



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™ μ P 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

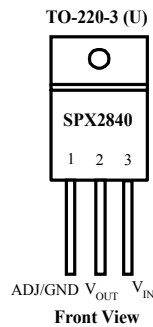
PRODUCT DESCRIPTION

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



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			Units
		Min	Typ	Max	
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	0.2	%
			0.035	0.2	%
			0.05	0.5	%
Load Regulation	10 mA ≤ I _{OUT} ≤ I _{FULLLOAD} (V _{IN} - V _{OUT})=3V		0.1	0.3	%
			0.2	0.4	%
Dropout Voltage	I _{OUT} =I _{FULLLOAD} , ΔV _{REF} =1%		1.1	1.3	V
Current Limit	V _{IN} - V _{OUT} =5V	5.5	6.5		A
	V _{IN} - V _{OUT} =25V	0.3	0.6		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

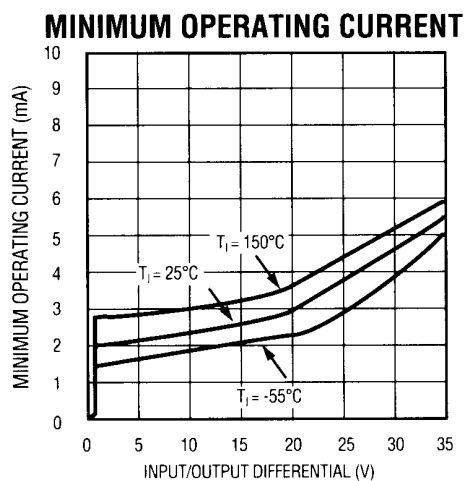
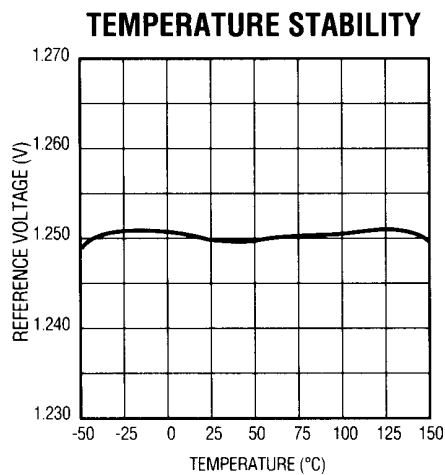
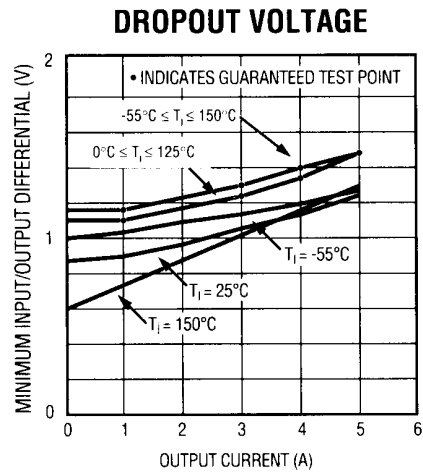
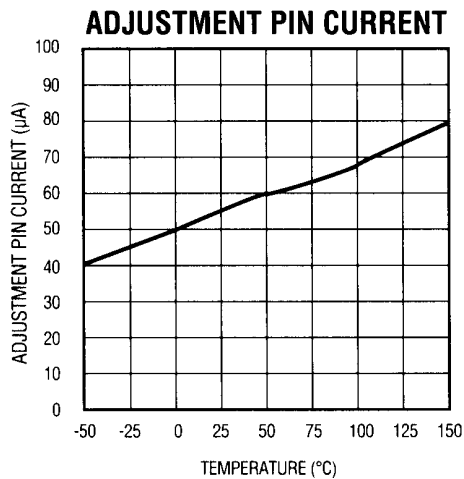
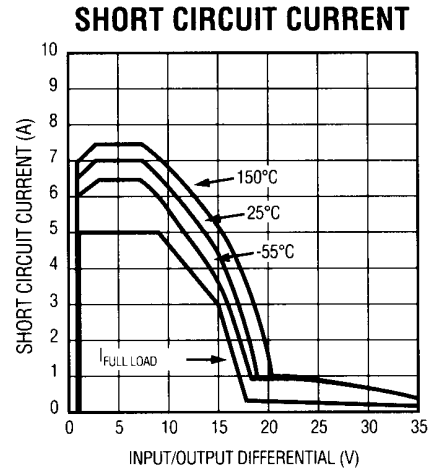
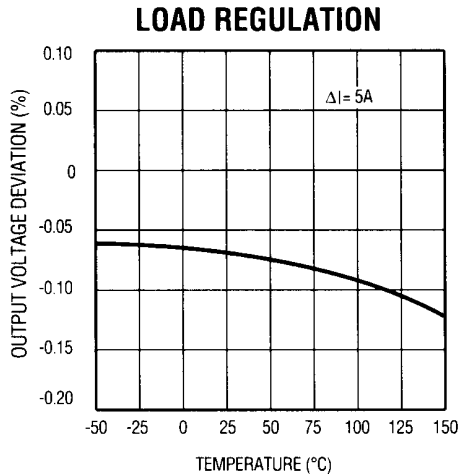
The Bold specifications apply to the full operating temperature range.

