

## FEATURES

- Two Regulated Outputs
  - + 12V at 3A
  - + 5V at 75mA
- 2% Output Voltage Tolerance
- 60dB Ripple Rejection
- 0.7% Load Regulation
- TTL and CMOS Compatible Logic Control
- 100% Thermal Burn-In on All Devices

## APPLICATIONS

- Power Supply Sequencing
- Remote On/Off Power Control
- Selective System Power during Emergency Power Operation
- Power Supply with Back-Up

## DESCRIPTION

The LT1036 features two positive regulators in the same package. The 12V main regulator offers excellent performance while supplying load currents up to 3A, and the 5V auxiliary regulator provides similar performance while supplying lighter loads of 75mA. The main regulator has the additional feature of being under the shutdown control of a logic signal. When the enable pin is taken to a low logic level, the main regulator shuts down and its output voltage goes to near 0V. During this command, the auxiliary output is unaffected by the main regulator's condition and continues to provide a 5V output.

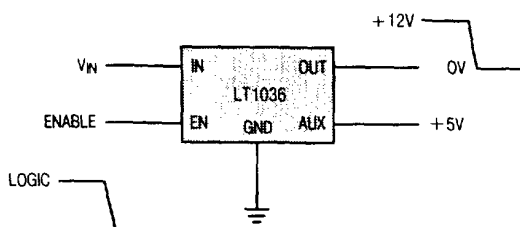
The main output has current and power limiting combined with thermal shutdown to make it virtually blowout proof. The auxiliary output is not affected by the thermal shutdown mechanism or the state of the main output, allowing it to be used as a back-up in case of overloads or shorts on the main supply.

The logic input of the LT1036 (enable pin) has a 1.6V threshold and can be driven from a high source impedance. This allows it to be driven by most logic families, including TTL and CMOS.

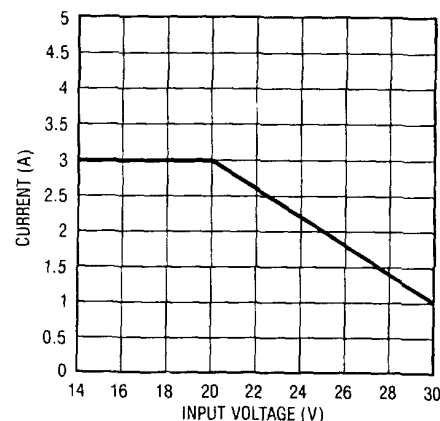
For a dual 5V version of the LT1036, please see the LT1035 data sheet.

4

Functional Diagram



Guaranteed Load Current, 12V Output



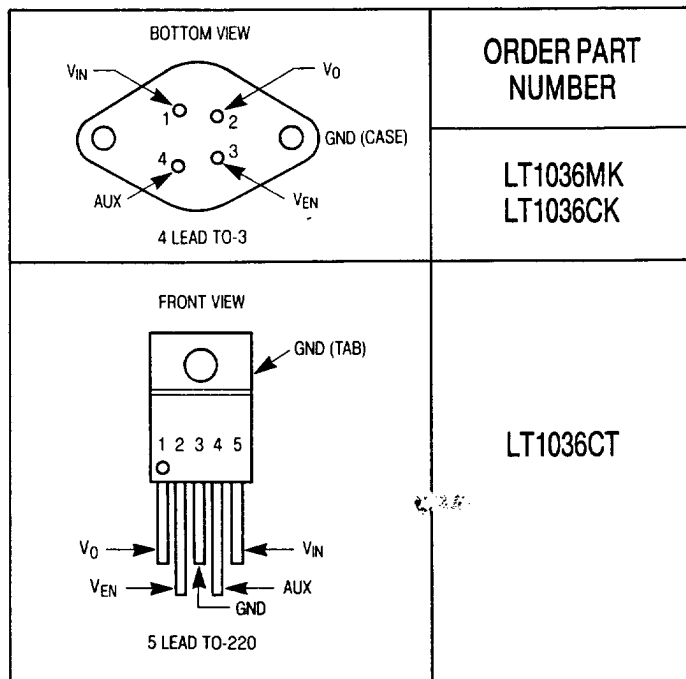
### ABSOLUTE MAXIMUM RATINGS

Power Dissipation—Continuous (Note 6)	24W
Power Dissipation—Fault Conditions	Internally Limited
Input Voltage ( $V_{IN}$ )	30V
Enable Voltage ( $V_{EN}$ )	30V
Operating Junction Temperature	
LT1036M	-55°C to 150°C
LT1036C	0°C to 125°C
Storage	-65°C to 150°C
Lead Temperature (Soldering, 10 sec.)	300°C

