AS2880

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™ 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 AS2880 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 AS2880 features low dropout of a maximum 1.5 volts.

The AS2880 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 AS2880 is offered in a 3-pin TO-220 package compatible with older 3-terminal regulators. When using ALPHA Semiconductor design, processing and testing techniques make AS2880 superior over similar products on the market. For a 5A low dropout regulator refer to the AS2850 datasheet.

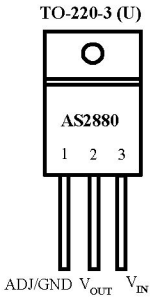
ORDERING INFORMATION

TO-220 3-PIN
AS2880AU

X = Output Voltage (i.e. 3.3 for 3.3V, 5.0 for 5.0V etc.)
Y = Output Tolerance, A for 1%
Blank for 2%
Consult factory for other fixed voltages.

PIN CONNECTIONS

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
AS2880 Control Section .....0C° to +125°C
AS2880 Power Transistor.....0C° to +150°C

Input Supply Voltage ..... +10V
Input to Output Voltage Differential 8.8V

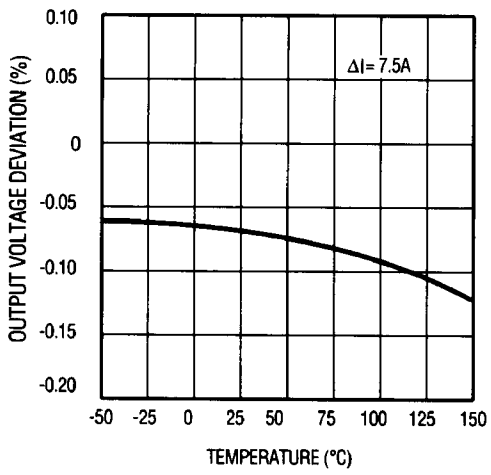
ELECTRICAL CHARACTERISTICS (Note 1) at I_{OUT} = 10mA, T_A = 25°C, unless otherwise specified.

Parameter	Conditions	AS2880A Typ	AS2880A Min	AS2880A Max	AS2880 Min	AS2880 Max	Units
3.3V Version							
Output Voltage (Note 2)	AS2880-3.3V, 0≤I_{OUT}1.5A, 4.75V≤V_{IN}≤7V	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)	AS2880-3.3V, 0≤I_{OUT}1.5A, 6.5V≤V_{IN}≤7V	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	10mA ≤ 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	1.5V ≤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} ≤ $I_{FULLLOAD}$ (VI_N - 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

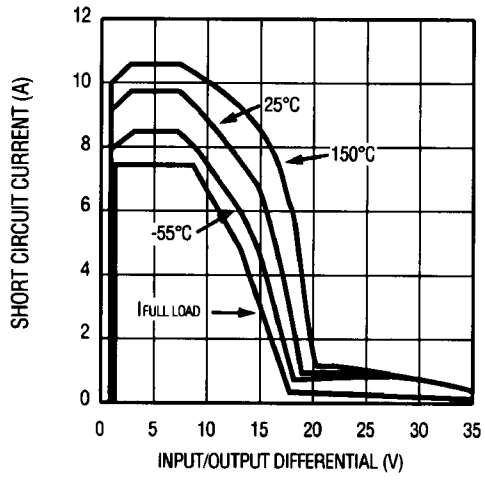
The Bold specifications apply to the full operating temperature range.
Note 1: Changes in output voltage due to heating effects are covered under the specification for thermal regulation.
Note 2: A 10µF output capacitor is required on AS2880

