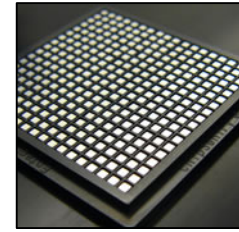


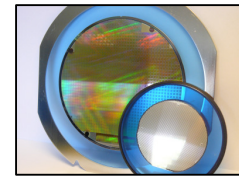
## Introducing OPA333 as Bare Die Product from Texas Instruments

### 1.8V, 17µA, 2µV, microPOWER CMOS Zero-Drift Operational Amplifier

The OPA333 CMOS operational amplifier uses a proprietary auto-calibration technique to simultaneously provide very low offset voltage (10µV max) and near-zero drift over time and temperature. These miniature, high-precision, low quiescent current amplifiers offer high-impedance inputs that have a common-mode range 100mV beyond the rails and rail-to-rail output that swings within 50mV of the rails. Single or dual supplies as low as +1.8V (±0.9V) and up to +5.5V (±2.75V) may be used. They are optimized for low-voltage, single-supply operation.



The OPA333 family offers excellent CMRR without the crossover associated with traditional complementary input stages. This design results in superior performance for driving analog-to-digital converters (ADCs) without degradation of differential linearity.

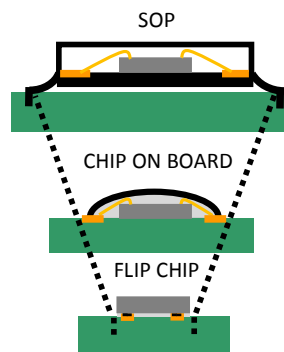


Designing applications with the OPA333 in bare die form allows the designer to place the device closer to the signal source to reduce noise pickup and increase signal integrity. Bare Die also offers >50% X-Y-Z size reduction when compared with smallest available package. ∴ Bare die form factor greatly assists size sensitive applications.



#### Quick Reference Data

Number of Channels	1
Total Supply Voltage (V)(Min)(+5V=5, +/-5V=10)	1.8 Volt
Total Supply Voltage (V)(Max)(+5V=5, +/-5V=10)	5.5 Volt
Iq per channel(Max)(mA)	0.025
GBW(Typ)(MHz)	0.35
Slew Rate(Typ)(V/us)	0.16
VIO (25 deg C)(Max)(mV)	0.01
Offset Drift(Typ)(uV/C)	0.02
IIB(Max)(pA)	200
CMRR(Min)(dB)	106
Vn at 1kHz(Typ)(nV/rtHz)	55
Rail-Rail	In, Out



Please [contact us](#) if you would like a copy of the OPA333 die geometry.

#### Features

- LOW OFFSET VOLTAGE: 10µV (max)
- ZERO DRIFT: 0.05µV/°C (max)
- 0.01Hz to 10Hz NOISE: 1.1µV<sub>PP</sub>
- QUIESCENT CURRENT: 17µA
- SINGLE-SUPPLY OPERATION
- SUPPLY VOLTAGE: 1.8V to 5.5V
- RAIL-TO-RAIL INPUT/OUTPUT
- SMALLEST FORM FACTOR - 0.99 x 0.8 x 0.65\*  
(\* Standard die thickness – custom thicknesses also available)

#### Applications

- TEMPERATURE MEASUREMENTS
- MEDICAL DEVICES
- BATTERY POWERED INSTRUMENTATION
- HYBRID CIRCUITS
- MULTI-CHIP-MODULES

A full electrical datasheet is available from <http://focus.ti.com/lit/ds/symlink/opa333.pdf>

For further die technical information and choice of available supply formats please [contact us](#)

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