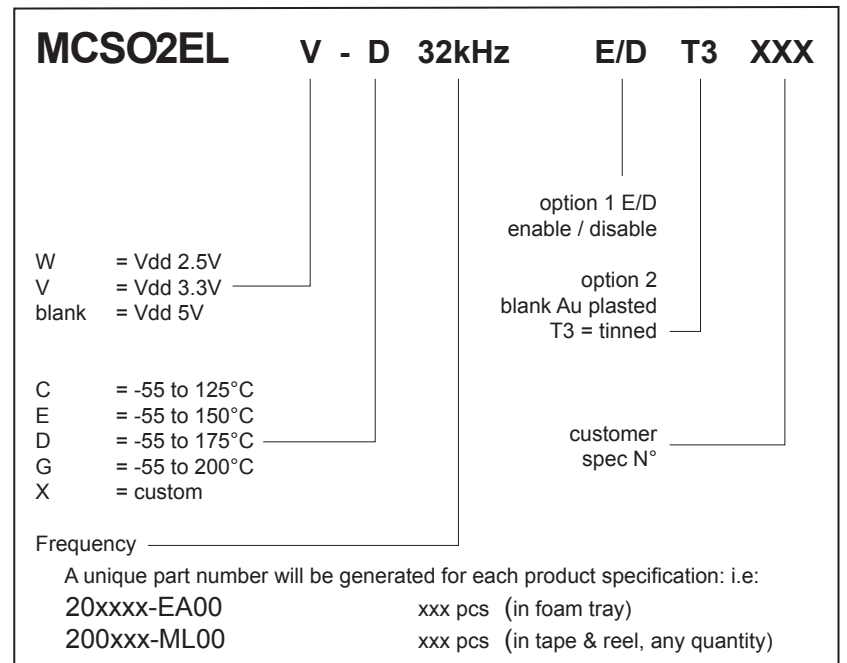
Storage temp. range	-65 to +125°C
Vibration resistance	10 to 2000Hz / 40g
Shocks resistance	10000g / 0.3ms / ½ sine

**TERMINATIONS AND PROCESSING:**

Reflow soldering	+260°C / 10s max
Package	Ceramic 5 x 3.2 x 1.6mm
Lids	Ceramic
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<sub>dd</sub> is setting on
- Disable option (consumption ≤5µA).

**PRODUCT DESCRIPTION AND ORDERING INFORMATION:**



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