



MIC5528

High-Performance 500mA LDO in Extra Thin DFN Package

General Description

The MIC5528 is a low-power, μ Cap, low dropout regulator designed for optimal performance in a very-small footprint. It is capable of sourcing up to 500mA of output current while only drawing 38 μ A of operating current. This high-performance LDO is a μ Cap design in a thermally enhanced 1.2mm x 1.2mm extra thin (0.4mm ht.) DFN package. It operates with small ceramic output capacitor for stability, thereby reducing required board space.

Ideal for battery-operated applications, the MIC5528 offers $\pm 2\%$ accuracy, extremely low dropout voltage (260mV @ 500mA), and can regulate output voltages down to 1.0V. Equipped with a TTL logic-compatible enable pin, the MIC5528 can be put into a zero-off-mode current state, drawing no current when disabled.

The MIC5528 is a μ Cap design, operating with very small ceramic output capacitors for stability, reducing required board space and component cost for space-critical applications. The MIC5528 has an operating junction temperature range of -40°C to 125°C .

Datasheets and support documentation are available on Micrel's web site at: www.micrel.com.

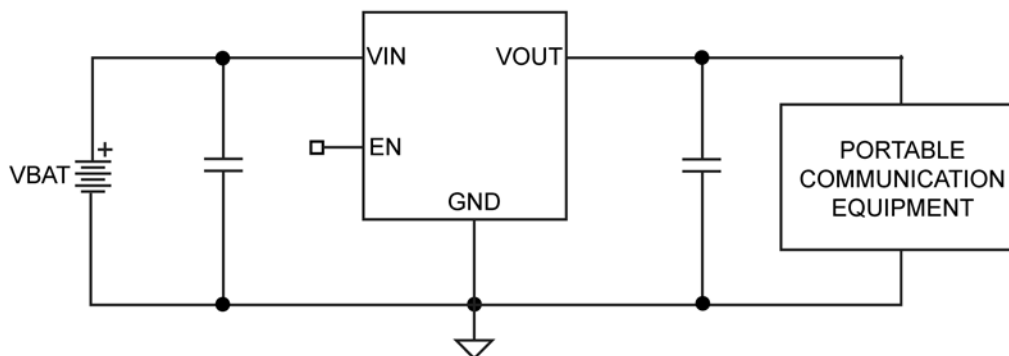
Features

- Input voltage range: 2.5V to 5.5V
- Fixed output voltages down to 1.0V
- $\pm 2\%$ Room temperature accuracy
- Low quiescent current 38 μ A
- Stable with 2.2 μ F ceramic output capacitors
- Low dropout voltage 260mV @ 500mA
- Auto discharge and internal enable pulldown
- Thermal-shutdown and current-limit protection
- 6-pin 1.2mm x 1.2mm extra thin DFN package

Applications

- Portable communication equipment
- DSC, GPS, PMP, and PDAs
- Portable medical devices
- 5V POL applications

Typical Application



Absolute Maximum Ratings⁽¹⁾

| | |
|-----------------------------------|-----------------------------------|
| Supply Voltage (V_{IN}) | –0.3V to 6V |
| Enable Voltage (V_{EN}) | –0.3V to V_{IN} |
| Power Dissipation (P_D) | Internally Limited ⁽³⁾ |
| Lead Temperature (soldering, 10s) | 260°C |
| Junction Temperature (T_J) | –40°C to +150°C |
| Storage Temperature (T_S) | –65°C to +150°C |
| ESD Rating ⁽⁴⁾ | 3kV |

Operating Ratings⁽²⁾

| | |
|--|-----------------|
| Supply Voltage (V_{IN}) | 2.5V to 5.5V |
| Enable Voltage (V_{EN}) | 0V to V_{IN} |
| Junction Temperature (T_J) | –40°C to +125°C |
| Junction Thermal Resistance | |
| 1.2mm x 1.2mm Extra Thin DFN-6 (θ_{JA}) | 173°C/W |

Ordering Information

| Part Number | Marking Code | Output Voltage ⁽⁵⁾ | Auto-Discharge | EN Pulldown | Temperature Range |
|----------------|--------------|-------------------------------|----------------|-------------|-------------------|
| MIC5528-3.3YMX | CF | 3.3V | YES | YES | –40°C to +125°C |

Notes:

- Exceeding the absolute maximum rating can damage the device.
- The device is not guaranteed to function outside its operating rating.
- The maximum allowable power dissipation of any T_A (ambient temperature) is $P_{D(max)} = (T_{J(max)} - T_A) / \theta_{JA}$. Exceeding the maximum allowable power dissipation will result in excessive die temperature, and the regulator will go into thermal shutdown.
- Devices are ESD sensitive. Handling precautions are recommended. Human body model, 1.5k Ω in series with 100pF.
- Other voltages available. Contact Micrel for details.

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