EVALUATION KIT AVAILABLE

*Click **here** to ask an associate for production status of specific part numbers.*

MAX38904A/B/C/D

1.7V to 5.5V_{IN}, 2A Low-Noise LDO Linear Regulators in TDFN and WLP

General Description

The MAX38904 is a 1.7V–5.5V V_{IN}, low-noise linear regulator that delivers up to 2A of output current with only 5.1µV_{RMS} of output noise from 10Hz to 100kHz. The regulator maintains ±1% output accuracy over a wide input voltage range, requiring only 100mV of input-to-output headroom at full load. The 1.3mA no-load supply current is independent of dropout voltage. The MAX38904A/B/C/D have a 70Ω active discharge feature to quickly discharge output capacitors.

The output voltage on MAX38904B can be adjusted to a value in the range of 0.6V to 5.0V by using two external resistors. The MAX38904B also includes an active-high POK signal for trouble-free load startup.

The MAX38904A has nine pin-selectable output voltages 1.2V, 1.5V, 1.8V, 2.5V, 3.0V, 3.1V, 3.3V, 4.0V, and 5V.

The wafer-level package (WLP) versions of the MAX38904 are available as C and D variants. The MAX38904C uses external feedback resistors for adjusting the output voltage, while the MAX38904D has factory preset output voltages over the range of 0.7V to 5.0V in 50mV steps.

All versions include a programmable output soft-start rate, output overcurrent, and thermal overload protection.

The MAX38904A/B are offered in a 3mm x 3mm, 14-pin TDFN package, while the MAX38904C/D are available in 5 x 3 bump, 2.2mm x 1.37mm WLP, 0.4mm pitch.

Applications

- Communication Systems, Test Equipment, Medical Equipment
- High-End Audio Systems
- High-Resolution Data Acquisition Systems

Benefits and Features

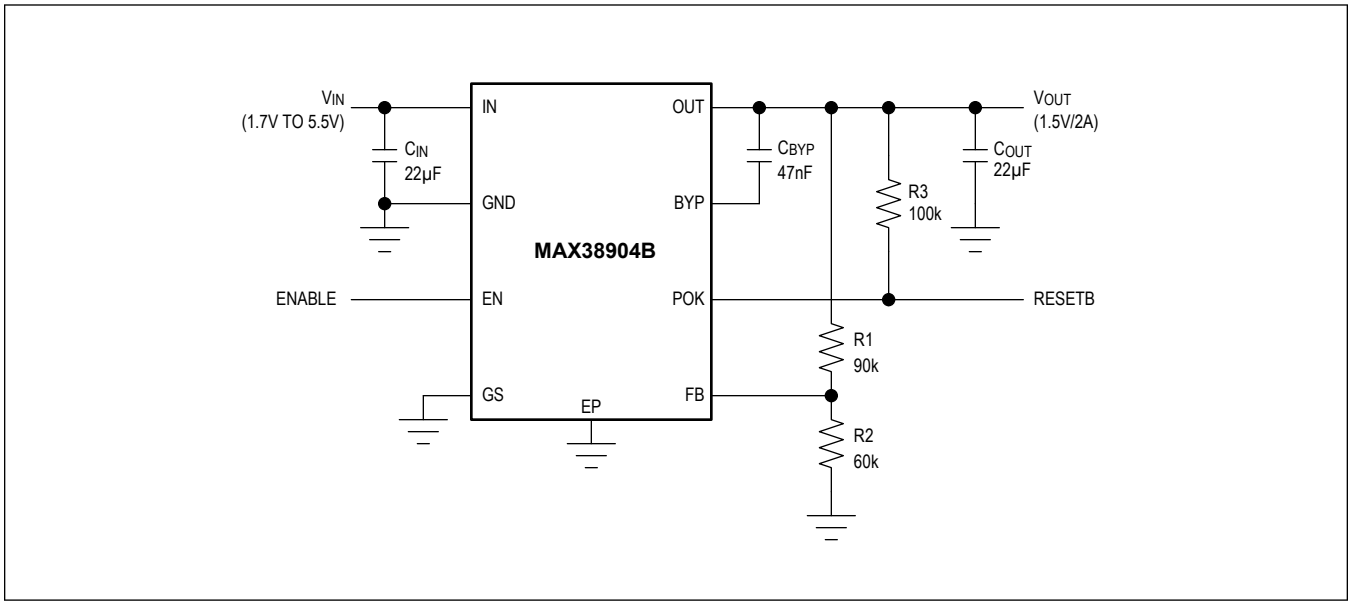
- Delivers Flexible Operating Range
  - 1.7V to 5.5V Input Voltage Range
  - 0.6V to 5.0V Programmable Output Voltage
  - 2A Maximum Output Current
  - 100mV Maximum Dropout at 2A Load
  - < 1.5µA Shutdown Supply Current
- Reduces Noise and Improves Accuracy
  - ±1% DC Accuracy Over Load, Line, and Temperature
  - 5.1µV_{RMS} Output Noise, 10Hz to 100kHz
  - 1.3mA Quiescent Supply Current
  - > 70dB PSRR at 10kHz
- Enables Ease-of-Use and Robust Protection
  - Active Discharge of 70Ω at OUT
  - Stable with 8µF (Min) Output Capacitance
  - Programmable Soft-Start Rate
  - Overcurrent and Overtemperature Protection
  - Output-to-Input Reverse Current Protection
  - Power-OK Status Pin
- Reduces Size, Improves Reliability
  - 3mm x 3mm 14-pin TDFN Package and 2.2mm x 1.37mm, 5 x 3 Bump, 0.4mm Pitch WLP
  - -40ºC to 125ºC Operating Temperature

