

## 300mA Current mode LDO Regulator

### FEATURES

- Guaranteed 300mA output
- Ultra low output noise
- Output voltage accuracy:  $\pm 1\%$
- Low ground current: 92 $\mu$ A
- Very low dropout: 380mV @ 300mA
- Zero shutdown supply current
- TTL-logic-controlled enable input
- Thermal and current limit protections
- Compatible with low ESR capacitor to achieve ultra low droop load transient response
- Ultra fast line transient response
- Low profile 5-lead SOT-25 package
- Fixed options from 1.5V to 5.0V with 100mV steps

### APPLICATIONS

- Cellular and cordless phones
- PDAs
- Battery powered portable equipment
- Notebook computers
- PC peripherals
- Wireless LAN cards
- Bluetooth devices

### DESCRIPTION

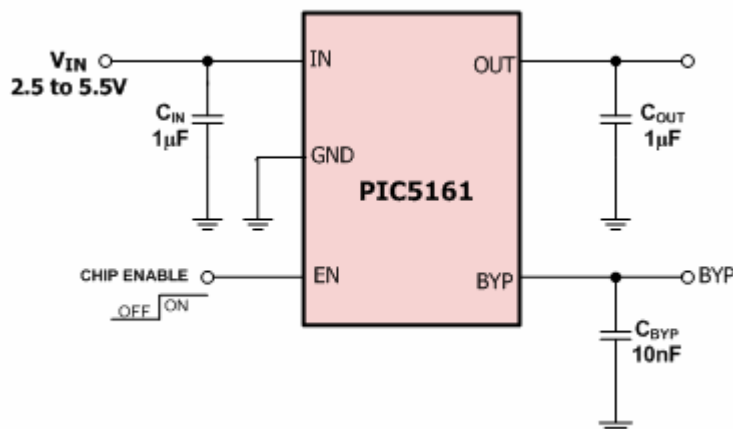
The PIC5161 is a CMOS low dropout linear regulator with ultra-low-noise output, very low dropout voltage and very low ground current.

The PIC5161 operates from a 2.5V to 5.5V input voltage range and delivers up to 300mA, with low dropout of 380mV at 300mA. Other features of the PIC5161 include short-circuit protection and thermal-shutdown protection.

The PIC5161 is designed especially for battery-powered portable devices. Its reference bypass pin improves low noise performance which makes it ideal for noise-sensitive RF and personal communication applications. Other key application areas for the PIC5161 include handheld computers, PCMCIA cards and WLAN cards.

The PIC5161 is available in small 5-lead SOT-25 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
$V_{OUT}$	Output Voltage Accuracy	$I_O = 1mA$	-1.0		+1.0	%
$V_{DP}$	Dropout Voltage (Note 1)	$I_{LOAD} = 1mA$		2	6	mV
		$I_{LOAD} = 50mA$		60	110	
		$I_{LOAD} = 300mA$		380	460	
$I_{MAX}$	Maximum Output Current	Continuous	300	2	6	$mA_{RMS}$
$I_{LIM}$	Short Circuit Current Limit	$R_{LOAD} = 1\Omega$		410	680	mA
$I_O$	Shutdown Quiescent Current	$V_{EN} < 0.4V$		0.01	0.5	$\mu A$
$I_G$	Ground Pin Current (Quiescent Current)	$I_{LOAD} = 0mA$		92	120	$\mu A$
		$I_{LOAD} = 300mA$		100	130	
$\Delta V_{LINE}$	Line Regulation $dV_{OUT}/dV_{IN}$	$V_{IN} = (V_{OUT}+0.15)$ to $5.5V$ , $I_{OUT} = 1mA$			0.05	%/V
PSRR	Ripple Rejection	$f = 100Hz$ , $C_{OUT} = 10\mu F$ , $C_{BYP} = 10nF$ , $I_{LOAD} = 1mA$		70		dB
$e_{NO}$	Output Voltage Noise	$C_{OUT} = 10\mu F$ , $C_{BYP} = 10nF$ , $f = 10Hz$ to $100KHz$		80		$\mu V_{RMS}$
	Thermal Shutdown Temperature			175		$^\circ C$
$V_{IH}$	Logic Input High Voltage	$V_{IN} = 3V$ to $5.5V$	1.2			V
$V_{IL}$	Logic Input Low Voltage	$V_{IN} = 3V$ to $5.5V$			0.4	V
$I_{EN}$	Logic Input Current				1	$\mu A$