



5.0A Low Dropout Voltage Regulator Adjustable

CLM2850

FEATURES

- Adjustable Output Down to 1.2V
- Output Current of 5A
- Low Dropout Voltage
- Extremely Tight Load and Line Regulation
- Current and Thermal Limiting
- Standard 3-Terminal Low Cost TO-220
- Similar to Industry Standard LT1084

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 Chargers

PRODUCT DESCRIPTION

The Calogic CLM2850 is a low power 5A 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™ microprocessors to convert from +5V to 3.3V supplies and as a post regulator for switching supplies applications.

The CLM2850 offers full protection against over-current faults, reversed input polarity, reversed load insertion, 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 CLM2850 is offered in a 3-pin TO-220 package compatible with older 3 terminal regulators. For a 3A low dropout regulator refer to the CLM2830 data sheet.

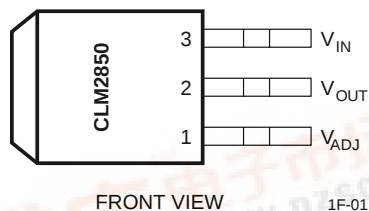
ORDERING INFORMATION

PART	PACKAGE	TEMPERATURE
CLM2850AU	TO-220 (3-Pin)	IND.
CLM2850AT	TO-263 Plastic (3-Pin)	IND.

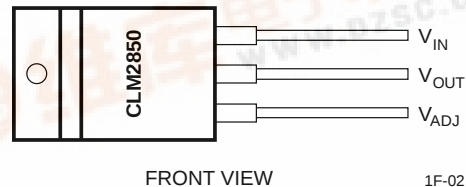
For fixed output voltage contact factory.

PIN CONNECTIONS

PLASTIC TO-263 PACKAGE



PLASTIC PACKAGE TO-220



CLM2850



ABSOLUTE MAXIMUM RATINGS

Lead Temp. (Soldering, 10 Seconds) 300°C
Storage Temperature Range -65 to +150°C
Operating Junction Temperature Range
CLM2850 Control Section 0°C to +125°C
CLM2850 Power Transistor 0°C to +150°C

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

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

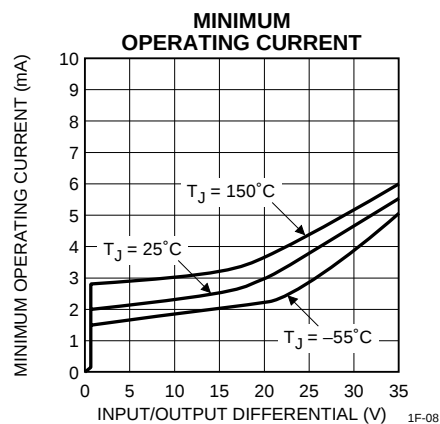
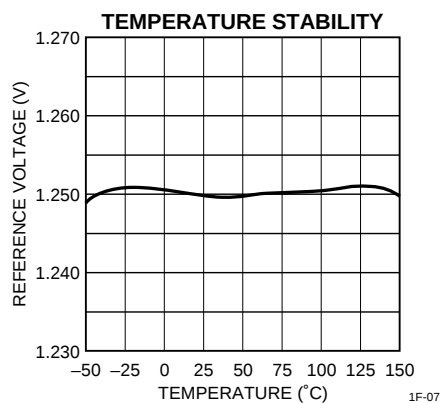
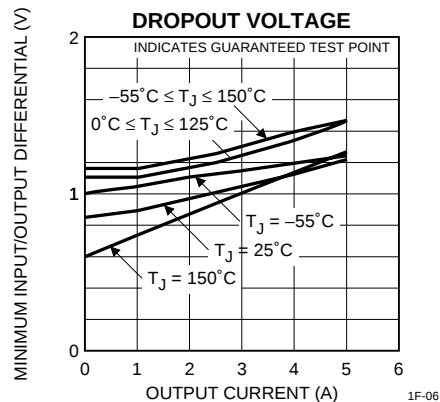
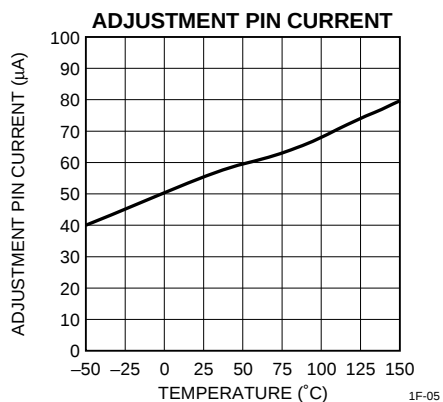
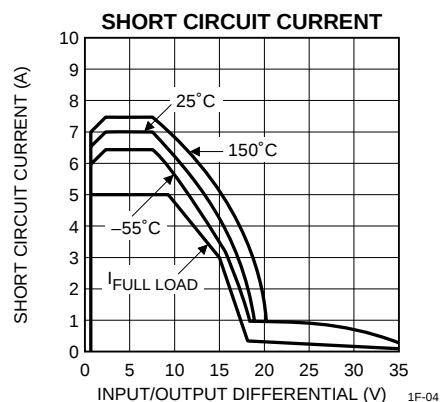
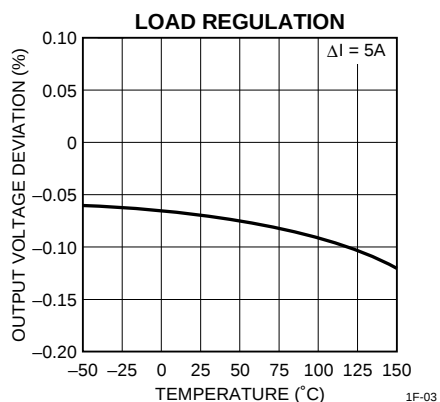
PARAMETER	CLM2850			UNITS	CONDITIONS
	MIN	TYP	MAX		
Reference Voltage	1.238 1.225	1.250 1.250	1.262 1.270	V V	$10\text{mA} \leq I_{OUT} \leq I_{FULLLOAD}$ $1.5\text{V} \leq (V_{IN} - V_{OUT}) \leq 25\text{V}$ (Over Temperature)
Min. Load Current		5	10	mA	$(V_{IN} - V_{OUT}) = +25\text{V}$
Line Regulation		0.015 0.035 0.05	0.2 0.2 0.5	% % %	$1.5\text{V} \leq V_{IN} - V_{OUT} \leq 15\text{V}$ $I_{LOAD} = 10\text{mA}$ $15\text{V} \leq V_{IN} - V_{OUT} \leq 30\text{V}$
Load Regulation		0.1 0.2	0.3 0.4	% %	$10\text{mA} \leq I_{OUT} \leq I_{FULLLOAD}$ $(V_{IN} - V_{OUT}) = 3\text{V}$
Dropout Voltage		1.1	1.5	V	$I_{OUT} = I_{FULLLOAD}$, $\Delta V_{REF} = 1\%$
Current Limit	5.5 0.3	6.5 0.6		A A	$V_{IN} - V_{OUT} = 5\text{V}$ $V_{IN} - V_{OUT} = 25\text{V}$
Long Term Stability		0.3	1	%	$T_A = 125^\circ\text{C}$, 1000 Hrs.
Adjust Pin Current		55	120	μA	$T_A = 25^\circ\text{C}$
Adjust Pin Current Change		0.2	5	μA	
Thermal Regulation		0.003	0.015	%/W	30ms pulse
Temperature Stability		0.5		%	
Ripple Rejection Ratio	60	75		dB	$V_{IN} - V_{OUT} = 3\text{V}$ $I_{OUT} = 3\text{A}$, $C_{OUT} = 25\mu\text{F}$, $C_{ADJ} = 25\mu\text{F}$, $f = 120\text{Hz}$
Output Noise, RMS		0.003		% V_O	10Hz to 10kHz
Thermal Resistance Junction-to-Case			0.65/2.7	$^\circ\text{C}/\text{W}$	CLM2850 - TO-220 and TO-263

