

A 1V/1μA Easy-to-Use Resistor-Tuned Silicon Oscillator/Timer

FEATURES

- ◆ Ultra Low Supply Current: 1μA at 25kHz
- ◆ Supply Voltage Operation: 0.9V to 1.8V
- ◆ Programmable Frequency Range:
5.2kHz ≤ FOUT ≤ 90kHz
- ◆ FOUT Period Drift: 0.021%/°C
- ◆ FOUT Period Drift: TBD%/°C
- ◆ PWMOUT Duty Cycle Range: 12% to 90%
- ◆ Single Resistor Sets Output Frequency
- ◆ Output Driver Resistance: 160Ω

APPLICATIONS

Portable and Battery-Powered Equipment
 Low-Parts-Count Nanopower Oscillator
 Compact Nanopower Replacement for Crystal and Ceramic Oscillators
 Nanopower Pulse-width Modulation Control
 Nanopower Pulse-position Modulation Control
 Nanopower Clock Generation
 Nanopower Sequential Timing

DESCRIPTION

The TS3001 is a single-supply CMOS oscillator fully specified to operate at 1V while consuming a 1μA supply current at an output frequency of 25kHz. This oscillator is compact, easy-to-use, and versatile. Optimized for ultra-long life, battery-powered applications, the TS3001 is Touchstone's newest oscillator in the "NanoWatt Analog™" high-performance analog integrated circuits portfolio. The TS3001 can operate from single-supply voltages from 0.9V to 1.8V.

Requiring only a resistor to set the output frequency, the TS3001 represents a 66% reduction in pcb area and a factor-of-10 reduction in power consumption over other CMOS-based integrated circuit oscillators. When compared against industry-standard 555-timer-based products, the TS3001 offers up to 93% reduction in pcb area and four orders of magnitude lower power consumption

The TS3001 is fully specified over the -40°C to +85°C temperature range and is available in a low-profile, 8-pin 2x2mm TDFN package with an exposed back-side paddle.

TYPICAL APPLICATION CIRCUIT

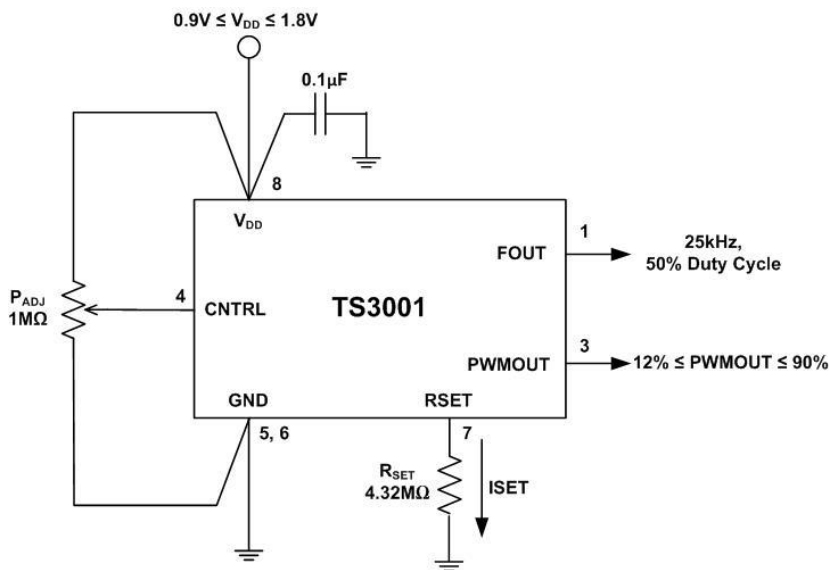


Table 1: FOUT vs R_{SET}

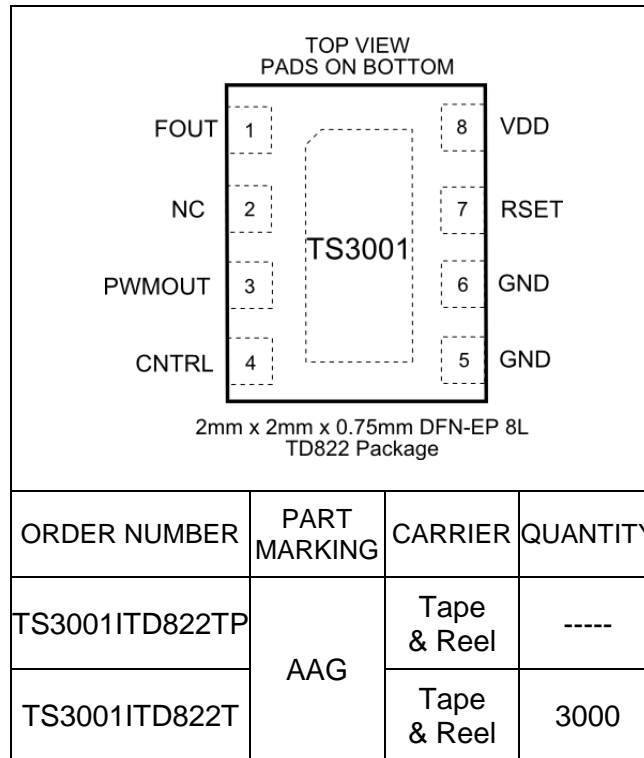
R _{SET} (MΩ)	FOUT (kHz)
1	110
2.49	44
4.32	25.5
6.81	16
9.76	11

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TS3001 Product Brief



PACKAGE/ORDERING INFORMATION



Lead-free Program: Touchstone Semiconductor supplies only lead-free packaging.

Consult Touchstone Semiconductor for products specified with wider operating temperature ranges.

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