



MIC5512/14

Single 300mA LDO
in 1.6mm x 1.6mm Thin DFN Package

General Description

The MIC5512/14 is an advanced general-purpose LDO ideal for powering general-purpose portable devices. The MIC5512/14 family of products provides a high-performance 300mA LDO in an ultra-small 1.6mm x 1.6mm Thin DFN package. The MIC5512 and MIC5514 LDOs include an auto-discharge feature on the output that is activated when the enable pin is low. The MIC5514 have an internal pull down resistor on the enable pin that will disable the output when the enable pin is left floating, this is ideal for applications where the control signal is floating during processor boot up.

Ideal for battery-powered applications, the MIC5512/14 offers a typical 1% initial accuracy, low dropout voltage (160mV at 300mA), and low ground current (typically 38 μ A). The MIC5512/14 can also be put into a zero-off-mode current state, drawing virtually no current when disabled.

The MIC5512/14 has an operating junction temperature range of -40°C to 125°C .

Data sheets and support documentation can be found on Micrel's web site at: www.micrel.com.

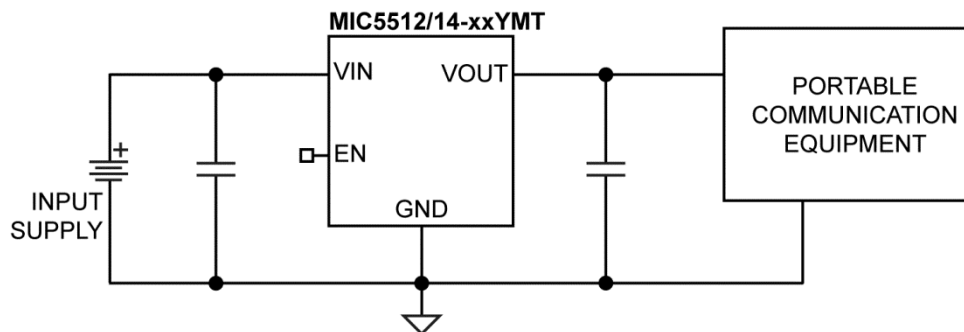
Features

- Input voltage range: 2.5V to 5.5V
- Fixed output voltage range: 1.0V to 3.3V
- 300mA guaranteed output current
- $\pm 1\%$ initial output accuracy
- Stable with 1 μ F ceramic output capacitors
- Low dropout voltage: 160mV @ 300mA
- Output discharge circuit
- Internal enable pull down resistor (MIC5514)
- Available in ultra-small 6-pin 1.6mm x 1.6mm Thin DFN package

Applications

- Smart phones
- DSCs, GPS, PMPs, and PDAs
- Medical devices
- Portable electronics
- 5V systems

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 | |
| 1.6mm × 1.6mm Thin DFN-6 (θ_{JA}) | 92.4°C/W |

Ordering Information

| Part Number | Marking Code | Output Voltage ⁽⁵⁾ | Auto-Discharge | EN Pull-down | Temperature Range |
|----------------|--------------|-------------------------------|----------------|--------------|-------------------|
| MIC5512-1.2YMT | 7E | 1.2V | YES | NO | –40°C to +125°C |
| MIC5512-1.8YMT | 7D | 1.8V | YES | NO | –40°C to +125°C |
| MIC5512-2.8YMT | 7C | 2.8V | YES | NO | –40°C to +125°C |
| MIC5512-3.3YMT | 7A | 3.3V | YES | NO | –40°C to +125°C |
| MIC5514-1.2YMT | B8 | 1.2V | YES | YES | –40°C to +125°C |
| MIC5514-1.8YMT | B7 | 1.8V | YES | YES | –40°C to +125°C |
| MIC5514-2.8YMT | A9 | 2.8V | YES | YES | –40°C to +125°C |
| MIC5514-3.0YMT | A8 | 3.0V | YES | YES | –40°C to +125°C |
| MIC5514-3.3YMT | A7 | 3.3V | YES | YES | –40°C to +125°C |

Notes:

- Exceeding the absolute maximum rating may 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 are available. Contact Micrel for details.

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