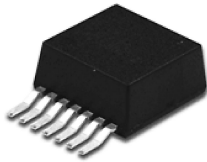


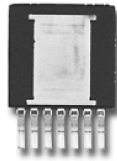
# LMZ10504

## 4A SIMPLE SWITCHER® Power Module with 5.5V Maximum Input Voltage

Easy to Use 7 Pin Package



Top View



Bottom View

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**TO-PMOD 7 Pin Package**  
 10.16 x 13.77 x 4.57 mm (0.4 x 0.39 x 0.18 in)  
 $\theta_{JA} = 20^{\circ}\text{C/W}$ ,  $\theta_{JC} = 1.35^{\circ}\text{C/W}$   
 RoHS Compliant

### Electrical Specifications

- 20W maximum total output power
- Up to 4A output current
- Input voltage range 2.95V to 5.5V
- Output voltage range 0.8V to 5V
- $\pm 2\%$  accuracy at 2.5V output voltage (Including Line and Load Regulation from  $T_J = -40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$ )
- Efficiency up to 96%

### Key Features

- Integrated shielded inductor
- Flexible startup sequencing using external soft-start, tracking, and precision enable
- Protection against in-rush currents and faults such as input UVLO and output short-circuit
- $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  junction temperature operating range
- Single exposed pad and standard pinout for easy mounting and manufacturing
- Pin-to-pin compatible with LMZ10503 (3A/15W max) LMZ10505 (5A/25W max)
- Fully enable for WEBENCH® and Power Designer

### Applications

- Point-of-load conversions from 3.3V and 5V rails
- Space constrained applications
- Extreme temperatures/no air flow environments
- Noise sensitive applications (i.e. transceiver, medical)

Note 1:  $\theta_{JA}$  measured on a 2.25" x 2.25" (5.8 cm x 5.8 cm) four layer board. Refer to .

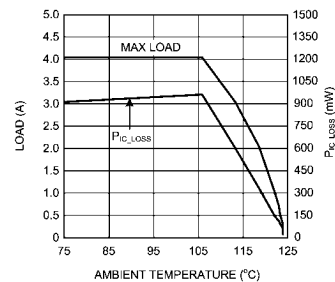
Note 2: EN 55022:2006, +A1:2007, FCC Part 15 Subpart B: 2007. See and layout for information on device under test.

### Performance Benefits

- Operates at high ambient temperatures
- High efficiency up to 96% reduces system heat generation
- Low radiated emissions (EMI) complies with EN55022 class B standard
- Passes 10V/m radiated immunity EMI test standard EN61000 4-3
- Low output voltage ripple of 10 mV allows for powering noise-sensitive transceiver and signaling ICs
- Fast transient response for powering FPGAs and ASICs

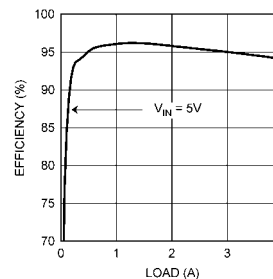
### System Performance

#### Current Derating ( $V_{OUT} = 3.3V$ )



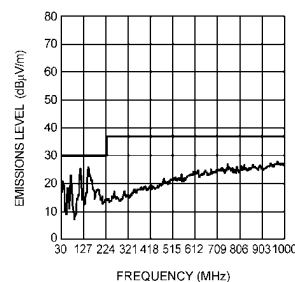
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#### Efficiency ( $V_{OUT} = 3.3V$ )



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#### Radiated Emissions (EN 55022, Class B) Evaluation Board



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## Notes

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Interface	<a href="http://www.national.com/interface">www.national.com/interface</a>	Eval Boards	<a href="http://www.national.com/evalboards">www.national.com/evalboards</a>
LVDS	<a href="http://www.national.com/lvds">www.national.com/lvds</a>	Packaging	<a href="http://www.national.com/packaging">www.national.com/packaging</a>
Power Management	<a href="http://www.national.com/power">www.national.com/power</a>	Green Compliance	<a href="http://www.national.com/quality/green">www.national.com/quality/green</a>
Switching Regulators	<a href="http://www.national.com/switchers">www.national.com/switchers</a>	Distributors	<a href="http://www.national.com/contacts">www.national.com/contacts</a>
LDOs	<a href="http://www.national.com/ldo">www.national.com/ldo</a>	Quality and Reliability	<a href="http://www.national.com/quality">www.national.com/quality</a>
LED Lighting	<a href="http://www.national.com/led">www.national.com/led</a>	Feedback/Support	<a href="http://www.national.com/feedback">www.national.com/feedback</a>
Voltage References	<a href="http://www.national.com/vref">www.national.com/vref</a>	Design Made Easy	<a href="http://www.national.com/easy">www.national.com/easy</a>
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Serial Digital Interface (SDI)	<a href="http://www.national.com/sdi">www.national.com/sdi</a>	Mil/Aero	<a href="http://www.national.com/milaero">www.national.com/milaero</a>
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