SPX2840

4A Low Dropout Voltage Regulator
Adjustable & Fixed 3.3V

FEATURES
- Adjustable Output Down To 1.25V Or Fixed 3.3V
- Output Current Of 4A
- Low Dropout Voltage
- Extremely Tight Load And Line Regulation
- Current & Thermal Limiting
- Standard 3-Terminal Low Cost TO-220

APPLICATIONS
- Powering Intel Pentium™ µP from +5V Supplies
- Power PC™ Supplies
- SMPS Post-Regulator
- High Efficiency "Green" Computer Systems
- High Efficiency Linear Power Supplies
- Portable Instrumentation
- Constant Current Regulators
- Adjustable Power Supplies
- Battery Charger

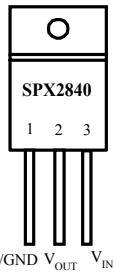
PRODUCT DESCRIPTION
The SPX2840 is a low power 4A Adjustable Voltage Regulator that is very easy to use. It requires only 2 external resistors to set the output voltage. This device is an excellent choice for use in Powering Intel™ Microprocessor to convert from +5V to 3.3V supplies and as a post regulator for switching supplies applications. The SPX2840 features low dropout of a maximum 1.3 volts.

The SPX2840 offers over-current limit and full protection against reversed input polarity, reversed load insertion, over temperature operation, and positive and negative transient voltage. On-Chip trimming adjusts the reference voltage to 1%. The I_Q of this device flows in to the load, which increases the efficiency.

The SPX2840 is offered in a 3-pin TO-220 package compatible with other 3 terminal regulators. For a 3A low dropout regulator refer to the SPX2830 data sheet.

ORDERING INFORMATION

TO-220-3 (U)



Front View

ABSOLUTE MAXIMUM RATINGS

Power Dissipation.....Internally Limited
Lead Temp. (Soldering, 10 Seconds) ..... 300°C
Storage Temperature Range ..... -65° to +150°C
Operating Junction Temperature Range
SPX2840 Control Section.....0C° to +125°C
SPX2840 Power Transistor.....0C° to +150°C

Input Supply Voltage ..... +10V
Input to Output Voltage Differential ..... +10V

ELECTRICAL CHARACTERISTICS

(NOTE 1) at I_{OUT} = 10mA, T_A=25°C, unless otherwise specified.

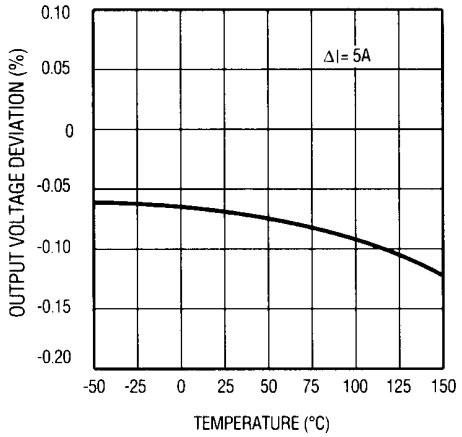
Parameter	Conditions	SPX2840 Min	SPX2840 Typ	SPX2840 Max	Units
Reference Voltage		1.238	1.250	1.262	V
	10 mA ≤ I_{OUT} ≤ $I_{FULLLOAD}$ 1.5V≤(V_{IN} - V_{OUT} ≤ 7V (Over Temperature)	**1.225**	**1.250**	**1.270**	V
Min. Load Current	(V_{IN}-V_{OUT}) + 25V		**5**	**10**	mA
Line Regulation	1.5V ≤V_{IN} - V_{OUT} ≤7V I_{LOAD} = 10mA 15V ≤V_{IN} - V_{OUT} ≤7V		0.015 **0.035** **0.05**	0.2 **0.2** **0.5**	% % %
Load Regulation	10 mA ≤ I_{OUT} ≤ $I_{FULLLOAD}$ (V_{IN} - V_{OUT})=3V		0.1 **0.2**	0.3 **0.4**	% %
Dropout Voltage	I_{OUT}=$I_{FULLLOAD}$, ΔV_{REF}=1%		**1.1**	**1.3**	V
Current Limit	V_{IN} - V_{OUT}=5V V_{IN} - V_{OUT}=25V	**5.5** **0.3**	**6.5** **0.6**		A A
Long Term Stability	T_A=125°C, 1000 Hrs.		0.3	1	%
Adjust Pin Current	T_A=25°C		55	 **120**	µA µA
Adjust Pin Current Change			**0.2**	**5**	µA
Thermal Regulation	30 ms pulse		0.003	0.015	%/W
Temperature Stability			**0.5**		%
Ripple Rejection Ratio	V_{IN} - V_{OUT}=3V I_{OUT} =3A, C_{OUT} = 25µF, C_{ADJ} = 25µF, f= 120Hz	**60**	**75**		dB
Output Noise, RMS	10Hz to 10kHz		0.003		% V_O

