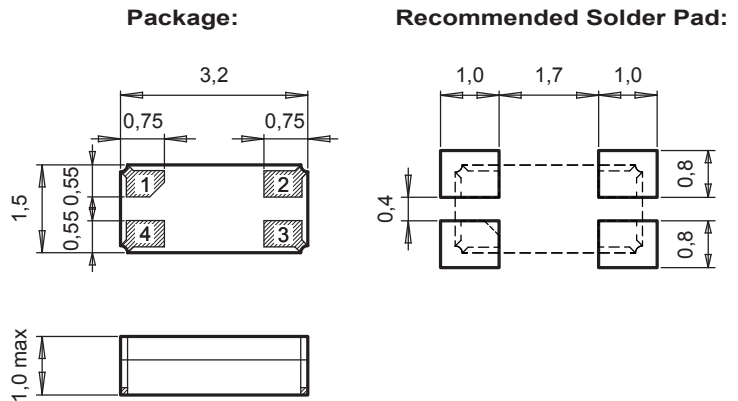


# OV-7604-C7

Low Power Clock Oscillator 32.768 kHz



## DIMENSIONS



All dimensions in mm typical

## APPLICATIONS

IoT  
 Metering  
 Industrial  
 Automotive  
 Health Care  
 Wearables, Portables

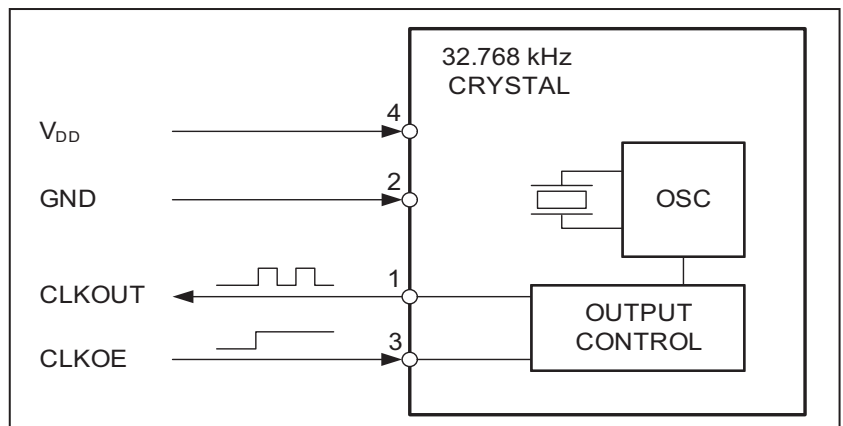
## DESCRIPTION

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

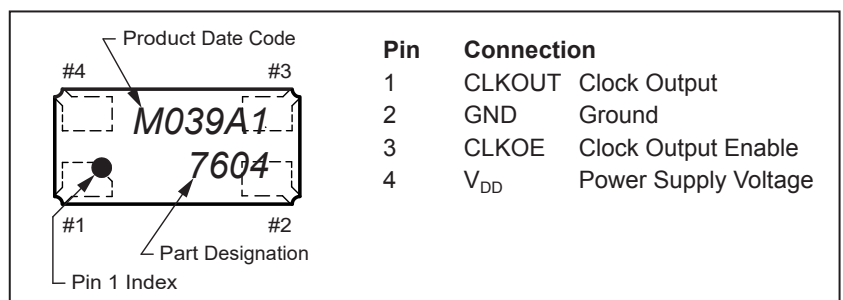
## FEATURES

- 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> ΔF/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    | ΔF/F                          | ±3   | ppm   |
| Turnover temperature (typ.)     | T <sub>0</sub>                | 25 ±5  | °C    |
| Frequency vs. temperature       | ΔF/F <sub>0</sub>             | -0.035 ppm/°C <sup>2</sup> (T - T <sub>0</sub> ) <sup>2</sup> ±10% | ppm   |

1) Tighter tolerances on request.

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

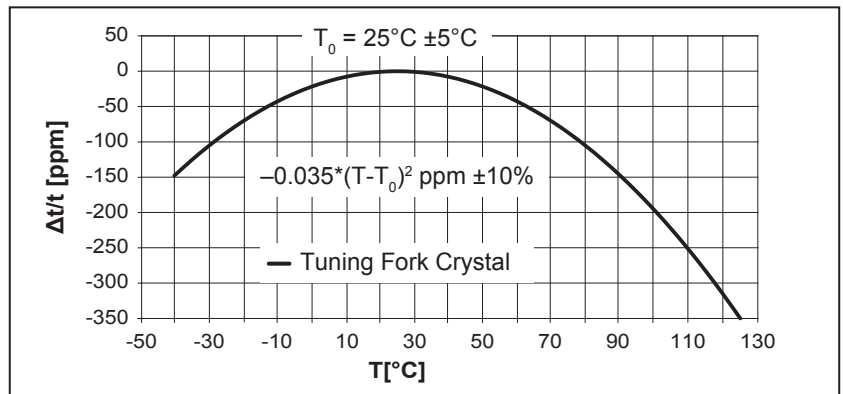
## ENVIRONMENTAL CHARACTERISTICS

|                                | 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 | Au flashed pads | IPC/JEDEC J-STD-020C<br>260°C / 20 - 40 s |

## FREQUENCY TEMPERATURE CHARACTERISTICS



## ORDERING INFORMATION

**O V - 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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