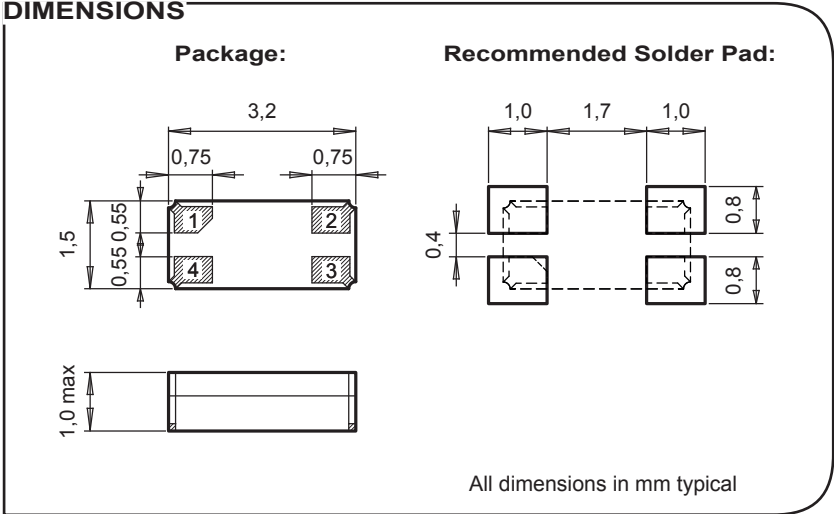


# OV-7604-C7

## Low Power Clock Oscillator 32.768 kHz



### APPLICATIONS

- Metering
- Industrial
- Automotive
- Health Care
- Medical Implantable

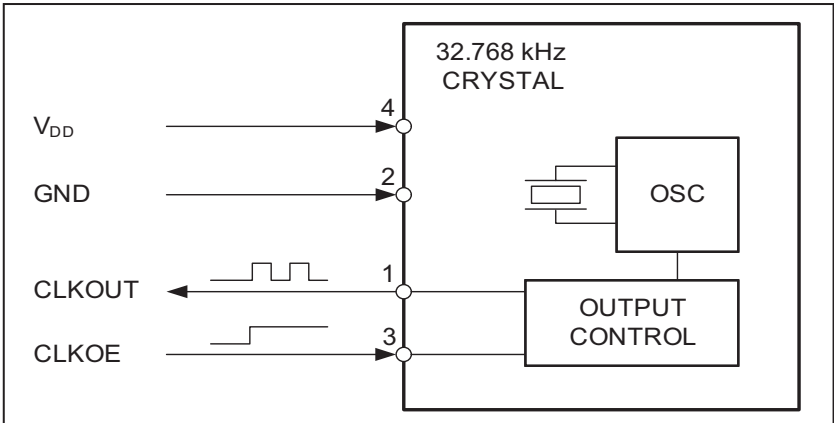
### DESCRIPTION

The OV-7604-C7 is a Low Frequency SMT Oscillator that incorporates an integrated CMOS circuit together with an XTAL. It operates under vacuum in a hermetically sealed ceramic package with ceramic lid.

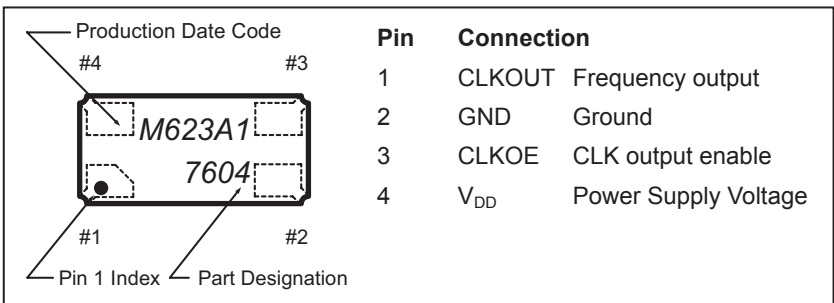
### FEATURES

- Wide supply voltage range.
- Very low power consumption.
- Synchronized CLKOUT enable/disable.
- Small size, low profile, lightweight (12.4 mg).
- High shock and vibration resistant.
- 100% Pb-free, RoHS-compliant.
- Automotive qualification according to AEC-Q200 available.

