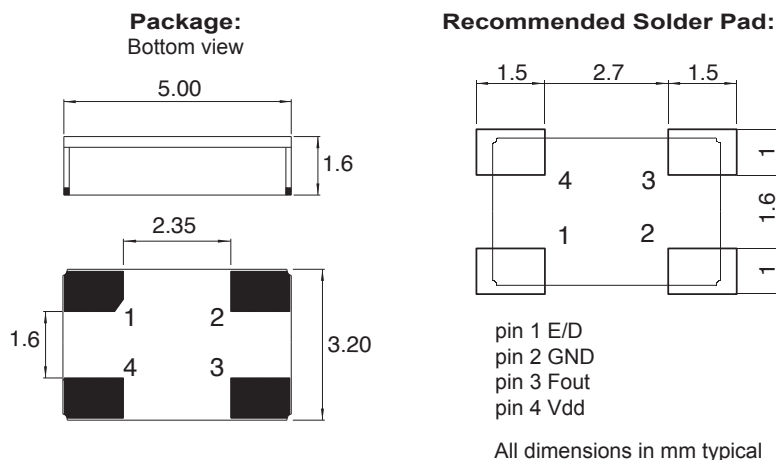


100% Leadfree, RoHScompliant:

#### 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 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"		$<0.4 > Vdd - 0.5$	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 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 Vdd is setting on
- Disable option (consumption ≤5µA).

**PRODUCT DESCRIPTION AND  
ORDERING INFORMATION:**

MCSO2EL	V - D	32kHz	E/D	T3	XXX
<p>W = Vdd 2.5V</p> <p>V = Vdd 3.3V</p> <p>blank = Vdd 5V</p> <p>C = -55 to 125°C</p> <p>E = -55 to 150°C</p> <p>D = -55 to 175°C</p> <p>G = -55 to 200°C</p> <p>X = custom</p> <p>Frequency</p>			<p>option 1 E/D enable / disable</p> <p>option 2 blank Au plated T3 = tinned</p> <p>customer spec N°</p>		
<p>A unique part number will be generated for each product specification: i.e:</p> <p>20xxxx-EA00                      xxx pcs (in ESD plastic tray)</p> <p>200xxx-ML00                     xxx pcs (in tape &amp; reel, any quantity)</p>					

All specifications subject to change without notice.



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