The Bold specifications apply to the full operating temperature range.
Note 1: Changes in output voltage due to heating effects are covered under the specification for thermal regulation.
Note 2: A 10µF output capacitor is required on SPX2840.

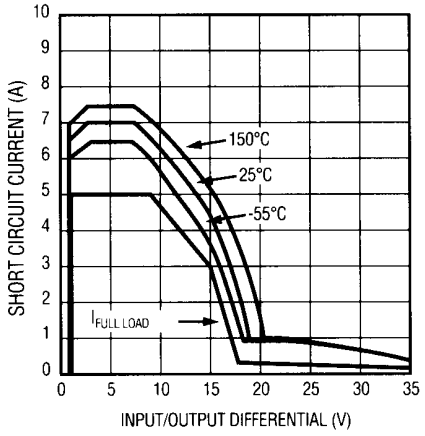
TYPICAL CHARACTERISTICS

TYPICAL PERFORMANCE CHARACTERISTICS

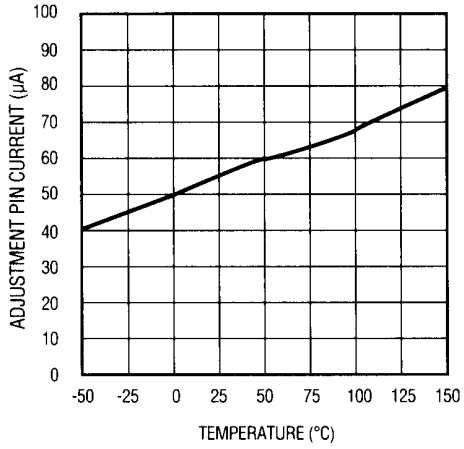
LOAD REGULATION



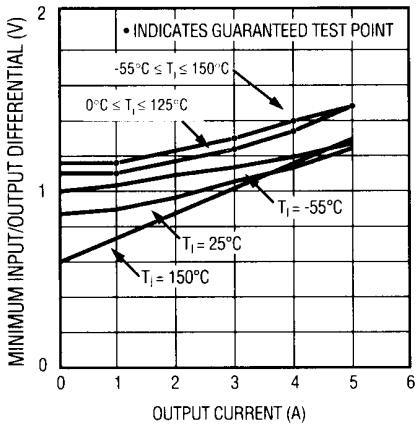
SHORT CIRCUIT CURRENT



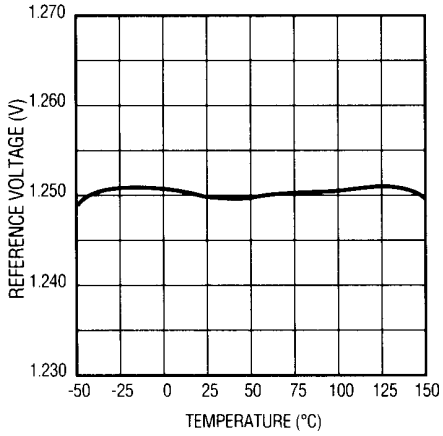
ADJUSTMENT PIN CURRENT



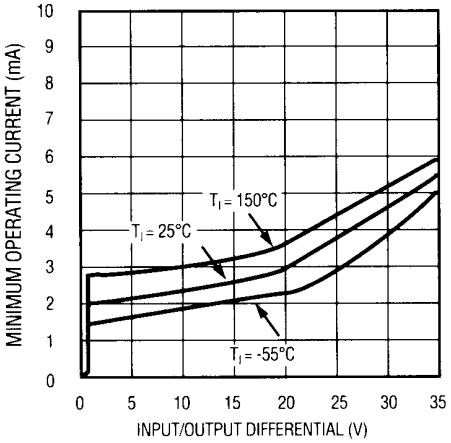
DROPOUT VOLTAGE



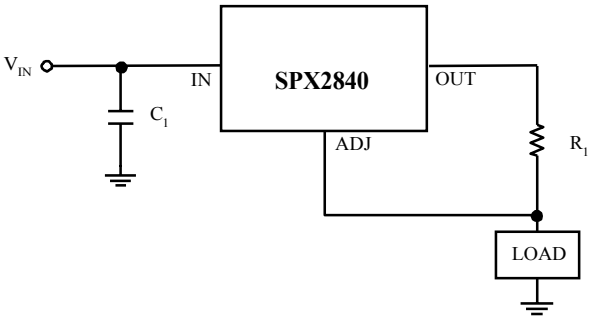
TEMPERATURE STABILITY



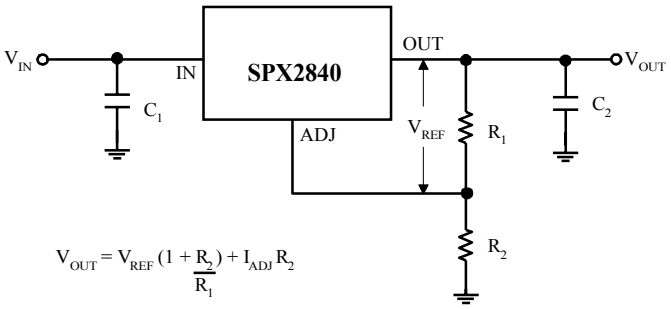