The Bold specifications apply to the over full operating temperature range.

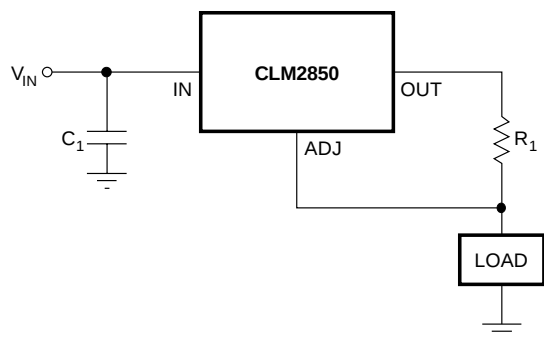
Note 1: Changes in output voltage due to heating effects are covered under the specification for thermal regulation.

Note 2: A 10 μF output capacitor is required on CLM2850.

TYPICAL PERFORMANCE CHARACTERISTICS

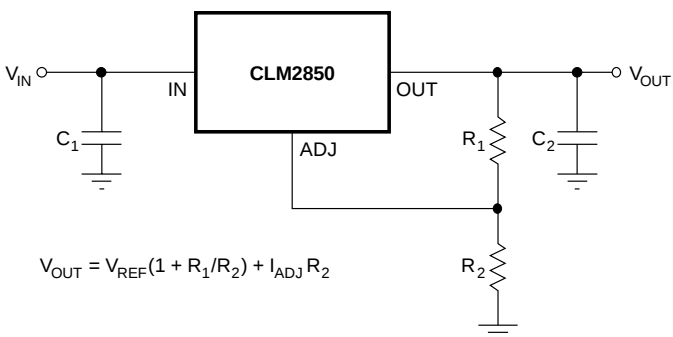


TYPICAL APPLICATIONS



5A CURRENT OUTPUT REGULATOR

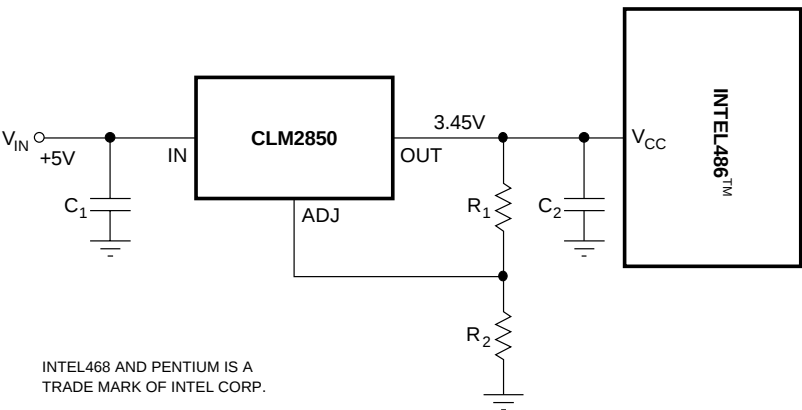
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$$V_{OUT} = V_{REF}(1 + R_1/R_2) + I_{ADJ} R_2$$

TYPICAL ADJUSTABLE REGULATOR

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INTEL486 AND PENTIUM IS A
TRADE MARK OF INTEL CORP.

POWERING INTEL PENTIUM WITH CLM2850

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