### BLOCK DIAGRAM



### PIN CONNECTIONS TOP VIEW



## ELECTRICAL CHARACTERISTICS AT 25°C

More detailed information can be found in the Application Manual.

Output Frequency	F	32.768	kHz
Frequency tolerance	<sup>1)</sup> $\Delta F/F$	±20	ppm
Supply voltage	V <sub>DD</sub>	1.2 – 5.5	V
Current consumption (typ./max.)	<sup>2)</sup> I <sub>DD</sub>	0.3 / 0.5	µA
Duty cycle (min./max.)		40 / 60	%
Start up time (max.)	t <sub>start</sub>	0.5	s
Voltage coefficient (max.)		±1.5	ppm/V
Aging first year max. @ 25°C	$\Delta F/F$	±3	ppm
Turnover temperature (typ.)	T <sub>0</sub>	25 ±5	°C
Frequency vs. temperature	$\Delta F/F_0$	$-0.035 \text{ ppm}/^{\circ}\text{C}^2 (T - T_0)^2 \pm 10\%$	ppm

1) Tighter tolerances on request.

2) V<sub>DD</sub> = 3.0 V, CLKOE = LOW.

## ENVIRONMENTAL CHARACTERISTICS

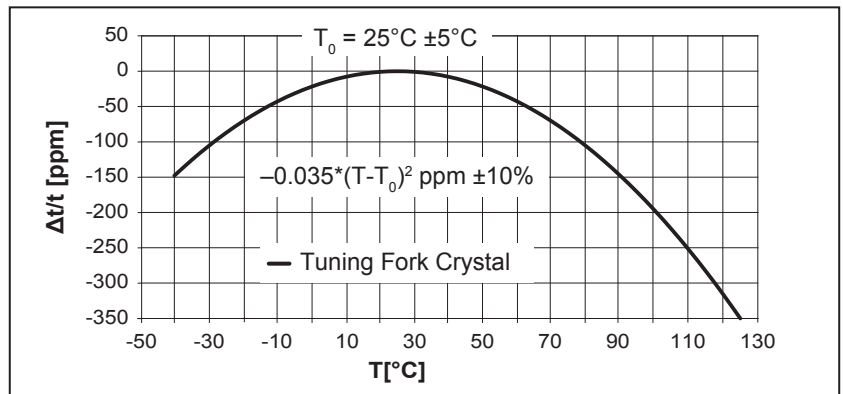
	Conditions	Max. Dev.
Storage temp. range	-55 to +125°C	
TA Operating temperature range	-40 to +85°C	
TB Extended oper. temp. range	-40 to +125°C	
Shock resistance	$\Delta F/F$ 5000 g, 0.3 ms, ½ sine	±5 ppm
Vibration resistance	$\Delta F/F$ 20 g / 10–2000 Hz	±5 ppm

## TERMINATIONS AND PROCESSING

Type	Termination	Processing
OV-7604-C7	Au flashed pads <sup>3)</sup>	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s

3) Other pad finishing available on request.

## FREQUENCY TEMPERATURE CHARACTERISTICS



## ORDERING INFORMATION

**OV - 7604 - C7 ±20 ppm TA QC**

**Oscillator**  
**Ceramic lid**  
**Frequency**  
 7604 = 32.768 kHz  
**Package size**  
 C7 = 3.2 x 1.5 x 1.0 mm

**Qualification**  
**QC** = Commercial Grade (Standard)  
**QA** = Automotive Grade AEC-Q200  
**QM** = Medical Grade

**Temperature range**  
**TA** = -40 to +85°C (Standard)  
**TB** = -40 to +125°C

**Frequency tolerance**

A unique part number will be generated for each product specification, i.e:	
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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