



SPX1083

8A Low DropOut Voltage Regulator Adjustable & Fixed 3.3V

FEATURES

- Adjustable Output Down to 1.2V or Fixed 3.3V & 5V
- Output Current of 8A
- Low Dropout Voltage
- Extremely Tight Load and Line Regulation
- Current & Thermal Limiting
- Standard 3-Terminal Low Cost TO-220
- Similar to Industry Standard LT1083/LT1584

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

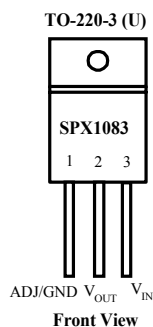
PRODUCT DESCRIPTION

The SPX1083 is a low power 8A 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 when using Powering Intel™ Microprocessor to convert from +5V to 3.3V supplies, and as a post regulator for switching supplies applications. The SPX1083 features low dropout of a maximum 1.5 volts.

The SPX1083 offers full protection against over-current faults, 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 into the load which increases efficiency.

The SPX1083 is offered in a 3-pin TO-220 package compatible with older 3-terminal regulators. For a 5A low dropout regulator refer to the SPX1083 datasheet.

PIN CONNECTIONS



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
 SPX1083 Control Section.....0C° to +125°C
 SPX1083 Power Transistor.....0C° to +150°C

Input Supply Voltage 30V
 Input to Output Voltage Differential 30V

ELECTRICAL CHARACTERISTICS (Note 1) at $I_{OUT} = 10\text{mA}$, $T_A = 25^\circ\text{C}$, unless otherwise specified.

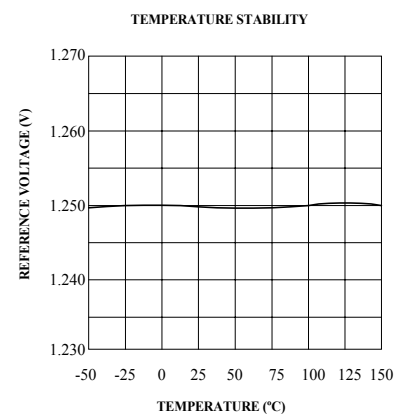
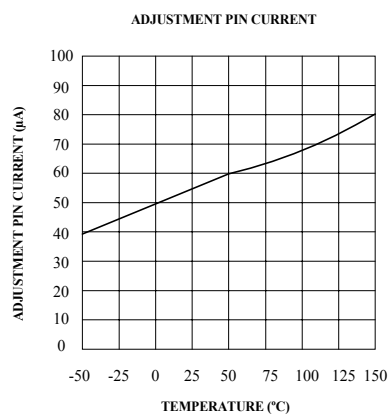
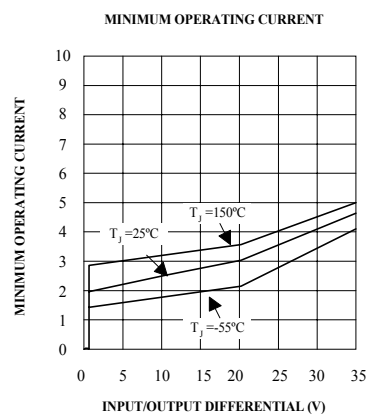
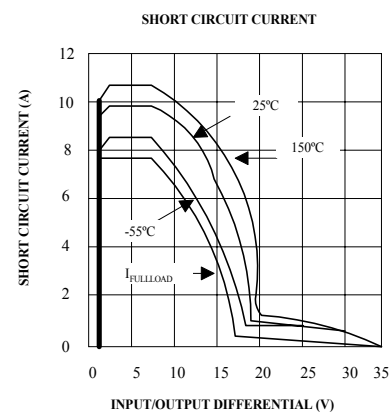
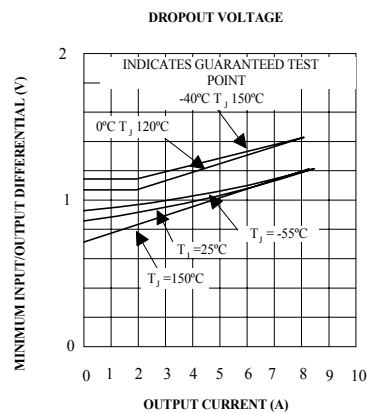
Parameter	Conditions	SPX1083A			SPX1083		Units
		Typ	Min	Max	Min	Max	
3.3V Version							
Output Voltage (Note 2)	SPX1083-3.3V, 0≤I _{OUT} ≤8A, 4.75V≤V _{IN} ≤25V	3.3 3.3	3.270 3.240	3.330 3.360	3.230 3.201	3.370 3.399	V
5.0V Version							
Output Voltage (Note 2)	SPX1083-3.3V, 0≤I _{OUT} ≤8A, 6.5V≤V _{IN} ≤25V	5.0 5.0	4.950 4.900	5.050 5.100	4.900 4.650	5.100 5.150	
All Voltage Options							
Reference Voltage	10 mA ≤ I _{OUT} ≤ I _{FULLLOAD} 3.3V≤(V _{IN} - V _{OUT})≤ V _{IN MAX} - V _{OUT MAX}	1.250 1.250	1.238 1.225	1.262 1.270	1.238 1.225	1.262 1.270	V
Mid Load Current	(V _{IN} - V _{OUT}) = V _{IN MAX} - V _{OUT MAX}	5		10		10	mA
Line Regulation	29V ≤V _{IN} - V _{OUT} ≤ V _{IN MAX} - V _{OUT MAX} I _{LOAD} = 10mA	0.015 0.05		0.2 0.5		0.2 0.5	%
Load Regulation	10mA ≤ I _{OUT} ≤ I _{FULLLOAD} (V _{IN} - V _{OUT})=3V	0.1 0.2		0.3 0.4		0.3 0.4	%
Dropout Voltage	I _{OUT} =I _{FULLLOAD} , ΔV _{REF} =1%	1.1		1.2		1.2	V
Current Limit	V _{IN} - V _{OUT} =5V	9.5	8.0		8.0		A
Long Term Stability	T _A =125°C, 1000Hrs.	0.3		1		1	%
Adjust Pin Current	T _A =25°C	55		90		90	μA
Adjust Pin Current Change		0.2		5		5	μA
Thermal Regulation	30ms pulse	0.003		0.01		0.01	%/W
Temperature Stability		0.5					%
Ripple Rejection Ratio	V _{IN} - V _{OUT} =3V I _{OUT} =3A, C _{OUT} = 25μF, C _{ADJ} = 25μF, f= 120Hz	75	60		60		dB
Output Noise, RMS	10Hz to 10kHz	0.003					% V _O
Thermal Resistance Junction-to-Case	TO-220 Junction to Tab Junction to Ambient			2.7 0.65		2.7 0.65	°C/W

