LX3005

2A STEP-DOWN CONVERTER

PRODUCTION DATASHEET

DESCRIPTION

The LX3005 is a 420kHz fixed frequency PWM buck (step-down) DC-DC converter, capable of driving a 2A load with high efficiency, low ripple and excellent line and load regulation. The device operates over a wide input voltage range of 4.75V to 25V, and the output voltage can be externally set from 0.8V to a voltage near VIN, as the PWM control circuit is able to adjust the duty ratio linearly from 0% to close to 100%.

The LX3005 device integrates a high-side low RDS_{ON} PMOS for a low cost and high efficiency solution. An internal transconductance error amplifier is used in the control loop allowing flexibility to compensate the system using an all ceramic capacitor system.

The LX3005 also features an enable function, internal circuitry for soft start, and protection schemes such as thermal shutdown, over-current protection, and short-circuit protection. When OCP or SCP is triggered, the device operating frequency will be reduced from typically 420kHz to typically 40kHz, limiting the output power capability.

The LX3005 serves as an ideal power supply device for portable devices, especially for chipset power in portable systems. It's widely used for PDVD, LCD monitor and DPF chipset power sources.

The LX3005 is available in SOIC8 package and is functional from an ambient temperature range of 0˚C to 85˚C.

IMPORTANT: : For the most current data, consult *MICROSEMI*'s website: **http://www.microsemi.com**

Patents Pending

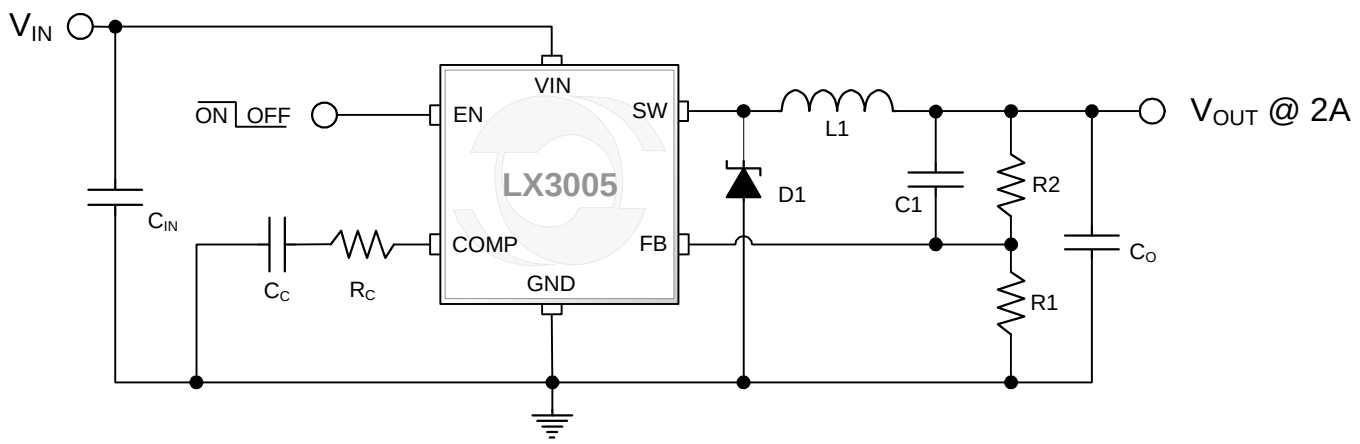
KEY FEATURES

- 2A Constant Output Current
- 130mΩ R_{DSON} Internal Power MOSFET
- Up to 94% Efficiency
- Fixed 420kHz Frequency
- Wide 4.75V to 25V Input Voltage Range
- Output Voltage Adjustable from 0.8V to 21V
- Built-in Thermal Shutdown Function
- Built-in Current Limit Function
- Built-in Soft-start Function
- Support Ceramic or Electrolytic Capacitors
- Pb-free and RoHS Compliant

APPLICATIONS

- Portable DVD
- LCD Monitor/LCD TV
- Digital Photo Frame
- ADSL
- Set-Top Box

PRODUCT HIGHLIGHT



PACKAGE ORDER INFO

T_A (°C)		
	DM	**Plastic SOIC 8-pin**
	RoHS Compliant / Pb-free	
0 to 85	**LX3005CDM**	

Note: Available in Tape & Reel. Append the letters "TR" to the part number. (i.e. LX3005CDM-TR)

THERMAL DATA

θ_{JA} = 100°C/W

THERMAL RESISTANCE-JUNCTION TO AMBIENT

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. All of the above assume no ambient airflow.

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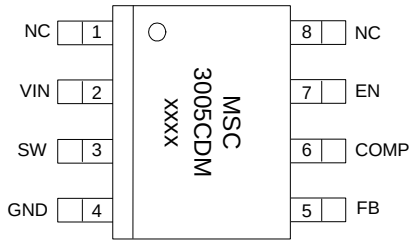
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ABSOLUTE MAXIMUM RATINGS

Supply Input Voltage (V_{IN}) ..... -0.3V to 30V
FB Pin Voltage (V_{FB}) ..... -0.3V to 6V
EN Pin Voltage (V_{EN}) ..... -0.3V to V_{IN}
COMP Pin Voltage (V_{COMP}) ..... -0.3V to 6V
SW Pin Voltage (V_{SW}) ..... -0.3V to V_{IN}
Power Dissipation (P_D) ..... Internally limited
Maximum Operating Junction Temperature ..... 150°C
Storage Temperature Range ..... -65°C to 150°C
Lead Temperature (Soldering, 10 seconds) ..... 260°C

Note: Exceeding these ratings could cause damage to the device. All voltages are with respect to Ground. Currents are positive into, negative out of specified terminal.

PACKAGE PIN OUT



DM PACKAGE
(Top View)
xxxx = date/lot code
RoHS / Pb-free 100% Matte Tin Pin Finish

FUNCTIONAL PIN DESCRIPTION

Name	Pin #	Description
NC	1	Pin not used.
VIN	2	Supply Voltage Pin. The LX3005 operates from a 4.75V to 25V DC voltage. Bypass VIN to GND with a suitable large capacitor to eliminate noise on the input.
SW	3	Power Switch Output Pin. SW is the switch node that supplies power to the output.
GND	4	Ground for IC.
FB	5	Feedback Pin. Through an external resistor divider network, FB senses the output voltage and regulates it. To prevent current limit run away in a short circuit fault condition, the frequency feedback comparator lowers the oscillator frequency to 40kHz when the FB voltage is below 0.52V. The feedback threshold voltage is 0.8V.
COMP	6	Compensation Pin. This pin is the output of the error amplifier. Frequency compensation is done at this pin by connecting a series RC to ground(parallel a capacitor if necessary)
EN	7	Enable Pin. Drive EN pin high to turn on the device, drive it low to turn off. Default of this pin is high level.
NC	8	Pin not used.

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The full data sheet for this device contains proprietary information.

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