### PRECONDITIONING

100% Burn-In in Thermal Limit

### PACKAGE/ORDER INFORMATION



ORDER PART NUMBER
LT1036MK LT1036CK
LT1036CT

### ELECTRICAL CHARACTERISTICS Main Regulator (See Note 1) $V_{IN} = 15V$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	LT1036M/C			UNITS
			MIN	TYP	MAX	
$V_O$	Output Voltage High	$T_j = 25^\circ C$	11.76	12	12.24	V
		$15V \leq V_{IN} \leq 30V$ $I_{OUT} \leq I_{MAX}$ (Note 6)	11.52		12.48	V
	Output Voltage Low	$7V \leq V_{IN} \leq 30V$		0.1	0.3	V
$\frac{\Delta V_O}{\Delta I_O}$	Load Regulation (Note 6)	$V_{IN} = 16V$ $0 \leq I_O \leq 3A$ (Note 2)		10	80	mV
$\frac{\Delta V_O}{\Delta V_{IN}}$	Line Regulation	$15V \leq V_{IN} \leq 30V$ (Note 2)		1	4	mV/V
	Ripple Rejection	$50Hz \leq f \leq 500Hz$ (Note 8)	50	60		dB
	Thermal Regulation	$\Delta P_D = 20W$ (Note 4)		0.003	0.012	%/W
$I_O$	Available Load Current (Note 6)	$15V \leq V_{IN} \leq 20V$	3	4		A
		$V_{IN} = 25V$	2	2.7		A
$I_{SC}$	Short Circuit Current	$V_{IN} = 15V$		2.3	4	A
		$V_{IN} = 25V$		1	2	A
$V_{IN}$	Input Voltage to Maintain Regulation (Dropout Voltage)	$I_O = 1A$		13.8	14.5	V
		$I_O = 3A$		14.4	15	V
$I_Q$	Quiescent Current	Output High		4	5.5	mA
		Output Low		3	4.5	mA
$\theta_{JC}$	Thermal Resistance, Junction to Case	TO-3		1.5	2.5	$^\circ C/W$
		TO-220		2	3	$^\circ C/W$

**ELECTRICAL CHARACTERISTICS** Auxiliary Regulator (See Note 1)

SYMBOL	PARAMETER	CONDITIONS	LT1036M/C			UNITS
			MIN	TYP	MAX	
$V_O$	Output Voltage	$T_j = 25^\circ\text{C}$	4.9	5.0	5.1	V
		$7.2\text{V} \leq V_{IN} \leq 30\text{V}$ $0\text{mA} \leq I_O \leq 75\text{mA}$	4.8	5.0	5.2	V
$\frac{\Delta V_O}{\Delta I_O}$	Load Regulation	$7.2\text{V} \leq V_{IN} \leq 30\text{V}$ $0\text{mA} \leq I_O \leq 75\text{mA}$ (Note 2)		5	15	mV
$\frac{\Delta V_O}{\Delta V_{IN}}$	Line Regulation	$7.2\text{V} \leq V_{IN} \leq 30\text{V}$ (Note 2)		0.2	1	mV/V
	Ripple Rejection	$50\text{Hz} \leq f \leq 500\text{Hz}$		74		dB
$I_{SC}$	Short Circuit Current (Note 7)	$7.0\text{V} \leq V_{IN} = 30\text{V}$		140	250	mA
$V_{IN}$	Input Voltage to Maintain Regulation (Dropout Voltage)	(Note 5) $I_O \leq 10\text{mA}$		6.2	6.5	V
		$I_O = 75\text{mA}$		6.8	7.2	V

**ELECTRICAL CHARACTERISTICS** Logic Control (See Note 1)

SYMBOL	PARAMETER	CONDITIONS	LT1036M/C			UNITS
			MIN	TYP	MAX	
$V_{EN}$	Enable Threshold Voltage	$7.0\text{V} \leq V_{IN} \leq 30\text{V}$ $T_j = 25^\circ\text{C}$	1.45	1.6	1.7	V
			1.3	1.6	1.8	V
	Enable Pin Current	$V_{EN} \leq 1\text{V}$ (Note 3)	0	1.5	12	$\mu\text{A}$
		$V_{EN} \geq 2.4\text{V}$		0	6	$\mu\text{A}$

The ● denotes the specifications which apply over the full operating temperature range.

**Note 1:** Unless otherwise indicated, these specifications apply for  $V_{IN} = 15\text{V}$ ,  $I_O = 0\text{mA}$ , and  $T_j = 25^\circ\text{C}$ .

**Note 2:** Line and load regulation is measured using a low duty cycle pulse, causing little change in the junction temperature. Effects due to thermal gradients and device heating must be taken into account separately.

**Note 3:** When the enable pin is at a low logic level, current flows out of the enable pin.

**Note 4:** Pulse length for this measurement is 20ms.

**Note 5:** Input voltage is reduced until output drops by 100mV from its initial value.

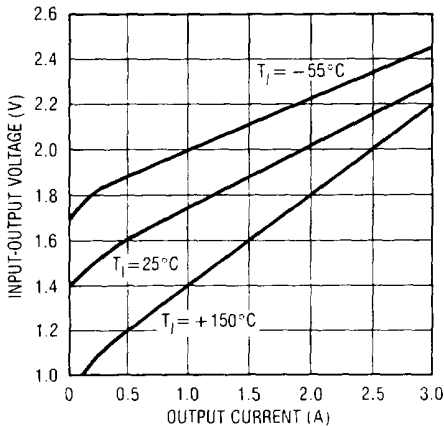
**Note 6:** See "Guaranteed Load Current" graph.

**Note 7:** Continuous shorts on the auxiliary output are not allowed unless adequate heat sinking is used to maintain junction temperature below  $150^\circ\text{C}$ .

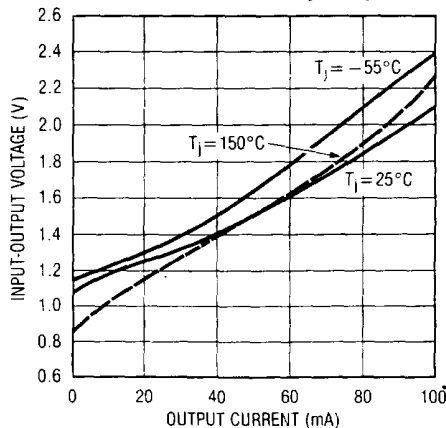
**Note 8:** Guaranteed but not tested.

**TYPICAL PERFORMANCE CHARACTERISTICS**

Minimum Input-Output Differential of Main Output



Minimum Input-Output Differential of Auxiliary Output



Line Transient Response, 12V Output