TYPICAL CHARACTERISTICS

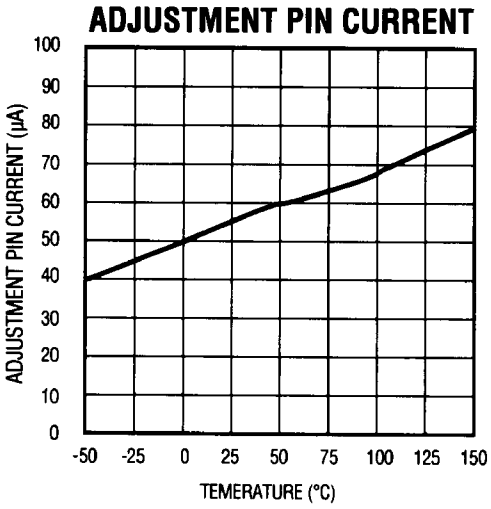
LOAD REGULATION



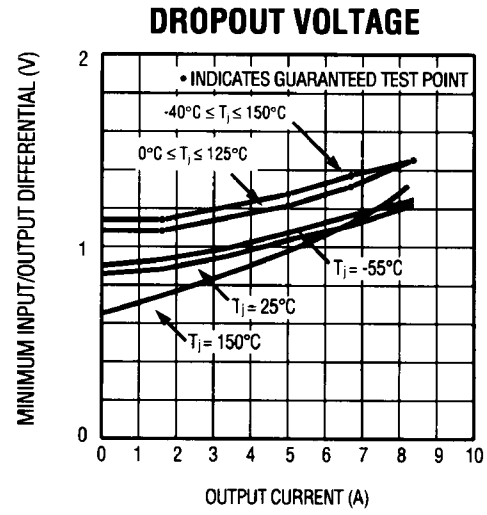
SHORT CIRCUIT CURRENT



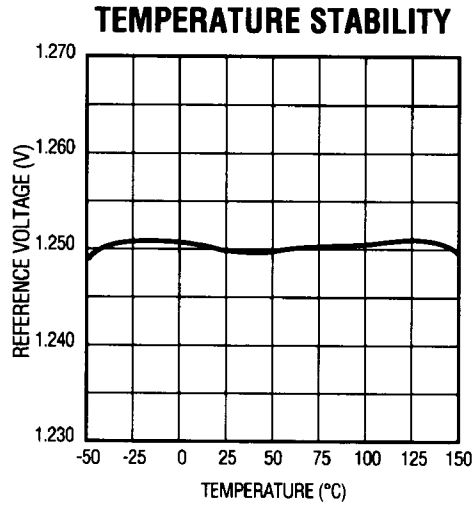
ADJUSTMENT PIN CURRENT



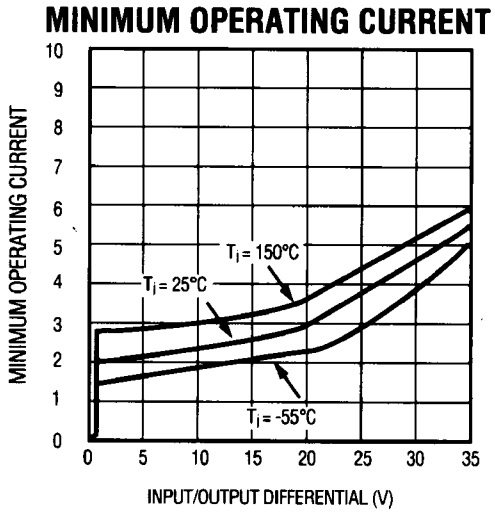
DROPOUT VOLTAGE



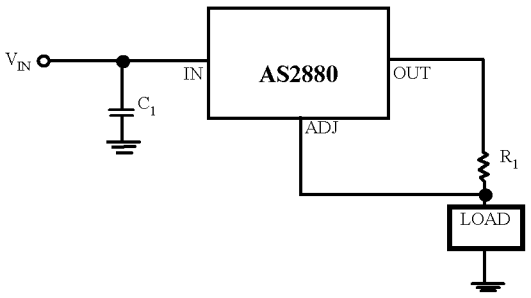
TEMPERATURE STABILITY



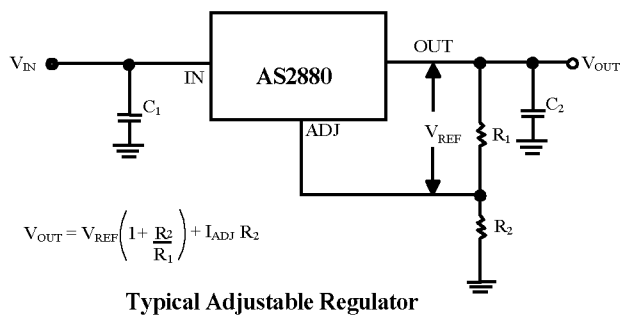
MINIMUM OPERATING CURRENT



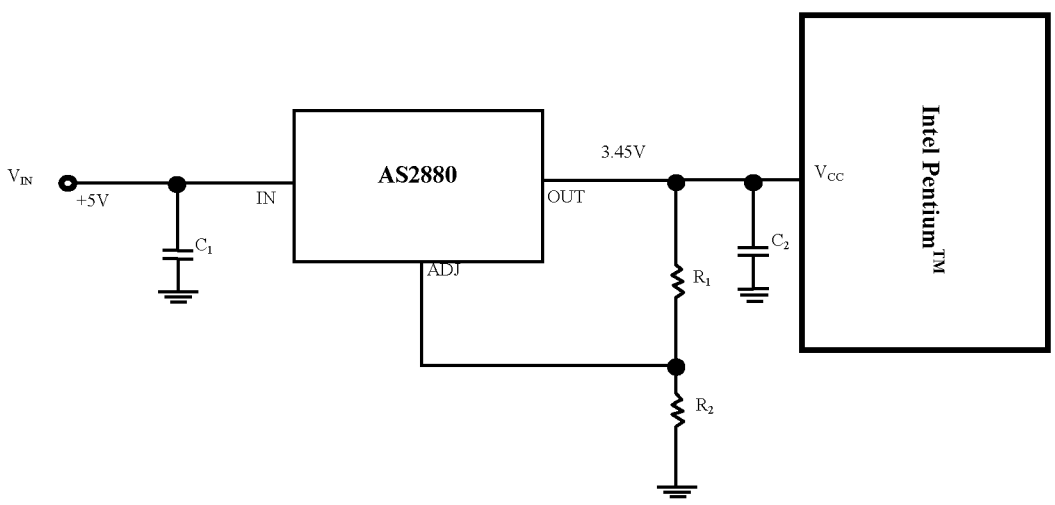
TYPICAL APPLICATIONS



8A Current Output Regulator



Typical Adjustable Regulator



Powering Intel Pentium™ with AS2880