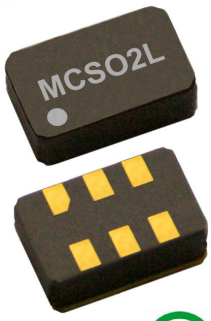
MICRO CRYSTAL SWITZERLAND

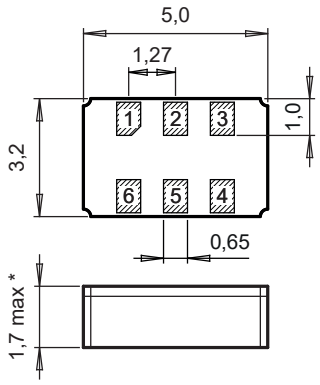
MCSO2L LVDS Output

Clock Oscillator 40 MHz – 130 MHz

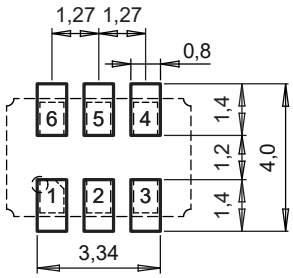


DIMENSIONS

Package:



Recommended Solder Pad:



pin 1 E/D
pin 2 NC
pin 3 GND
pin 4 F_{OUT}
pin 5 $\overline{F_{OUT}}$
pin 6 V_{DD}

* also 1,7 max for kovar lid

All dimensions in mm typical

APPLICATIONS

Security / Safety
Avionics / Aerospace
Remote Control / Telemetry
Microprocessor and FPGA Clocks
Test and Measurement Equipment
Wired and Wireless Communications

DESCRIPTION

The MCSO2L is a High Frequency SMD Oscillator with LVDS output that incorporates an integrated HCMOS circuit together with an XTAL. It operates under vacuum in a hermetically sealed ceramic package.

FEATURES

Outstanding hermetic sealing with gold-tin preform.
High stability and low aging guaranteed by hermetic sealing.
Very fast start-up.
Wide temperature range.
Operates in fundamental mode.
High shock and vibration resistant.
100% Pb-free, RoHS-compliant.

ELECTRICAL CHARACTERISTICS AT 25°C

Overall frequency stability over temperature range [1] Standard version [2] T version [3]	ΔF/F	 ≤ ±100 ≤ ±50	ppm
Supply voltage ±5% [4]	V_{DD}	2.5 / 3.3	V
Input current	I_{DD}	See I_{DD} table	
Output signal (load 100 Ω)		LVDS	
Duty cycle @ $V_{OPP}/2$ (min./max.)	δ_{OUT}	45 / 55	%
Rise & fall time (20% to 80% V_{OPP})	t_r / t_f	≤ 1	ns
F_{OUT} / $\overline{F_{OUT}}$ low level (typ./min.)	V_{OL}	1.1 / 0.9	V
F_{OUT} / $\overline{F_{OUT}}$ high level (typ./max.)	V_{OH}	1.4 / 1.6	V
Start-up time	t_{START}	< 5	ms
One-sigma jitter (1 kHz to 1 MHz)	t_{RMS}	< 0.3	ps
Phase noise typical at 100 MHz Static conditions 10 Hz BW = 1 Hz 100 Hz 1 kHz 10 kHz 100 kHz		 -70 -100 -125 -145 -150	 dBc/ Hz

1) Including adjustment at +25°C and V_{DD} variations ±5%
2) Including long term aging 10 years
3) Including long term aging 1 year
4) A 47 nF decoupling capacitor has to be connected between V_{DD} and GND

INPUT CURRENT: I_{DD} (no load)

Frequency	40 MHz	≤ 100 MHz	≤ 130 MHz
V_{DD} = 2.5 V (W)	< 5 mA	< 10 mA	< 20 mA
V_{DD} = 3.3 V (V)	< 10 mA	< 15 mA	< 25 mA

STANDARD FREQUENCIES

Frequencies			
40.0000 MHz	80.0000 MHz	100.0000 MHz	128.0000 MHz
Other frequencies from 40 MHz to 130 MHz on request			

ENABLE/DISABLE E/D, OPTION 1

Input level V_{IL} / V_{IH}		< 0.3 V_{DD} / > 0.7 V_{DD}	V
Reaction time	t	< 5	ms
Standby current	I_{DDD}	< 10	µA

Pin 1 E/D	Pins 4 / 5 F_{OUT} / $\overline{F_{OUT}}$
V_{IH} or open	Output enabled
V_{IL}	Output disabled (Hi-Z)

No E/D function before V_{DD} is set.

ENVIRONMENTAL CHARACTERISTICS

	Conditions
Storage temperature range	–65 to +125°C
Shock resistance (survival)	5000 g, 0.3 ms, ½ sine
Vibration resistance (survival)	50 g / 10 – 2000 Hz

TERMINATIONS AND PROCESSING, OPTION 2

Reflow per IPC/JEDEC J-STD-020C	260°C / 20 - 40 s
Package	Ceramic
Lid	Kovar lid (K)
	Ceramic lid (Blank)
Terminations (Option 2)	SnAgCu solder dipped pads (T3)
	Au flashed pads (Blank)

ORDERING INFORMATION

MCSO2L K V T – C 100.000 MHz E/D T3 XXX

K = Kovar lid
Blank = Ceramic lid

Supply voltage
W = V_{DD} = 2.5 V
V = V_{DD} = 3.3 V

Frequency stability
T = ±50 ppm
Blank = ±100 ppm

Temperature range
A = 0 to +70°C
B = -40 to +85°C
C = -55 to +125°C
X = Custom

Frequency

Option 1
E/D = Enable/Disable
Blank = No function

Option 2
T3 = SnAgCu solder dipped pads
Blank = Au flashed pads

Customer specification N°

A unique part number will be generated for each product specification, i.e:	
20xxxx-MG00	≥250 pcs (in 12 mm tape on 7" reel)
20xxxx-EA00	yyy pcs (in ESD plastic tray)

All specifications subject to change without notice.

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