Ordering Information appears at end of data sheet.

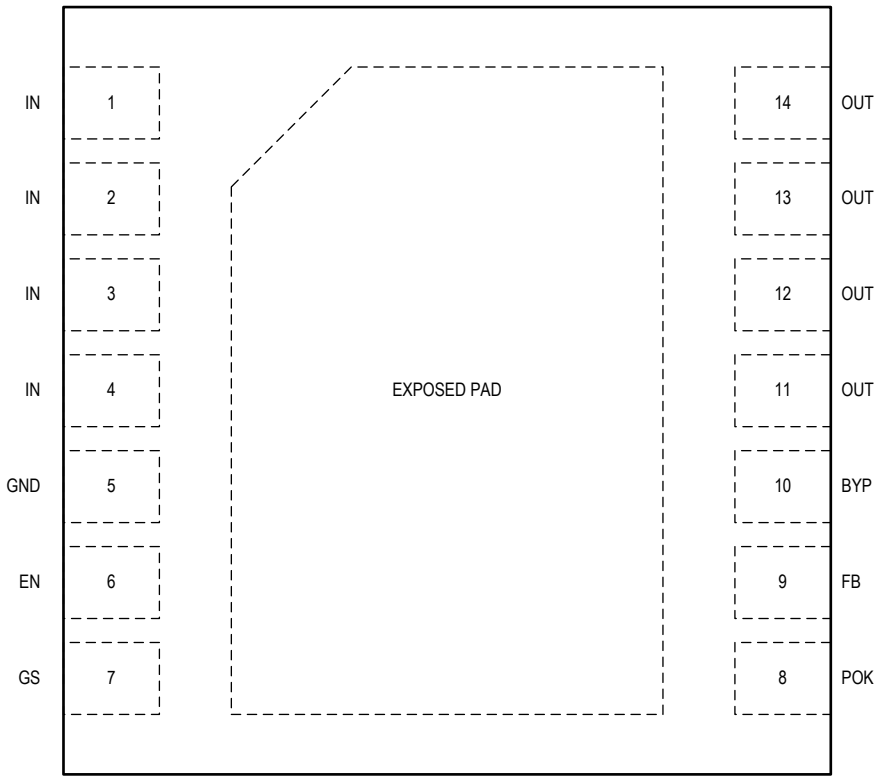
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Simplified Block Diagram



MAX38904B



3mm x 3mm 14LD TDFN

TOP VIEW

Ordering Information

PART NUMBER	TEMP RANGE	PIN-PACKAGE	FEATURES
MAX38904AATD+	-40°C to +125°C	14-pin, 3mm x 3mm, TDFN	Pin-Selectable Output Voltage, Enable
MAX38904BATD+	-40°C to +125°C	14-pin, 3mm x 3mm, TDFN	External Resistor Feedback, POK Output with Delay, Enable
MAX38904CANL+	-40°C to +125°C	15-bump, 5 x 3, 0.4mm pitch, WLP	External Resistor Feedback, Enable
MAX38904DANL__*	-40°C to +125°C	15-bump, 5 x 3, 0.4mm pitch, WLP	Factory Programmed from 0.7V to 5V in 50mV Steps
MAX38904DANL15+	-40°C to +125°C	15-bump, 5 x 3, 0.4mm pitch, WLP	Factory Programmed to 1.5V, Enable
MAX38904DANL50+T	-40°C to +125°C	15-bump, 5 x 3, 0.4mm pitch, WLP	Factory Programmed to 5.0V, Enable
MAX38904DANL37+T	-40°C to +125°C	15-bump, 5 x 3, 0.4mm pitch, WLP	Factory Programmed to 3.7V, Enable

+Denotes a lead(Pb)-free/RoHS-compliant package.

T = Tape and reel.

**Contact Analog Devices representative for factory preprogrammed output voltages.*