

## 800mA Ultra-Low Dropout, Ultra-Fast CMOS LDO Regulator

### FEATURES

- 800mA high accuracy LDO
- Output voltage accuracy:  $\pm 1\%$
- Very low dropout: 215mV @ 800mA
- Zero shutdown supply current
- TTL-logic-controlled enable input
- Thermal and current limit protections
- Ultra low droop load transient response
- Ultra fast line transient response
- VDFN-8L 3X3 package

### APPLICATIONS

- Cellular and cordless phones
- PDAs
- Battery powered portable equipment
- Notebook computers
- PC peripherals
- Wireless LAN cards
- MP3 / MP4 / CD Players
- Digital camera
- USB Hubs, USB 2.0
- Mini PCI & PCI express cards

### DESCRIPTION

The PIC6117 is a CMOS low dropout linear regulator with ultra-low-noise output, very low dropout voltage and very low ground current.

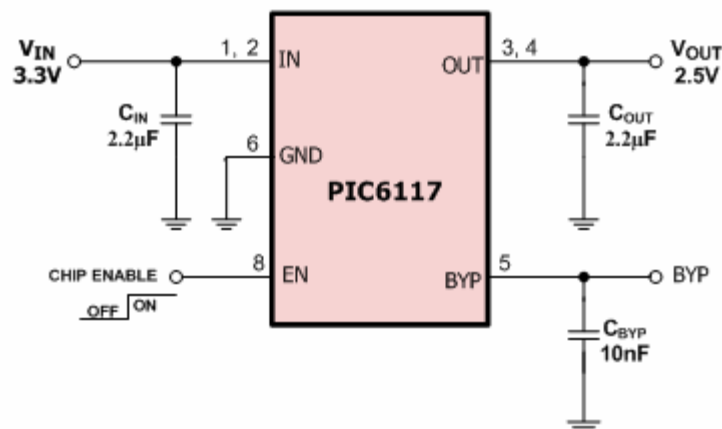
The PIC6117 operates from a 2.5V to 5.5V input voltage range and delivers up to 800mA, with low dropout of 215mV at 800mA. Other features of the PIC6117 include short-circuit protection and thermal-shutdown protection.

The PIC6117 is designed especially for high powered portable devices. Its unique CMOS design offers excellent transient response with very low ground current.

Other key application areas for the PIC6117 include handheld computers, PCMCIA cards and WLAN cards.

The PIC6117 is available in VDFN-8L 3X3 package.

### TYPICAL APPLICATION CIRCUIT



## ELECTRICAL CHARACTERISTICS

( $V_{IN}=V_{OUT(nominal)}+1V$  or 2.5V (whichever is greater),  $V_{EN}=V_{IN}$ ,  $C_{IN}=C_{OUT}=1\mu F$ ,  $I_O=1mA$ ,  $T_A=25^\circ C$ , unless otherwise specified)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$V_{IN}$	Supply Voltage		2.5		5.5	V
	Output Voltage Accuracy	$I_O = 10mA$	-1.0		+1.0	%
$V_{DP}$	Dropout Voltage	$I_{LOAD} = 250mA$		0.065	0.080	mV
		$I_{LOAD} = 500mA$		0.130	0.160	
		$I_{LOAD} = 800mA$		0.215	0.265	
$I_{MAX}$	Maximum Output Current	Continuous	800			$mA_{RMS}$
$I_O$	Shutdown Quiescent Current	$V_{EN} \leq V_{IL}, V_{IN} = 3.3V$		0.01	0.5	$\mu A$
$I_G$	Ground Pin Current (Quiescent)	$V_{EN} \geq V_{IH}, I_{OUT} = 0mA$		310	645	nA
$\Delta V_{LINE}$	Line Regulation $dV_{OUT}/dV_{IN}$	$V_{IN} = (V_{OUT}+0.5)$ to 5.5V, $I_{OUT} = 1mA$			0.1	%/V
$\Delta V_{LOAD}$	Load Regulation	$V_{IN} = (V_{OUT} + 0.5V)$ $10mA < I_{OUT} < 0.8A$		0.35	0.8	%
PSRR	Ripple Rejection, $C_{OUT}= 1\mu F$ , $C_{BYP} = 10nF$ , $I_{LOAD} = 300mA$	$f = 100$ Hz		65		dB
		$f = 10$ KHz		60		
$I_{LIM}$	Short Circuit Current Limit	$R_{LOAD} = 0.5\Omega, V_{IN} = 3.3V$	1000	1400	2900	mA
	Thermal Shutdown Temperature			160		$^\circ C$
	Thermal Shutdown Hysteresis			20		$^\circ C$
$V_{IH}$	Logic Input High Voltage	$V_{IN} = 3.3V$	1.2			V
$V_{IL}$	Logic Input Low Voltage	$V_{IN} = 3.3V$			0.4	V
$I_{EN}$	Logic Input Current			0	0.1	$\mu A$
	Shutdown Exit Delay	$R_{LOAD} = 3\Omega$ , $1nF \leq C_{BYP} \leq 0.1\mu F$		90		$\mu S$