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 SPX1083

TYPICAL CHARACTERISTICS



TYPICAL APPLICATIONS

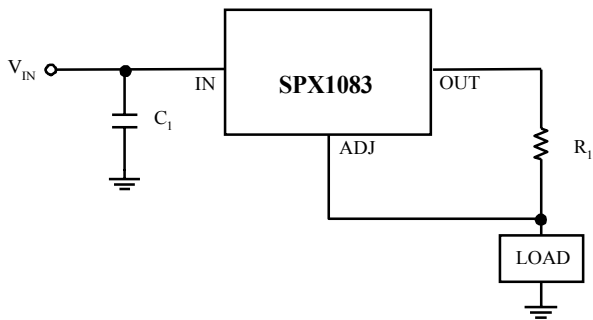


Fig. 4 8A Current output Regulator

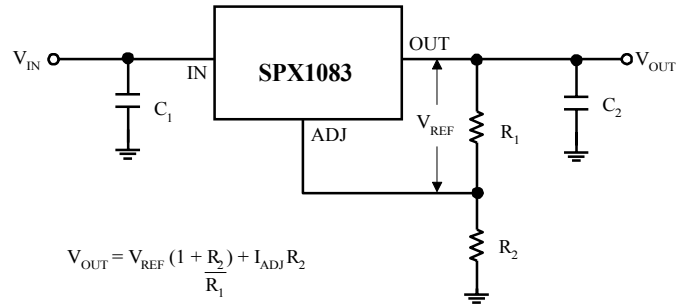
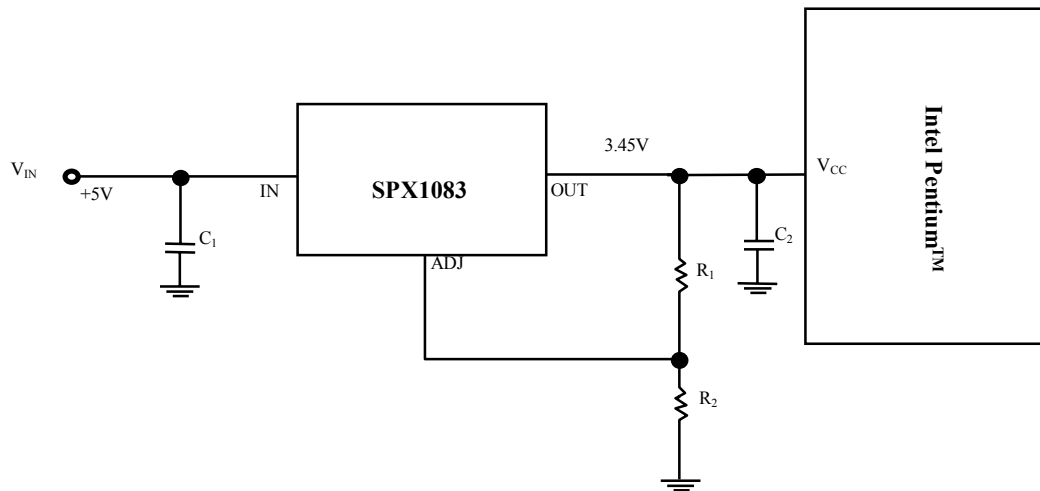


Fig. 5 Typical Adjustable Regulator



Powering Intel Pentium™ with SPX1083

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

ORDERING INFORMATION

Ordering No.	Precision	Output Voltage	Packages
SPX1083U	2%	Adj	3 Lead TO-220
SPX1083U-3.3	2%	3.3V	3 Lead TO-220
SPX1083U-5.0	2%	5.0V	3 Lead TO-220
SPX1083AU	1%	Adj	3 Lead TO-220
SPX1083AU-3.3	1%	3.3V	3 Lead TO-220
SPX1083AT-5.0	1%	5.0V	3 Lead TO-220



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