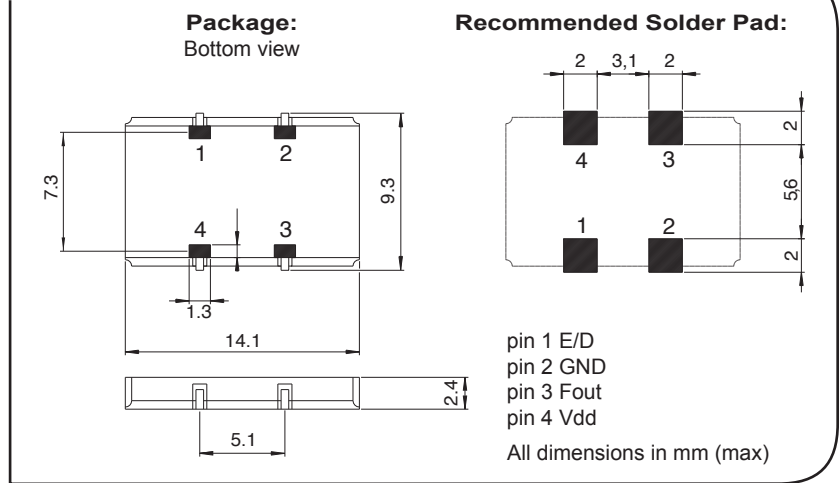




**DIMENSIONS**



**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**  
**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:**

- Avionics
- Airbone equipments
- Remote control
- Security application
- Radio Transceiver
- Microprocessor clocks

The MCSO's are supplied on trays (50 pcs / tray)  
 For pick-and-place equipment, the parts are available in 24mm tapes with 250 parts min  
 500 parts max

**ELECTRICAL CHARACTERISTICS AT +25°C**

<b>Frequency stability</b> Over temperature range (see ordering info) Including: adjustment at +25°C long term aging 10 years over supply voltage ±5% over load min to max	$\Delta F/F$	$\leq \pm 100$	ppm
<b>Frequency stability version T</b> Over temperature range (see ordering info) Including: adjustment at +25°C long term aging 1 year over supply voltage ±5% over load min to max	$\Delta F/F$	$\leq \pm 50$	ppm
Supply voltage ± 10%	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 ≤ 20MHz (load 15pf 20% to 80%)			≤7 ns
Rise & fall time ≥ 20MHz (load 15pf 10% to 90%)			≤3 ns
Level "0" & "1"			<0.4>Vdd-0.5 V
Start-up time (typ/max)	t		1/5 ms
Load min / max			3/47 pF

\* 1) C = 47nF ceramic must be connected between GND & Vdd

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

Frequency	F= < 10MHz	≤ 20MHz	>20 to 225MHz
W = V <sub>dd</sub> = 2.5V	< 2mA	< 3mA	< 25mA
V = V <sub>dd</sub> = 3.3V	< 4mA	< 5mA	< 30mA
blank = V <sub>dd</sub> = 5V	< 6mA	< 7mA	< 40mA

**STANDARD FREQUENCIES:**

Frequency «MHz»						
3.6864	4	8	10	12	12.8	14.7456
16	20	24	40	48	120	160
Other frequencies from 10 kHz up to 225 MHz on request						

**ENVIRONMENTAL  
CHARACTERISTICS:**

Storage temp. range	-65 to +125°C
Vibration resistance (survival)	10 to 2000Hz / 20g
Shocks resistance (survival)	5000g / 0.3ms / ½ sine

**TERMINATIONS AND  
PROCESSING:**

Reflow soldering	260°C / 10s max
Package	Ceramic 14 x 9 x 2.4mm
Lids	Kovar
Terminations option 2 on request	GJ/L: with Au terminations J/L J/L: with tinned Ag/Cu/Sn J/Leads pins Height 3.8mm included J/Leads
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:**

**MCSO H V T - C 20MHz E/D GJ/L XXX**

H > 20MHz  
 blank ≤ 20MHz  
 W = V<sub>dd</sub> 2.5V  
 V = V<sub>dd</sub> 3.3V  
 blank = V<sub>dd</sub> 5V  
 T = ±50 ppm  
 blank = ±100 ppm  
 A = 0 to +70°C  
 B = -40 to +85°C  
 C = -55 to +125°C  
 X = custom  
 Frequency

option 1 E/D enable / disable  
 option 2 blank Au plated J/L = J-leads GJ/L = Au J-Leads  
 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-PP00	xxx pcs (in tape & reel, any quantity)

All specifications subject to change without notice.

