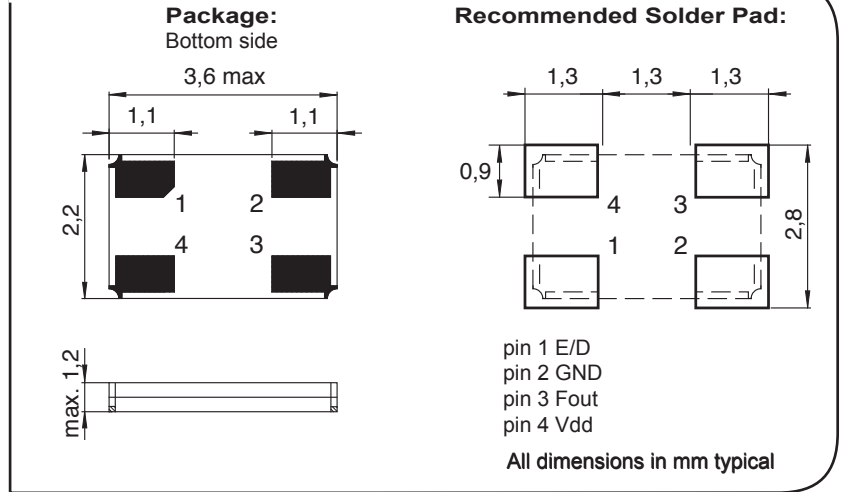




**DIMENSIONS**



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

The MCSO6's are supplied on trays (208 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)*	$\Delta F/F$	$\leq \pm 150$	ppm
<b>Frequency stability</b> Over temperature range D = -55 to +175°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 300$	ppm
<b>Frequency stability</b> Over temperature range G = -55 to +210°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 400$	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 For F=32.768 kHz rise & fall time $\leq 150$ ns (load 15pf 20% to 80%)		$\leq 7$	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  $\pm 5\%$  and over load min to max

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

Frequency	F= 32 kHz	F=< 10MHz	≤ 20MHz	> 20MHz
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»						
4	8	10	12	16	20	24
40	50	60				
Other frequencies from 10 kHz MHz to 60 MHz 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 3.2 x 2.5 x 1.2mm
Lids	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 < 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:**

**MCSO6E      V - D    20MHz                      E/D    T3    XXX**

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

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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