

TPS793 Low-Noise, High PSRR, RF, 200-mA Low-Dropout Linear Regulators in NanoStar™ Wafer Chip Scale and SOT-23

1 Features

- 200-mA RF Low-Dropout Regulator With Enable
- Available in Fixed-Voltage Versions from 1.8 V to 4.75 V and Adjustable (1.22 V to 5.5 V)
- High PSRR (70 dB at 10 kHz)
- Low Noise (32 μV_{RMS} , TPS79328)
- Fast Start-Up Time (50 μs)
- Stable With a 2.2- μF Ceramic Capacitor
- Excellent Load and Line Transient Response
- Very Low Dropout Voltage (112 mV at 200 mA, TPS79330)
- 5- and 6-Pin SOT23 (DBV) and NanoStar Wafer Chip Scale (YZQ) Packages

2 Applications

- RF: VCOs, Receivers, ADCs
- Audio
- Cellular and Cordless Telephones
- *Bluetooth*®, Wireless LAN
- Handheld Organizers, PDAs

3 Description

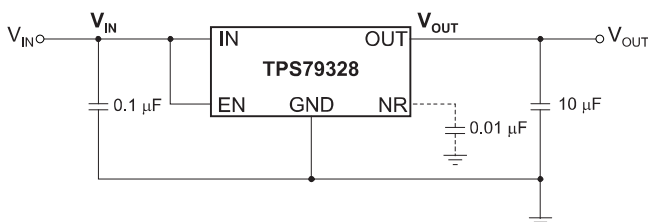
The TPS793 family of low-dropout (LDO) low-power linear voltage regulators features high power-supply rejection ratio (PSRR), ultralow-noise, fast start-up, and excellent line and load transient responses in NanoStar™ wafer chip scale and SOT23 packages. NanoStar packaging gives an ultrasmall footprint as well as an ultralow profile and package weight, making these devices ideal for portable applications such as handsets and PDAs. Each device in the family is stable, with a small, 2.2- μF ceramic capacitor on the output. The TPS793 family uses an advanced, proprietary BiCMOS fabrication process to yield extremely low dropout voltages (for example, 112 mV at 200 mA, TPS79330). Each device achieves fast start-up times (approximately 50 μs with a 0.001- μF bypass capacitor) while consuming very low quiescent current (170 μA typical). Moreover, when the device is placed in standby mode, the supply current is reduced to less than 1 μA . The TPS79328 exhibits approximately 32 μV_{RMS} of output voltage noise at 2.8-V output with a 0.1- μF bypass capacitor. Applications with analog components that are noise-sensitive, such as portable RF electronics, benefit from the high PSRR and low-noise features as well as the fast response time.

Device Information⁽¹⁾

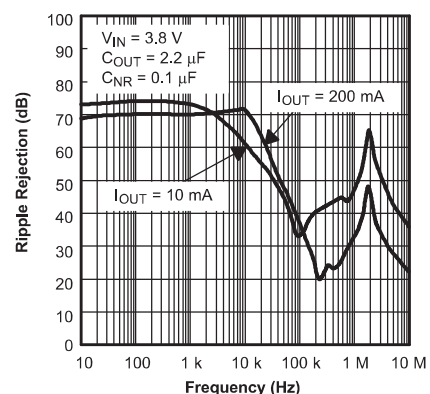
| PART NUMBER | PACKAGE | BODY SIZE (NOM) |
|-------------|------------|-------------------|
| TPS793 | SOT-23 (6) | 2.90 mm × 1.60 mm |
| | SOT-23 (5) | 2.90 mm × 1.60 mm |
| | DSBGA (5) | 1.35 mm × 1.00 mm |

(1) For all available packages, see the orderable addendum at the end of the data sheet.

Typical Application Circuit



Ripple Rejection vs Frequency



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