

2A Step-Down Converter

DESCRIPTION
High efficiency, ultra fast transient response regulator for mobile technology and System-On-Chip (SOC) processor applications

LX7167™ is a step-down PWM switching regulator IC with integrated high side P-Channel and low side N-Channel MOSFETs. The IC operates using a proprietary hysteretic control topology with a full load operating frequency of 3MHz allowing small output filter components while maintaining excellent dynamic load response.

The operational input voltage range of the LX7167 is from 3V to 5.5V. The Power Save Mode (PSM) automatically transitions between PWM and PSM mode depending on the load current. This allows the converter's efficiency to remain high when load current drops. A Power Good function indicates the status of the IC (output voltage level compared to the power good threshold). In shutdown mode, current consumption is reduced to less than 1uA and the output capacitor is discharged.

The LX7167 includes over current and short circuit protection. A cycle-by-cycle current limit followed by a Hiccup mode operation reduces the overall power dissipation of the internal MOSFETs and protects the IC during output shorts. The converter also incorporates thermal protection and internal digital soft start timing.

KEY FEATURES
BENEFITS

Operational Input Supply Voltage Range: 3V - 5.5V

Ideal for 3.3V and 5V applications

Patented Hysteretic Control Technology

Increases speed providing ultra fast transient response

- Eliminates loop error amplifier and compensation network delay
- Minimizes filter components
- Immediate response to load and line variation

Load Current from 0 to 2A

Fast dynamic response supports demanding mobile computing requirements

Increased Speed and Reduced Device Bias Currents

- Eliminates bias capacitors to support small footprint solutions essential in mobile applications
- Maximizes efficiency with minimal power loss under all current levels and light load conditions
- Increases battery life

Integrated PMOS and NMOS in a 2 x 2 mm Package

High integration minimizes PCB space and supports low profile package requirement designs

APPLICATIONS

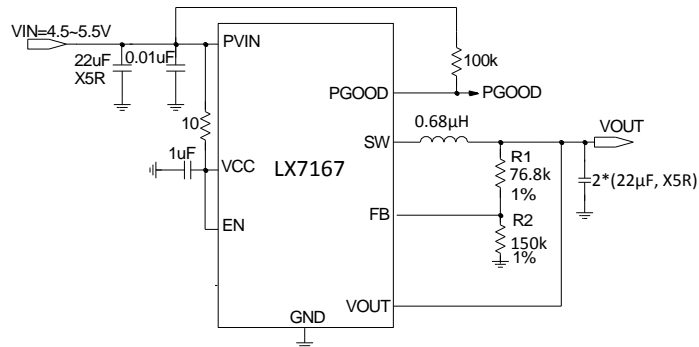
- Mobile Computing, Notebook, Netbook, eBook, Tablets
- Mobile Communication, Smart Phone
- System-On-Chip (SOC) Processor Designs

- High Performance HDD
- Video Cards
- PoE Powered Devices

Additional Features

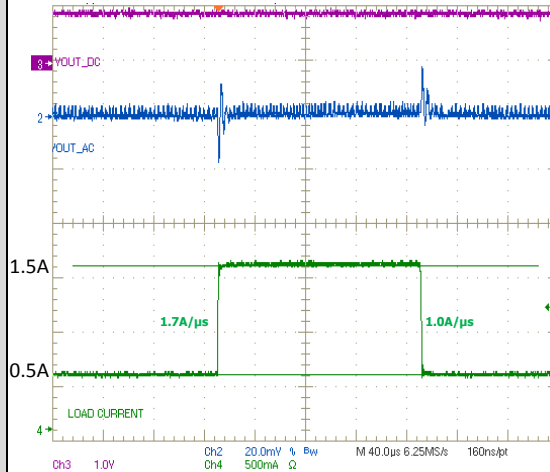
- PWM Switching at a Constant 3MHz
- Automatic Reduction of Switching Frequency to Improve Light Load Efficiency
- Input Under Voltage and Over Voltage Protection
- Dedicated Enable Control
- Power Good Function
- Internal Soft-Start
- Cycle-by-Cycle Over Current Protection
- Hiccup Mode Protects Against Short Circuit Faults
- 8L MLPD (2 x 2 mm) Package
- RoHS Compliant for Pb Free

TYPICAL APPLICATION

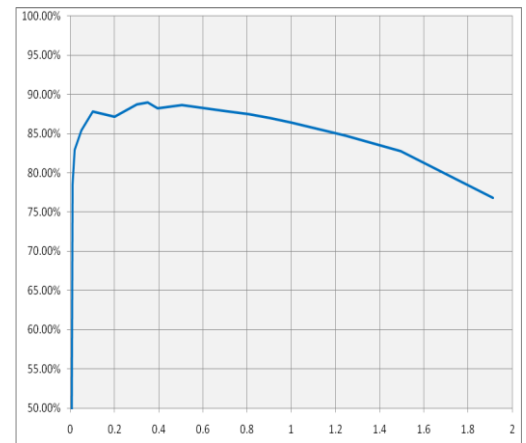


DYNAMIC LOAD RESPONSE AND EFFICIENCY

Dynamic Transient Response 0.5A to 1.5A (2*22 μ F, 0.68 μ H)



LX7167, 1.21V Efficiency vs. Output Current (A)



ADDITIONAL INFORMATION

The LX7167 complements a complete family of high efficiency regulators for mobile products. See www.microsemi.com for a complete line of solutions.

- LX7165: 5A Step-Down Converter, (20 WCLSP, 0.4mm pitch)
- LX7169: 3A Step-Down Converter, (12L MLPD, 3.0 x 3.5 mm)

ORDERING INFORMATION

T_A (°C)	LD 8L MLPD (2 x 2 mm)	$\theta_{JA} = 75$ °C/W
	RoHS Compliant / Pb-free	Junction to Ambient Thermal Resistance
-10°C to +85°C	LX7167CLD	Junction Temperature Calculation: $T_J = T_A + (P_D \times \theta_{JA})$. The θ_{JA} numbers are guidelines for the thermal performance of the device/pc-board system. The above assumes no ambient airflow. θ_{JA} number above is with 4-layer pc board.
Available in Tape & Reel. Append the letters "TR" to the part number.		

CONTACTS

For more details and sample requests please contact your local Area Sales Manager or Field Application Engineer. More information can be found at www.microsemi.com or at (949) 380-6100.