

New op-amps and comparators

Focus on performance



STMicroelectronics has introduced a new range of low voltage operational amplifiers delivering high performance in terms of precision and power consumption.

The single, rail-to-rail TS507 features an input offset voltage of 25 μV typ, 100 μV max.

The new TSV911/2/4 and TSV991/2/4 families combine low input offset voltage at 1.5 mV max, with an ultra low input bias current of 1 pA, making them ideal for high impedance sensor signal conditioning. Offering up to 20 MHz bandwidth, these multi-segment products provide an excellent speed/consumption ratio (780 μA typ).

The TS3021/2 rail-to-rail comparators include push-pull outputs and have a response time of 33 ns.

These new series of devices are available in a range of packages and are suited to a wide variety of applications.

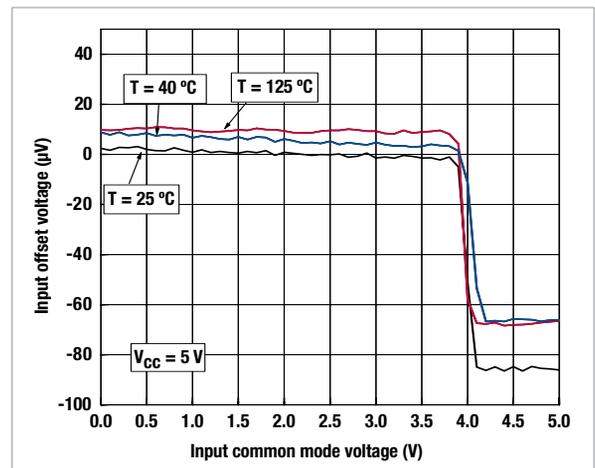
TS507 high-precision, single, rail-to-rail op-amp

Key features

- Very high precision: 100 μV max
- Low V_{IO} drift: 1 $\mu\text{V}/^\circ\text{C}$
- High open loop gain: 131 dB
- Rail-to-rail input/output
- Low noise: 12 nV/VHz at 1 kHz
- Supply voltage from 2.7 up to 5.5 V
- ESD tolerance ≥ 5 kV (HBM)
- Packages: SOT23-5L, SO8

Applications

- Sensor signal conditioning
- Medical instrumentation
- Battery-powered systems
- Automotive



Input offset voltage vs. input common mode voltage

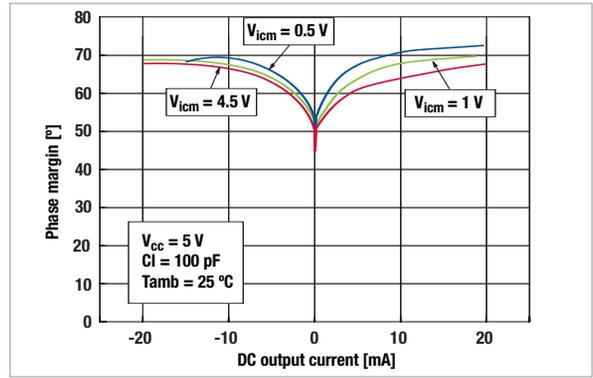
TSV911/2/3 CMOS input, rail-to-rail op-amps

Key features

- Low input bias current, 1 pA
- Low input offset voltage, 1.5 mV for 'A' version
- Rail-to-rail input/output, V_{CC} from 2.5 up to 5.5 V
- Excellent speed/power ratio, 780 μ A, 8 MHz
- High ESD tolerance ≥ 5 kV (HBM)
- Packages: SOT23-5L, MiniSO8, SO8, SO14, TSSOP14

Applications

- Signal conditioning, instrumentation
- Battery-powered systems
- Automotive



Phase margin vs. I_{out} for the TSV91x

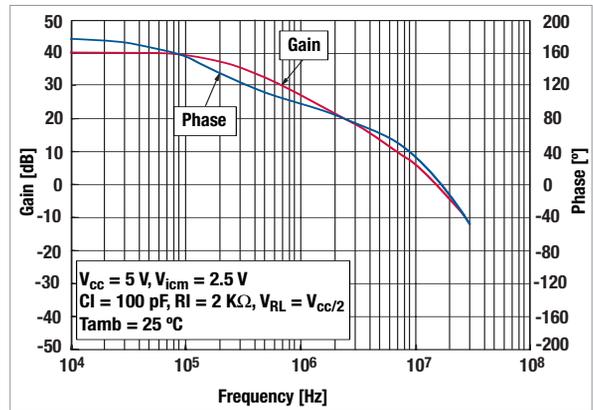
TSV991/2/4 CMOS input op-amps offer 20 MHz bandwidth

Key features

- Excellent speed/power ratio, 780 μ A, 20 MHz ($G \geq 3$)
- Low Input bias current, 1 pA
- Rail-to-rail input/output, V_{CC} from 2.5 up to 5.5 V
- High ESD tolerance ≥ 5 kV (HBM)
- Packages: SOT23-5L, MiniSO8, SO8, SO14, TSSOP14

Applications

- Signal conditioning
- Battery-powered systems
- Instrumentation
- Automotive



Voltage gain and phase vs. frequency at $V_{CC} = 5$ V and $V_{icm} = 2.5$ V for the TSV99x

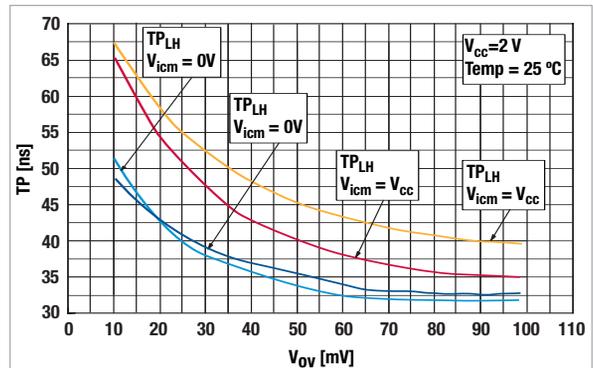
TS3021/2 rail-to-rail comparators with 33 ns response time

Key features

- Excellent speed/power ratio, 33 ns, 64 μ A
- Rail-to-rail inputs/push-pull outputs
- Wide supply voltage: 1.8 to 5 V
- 40 up to 125 $^{\circ}$ C temperature range
- Packages: SOT23-5L, SC70-5

Applications

- Signal conditioning
- Instrumentation
- Telecom



Response time vs. various overdrives for $V_{CC} = +2$ V



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