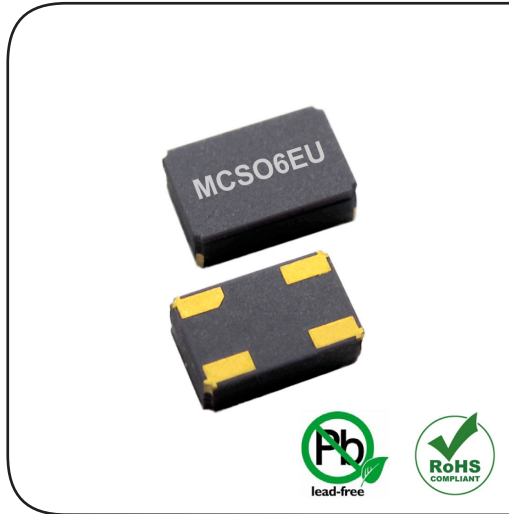
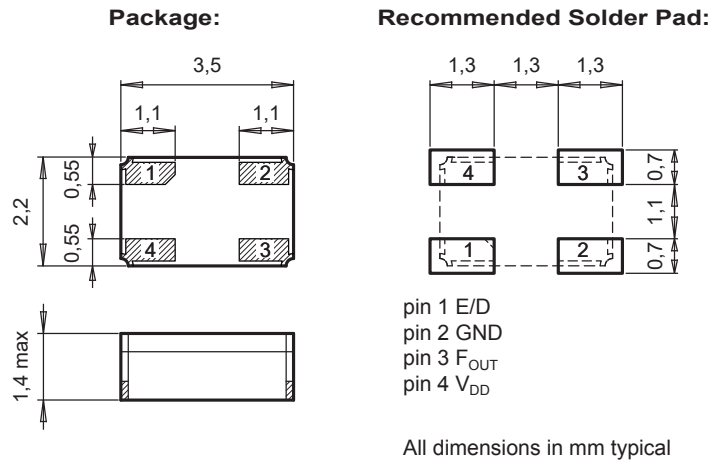


MCSO6EU Ultra Low Power High Temp Clock Oscillator 32.768 kHz



DIMENSIONS



APPLICATIONS

Security / Safety
Avionics / Aerospace
Radio Communication
Geothermal Equipment
Remote Control / Telemetry
Down Hole and Well Drilling

DESCRIPTION

The MCSO6EU is a High Temperature, 32.768 kHz SMD Oscillator 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.
Frequency stability guaranteed for 1000 h at T_{MAX}.
Very fast start-up.
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 C = -55 to +125°C E = -55 to +150°C D = -55 to +175°C	¹⁾ ΔF/F	≤ ±100 ≤ ±150 ≤ ±300	ppm
Supply voltage ±5%	²⁾ V _{DD}	2.5 / 3.3	V
Input current	I _{DD}	See I _{DD} table	
Output signal		HCMOS compatible	
F _{OUT} duty cycle @ V _{DD} /2 (min./max.)	δ _{FOUT}	40 / 60	%
Rise & fall time (C _L = 15 pF, 20% to 80% V _{DD})	t _r / t _f	≤ 25	ns
Output level V _{OL} / V _{OH}		< 0.4 / > V _{DD} - 0.5	V
Start-up time	t _{START}	< 5	ms
Capacitive load min. / max.	C _L	3 / 27	pF

1) Including adjustment at +25°C, long term aging 1000 h at T_{MAX}, V_{DD} variations ±5% and C_L variations min. to max.

2) A 47 nF decoupling capacitor has to be connected between V_{DD} and GND

INPUT CURRENT: I_{DD} ($C_L = 10$ pF)

Frequency	32.768 kHz
$V_{DD} = 2.5$ V (W)	< 20 μ A
$V_{DD} = 3.3$ V (V)	< 20 μ A

STANDARD FREQUENCY

Frequency
32.768 kHz
Other frequencies from 15 kHz to 100 kHz 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_{DD}	< 2	μ A

Pin 1 E/D	Pin 3 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)	10000 g, 0.3 ms, 1/2 sine
Vibration resistance (survival)	80 g / 10 – 2000 Hz

TERMINATIONS AND PROCESSING, OPTION 2

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

ORDERING INFORMATION

MCS06EU	V - D	32.768 kHz	E/D	T3	XXX
Supply voltage W = $V_{DD} = 2.5$ V V = $V_{DD} = 3.3$ V		Frequency	Option 1 E/D = Enable/Disable Blank = No function	Option 2 T3 = SnAgCu solder dipped pads Blank = Au flashed pads	Customer specification N°
Temperature range C = -55 to +125°C E = -55 to +150°C D = -55 to +175°C X = Custom					
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.



A COMPANY OF THE SWATCH GROUP

Micro Crystal AG
Muehlestrasse 14
CH-2540 Grenchen
Switzerland

Phone +41 32 655 82 82
sales@microcrystal.com
www.microcrystal.com