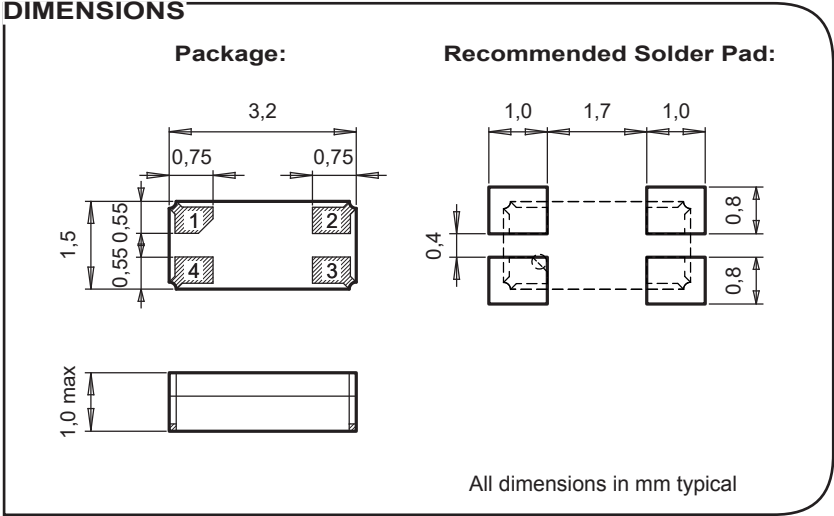


OV-7604-C7 Medical

Low Power Clock Oscillator 32.768 kHz

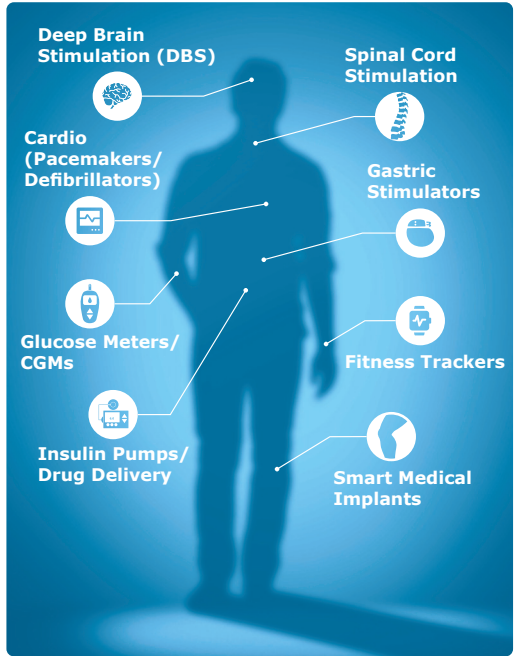


APPLICATIONS

- 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.



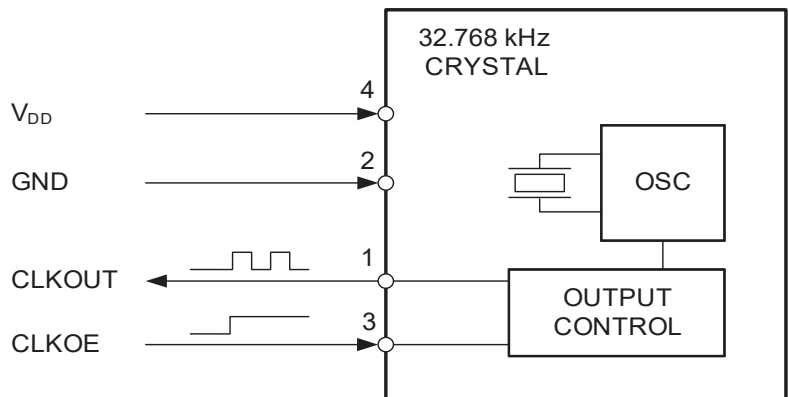
MEDICAL IMPLANTABLE KEY FEATURES

- 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⁾ ΔF/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	ΔF/F	±2	ppm
Turnover temperature (typ.)	T ₀	25 ±5	°C
Frequency vs. temperature	ΔF/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	ΔF/F	5000 g, 0.3 ms, ½ sine	±5 ppm
Vibration resistance	ΔF/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.



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