MINIMUM OPERATING CURRENT



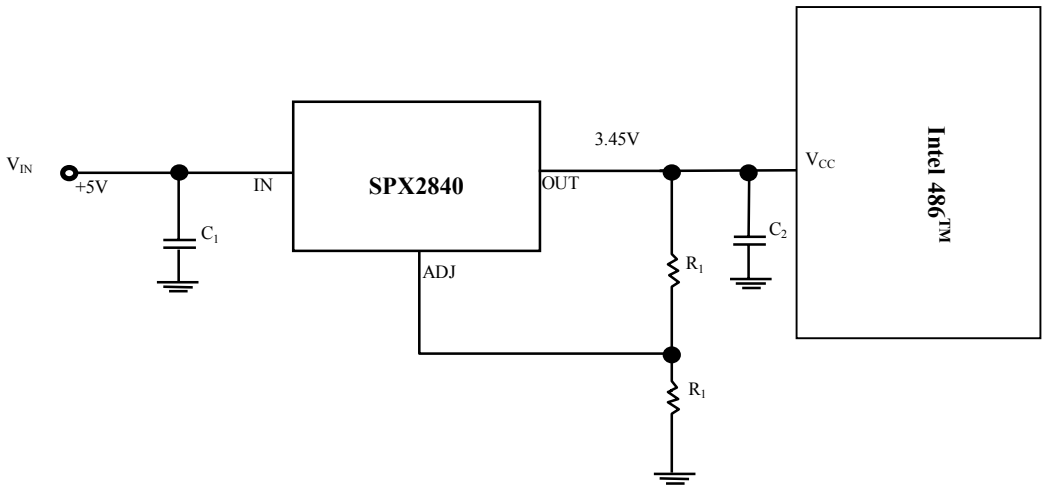
TYPICAL APPLICATIONS



4A Current output Regulator



Typical Adjustable Regulator



Powering Intel Pentium™ with SPX2840

Pentium Processor is a trademark of Intel Corp. Power PC is a trademark of Motorola Corp.

ORDERING INFORMATION

Ordering No.	Precision	Output Voltage	Packages
SPX2840AU	2%	Adj	3 Lead TO-220
SPX2840AU-3.3	2%	3.3V	3 Lead TO-220

SIGNAL PROCESSING EXCELLENCE

Sipex Corporation

Headquarters and Main Offices:
22 Linnell Circle
Billerica, MA 01821
TEL: (978) 667-8700
FAX: (978) 670-9001
e-mail: sales@sipex.com

233 South Hillview Drive
Milpitas, CA 95035
TEL: (408) 935-7600
FAX: (408) 934-7500