Note 1: Changes in output voltage due to heating effects are covered under the specification for thermal regulation.

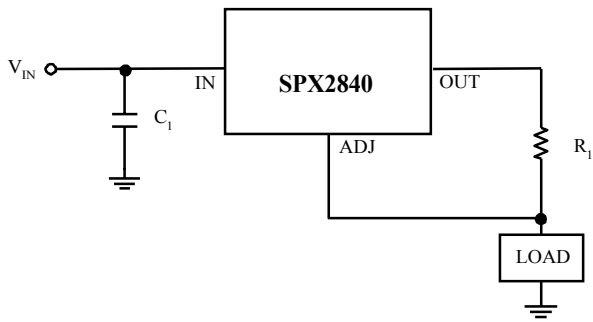
Note 2: A 10μF output capacitor is required on SPX2840.

TYPICAL CHARACTERISTICS

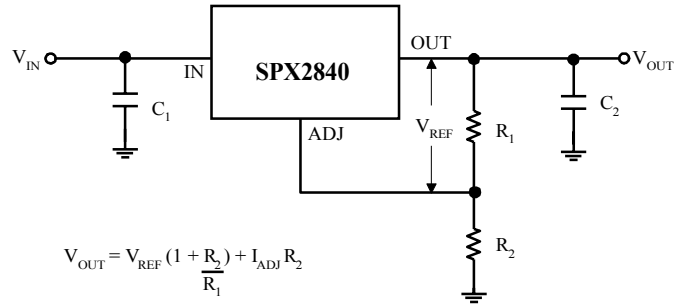
TYPICAL PERFORMANCE CHARACTERISTICS



TYPICAL APPLICATIONS

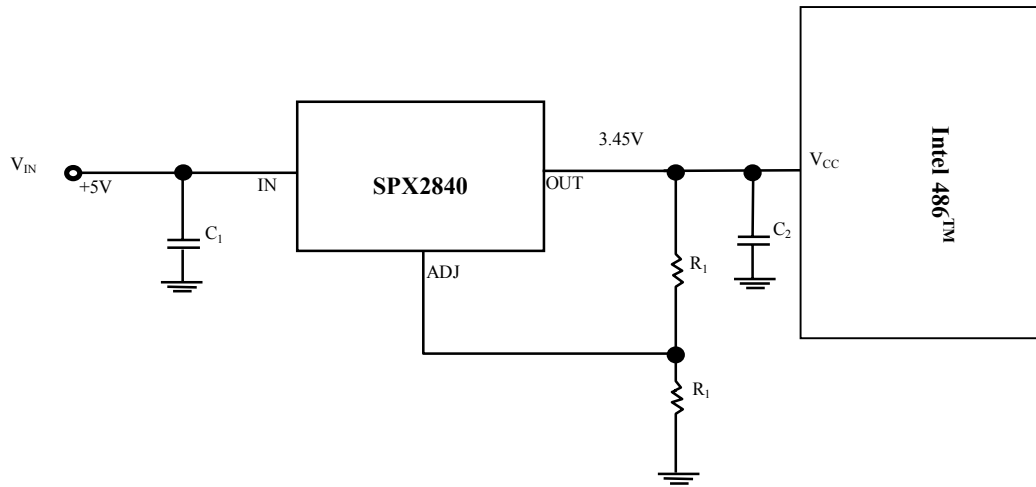


4A Current output Regulator



$$V_{OUT} = V_{REF} \left(1 + \frac{R_2}{R_1}\right) + I_{ADJ} R_2$$

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



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