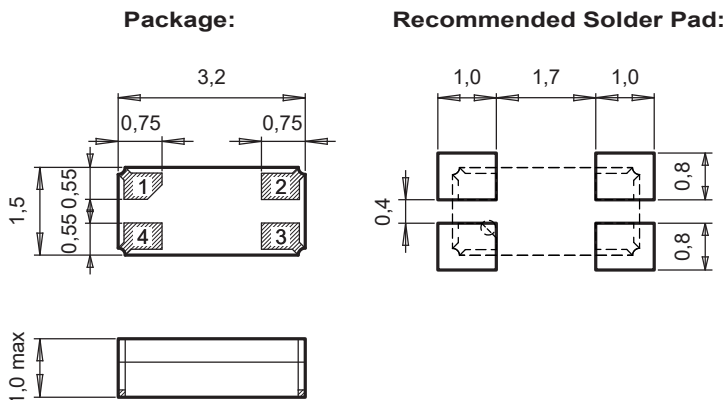


OV-7604-C7 Medical

Low Power Clock Oscillator 32.768 kHz



DIMENSIONS



All dimensions in mm typical

APPLICATIONS

Pacemakers
Defibrillators
Neurostimulators
Cardiac Monitoring Devices
Implantable Drug Delivery Pumps
Infusion Pumps
Cochlear Implants
Smart Orthopedic Implants

DESCRIPTION

The OV-7604-C7 Medical Low Frequency Oscillator is manufactured specifically for use in implantable medical devices. It incorporates a CMOS circuit and built in 32.768 kHz crystal. Micro Crystal's long history in supplying medical grade timing devices ensures that the OV-7604-C7 Medical is produced in accordance with the highest quality production technologies. Long-term reliability is of utmost importance (Class III Implantable) and a hallmark of Micro Crystal's entire medical implantable grade portfolio.

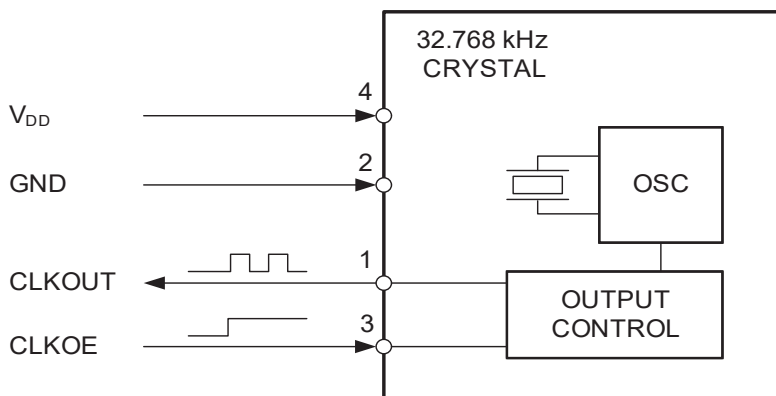
MEDICAL IMPLANTABLE KEY FEATURES

- Safe for Helium environment: Ceramic lid with gold-tin preform-seal for best long-term hermeticity and stability
- Proprietary manufacturing and testing processes
- Long-term aging stability
- Extended operating temperature range: -40°C to +125°C
- Customer specific testing/screening on request
- Components and manufacturing traceability records retained
- Small size, low profile, lightweight (12.4 mg)

FEATURES

- Very low power consumption: 300 nA @ 3 V
- Wide operating voltage range: 1.2 V to 5.5 V
- Synchronized CLKOUT enable/disable

BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS AT 25°C

More detailed information can be found in the Application Manual.

Output Frequency	F	32.768	kHz
Frequency tolerance	¹⁾ $\Delta F/F$	±20	ppm
Supply voltage	V _{DD}	1.2 – 5.5	V
Current consumption (typ./max.)	²⁾ I _{DD}	0.3 / 0.5	µA
Start up time (max.)	t _{start}	0.5	s
Aging first year max. @ 25°C	$\Delta F/F$	±2	ppm
Turnover temperature (typ.)	T ₀	25 ±5	°C
Frequency vs. temperature	$\Delta F/F_0$	-0.035 ppm/°C (T-T ₀) ² ±10%	ppm

1) Other tolerances on request.

2) V_{DD} = 3.0 V, CLKOE = LOW.

ENVIRONMENTAL CHARACTERISTICS

		Conditions	Max. Dev.
Storage temperature range		-55 to +125°C	
TA Operating temperature range		-40 to +85°C	
TB Extended oper. temp. range		-40 to +125°C	
Shock resistance	$\Delta F/F$	5000 g, 0.3 ms, ½ sine	±5 ppm
Vibration resistance	$\Delta F/F$	20 g / 10–2000 Hz	±5 ppm

TERMINATIONS AND PROCESSING

Type	Termination	Processing
OV-7604-C7 T1	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s
OV-7604-C7 T2	SnPb plated pads available only on request	
OV-7604-C7 T5	ENEPIG plated pads	

PIN CONNECTIONS TOP VIEW

		Pin	Connection
		1	CLKOUT Clock Output
		2	GND Ground
		3	CLKOE Clock Output Enable
		4	V _{DD} Power Supply Voltage

ORDERING INFORMATION

OV - 7604 - C7 T1 ±20 ppm TA QM	
Oscillator module	Qualification QM = Medical Grade
Frequency 7604 = 32.768 kHz	Temperature range TA = -40 to +85°C TB = -40 to +125°C
Package size C7 = 3.2 x 1.5 x 1.0 mm	Frequency tolerance ±20 ppm Other freq. tolerances on request
Pads T1 = Au flashed pads T2 = SnPb plated pads on request T5 = ENEPIG plated pads	
A unique part number will be generated for each product specification, i.e.:	
20xxxx-MG00	yyy pcs (in 12 mm tape on 7" reel)
20xxxx-MG01	1'000 pcs (in 12 mm tape on 7" reel)
20xxxx-MG03	3'000 pcs (in 12 mm tape on 7" reel)

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