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™ 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 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.

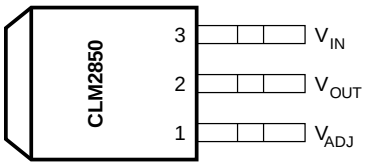
ORDERING INFORMATION

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

For fixed output voltage contact factory.

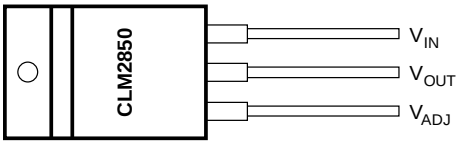
PIN CONNECTIONS

PLASTIC TO-263 PACKAGE



FRONT VIEW 1F-01

PLASTIC PACKAGE TO-220



FRONT VIEW 1F-02

CALOGIC CORPORATION, 237 Whitney Place, Fremont, California 94539, Telephone: 510-656-2900, FAX: 510-651-3025

CORPORATION

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} = 10mA, T_A = 25°C, unless otherwise specified.

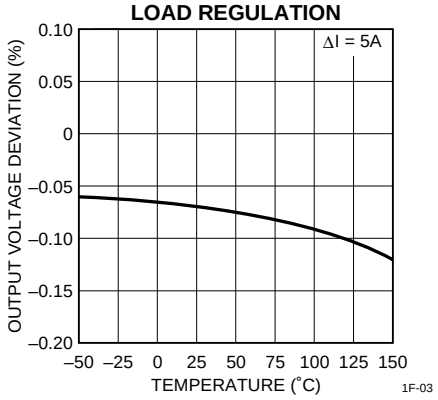
PARAMETER	CLM2850			UNITS	CONDITIONS
	MIN	TYP	MAX		
Reference Voltage	1.238 **1.225**	1.250 **1.250**	1.262 **1.270**	V V	10mA ≤ I_{OUT} ≤ $I_{FULLLOAD}$ 1.5V ≤ (V_{IN} - V_{OUT} ≤ 25V (Over Temperature)
Min. Load Current		**5**	10	mA	(V_{IN} - V_{OUT}) = + 25V
Line Regulation		0.015 **0.035** **0.05**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

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

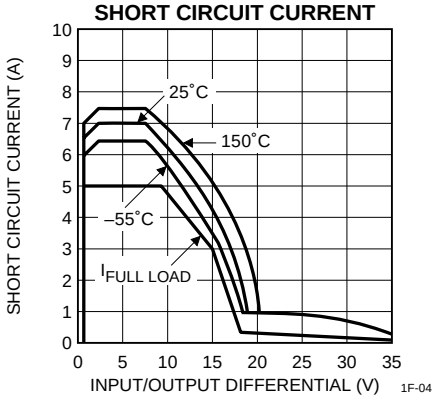
Note 1: Changes in output voltage due to heating effects are covered under the specification for thermal regulation.
Note 2: A 10µF output capacitor is required on CLM2850.

TYPICAL PERFORMANCE CHARACTERISTICS

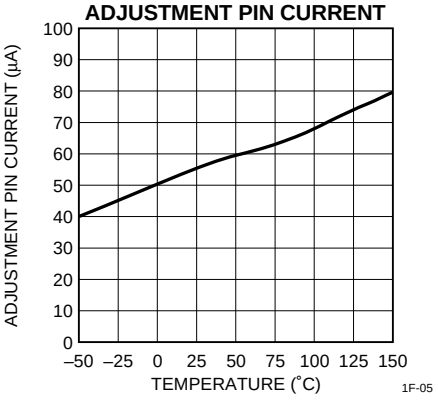
LOAD REGULATION



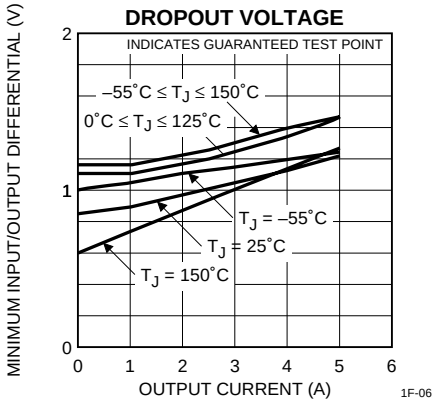
SHORT CIRCUIT CURRENT



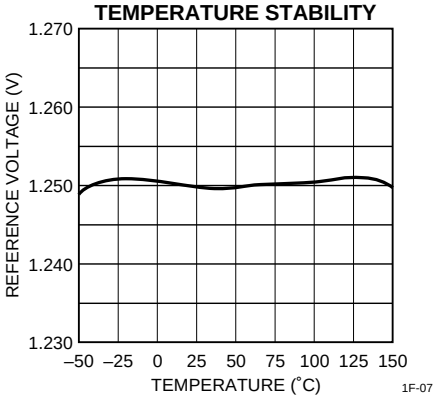
ADJUSTMENT PIN CURRENT



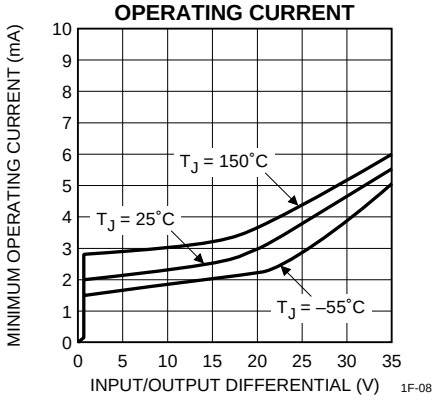
DROPOUT VOLTAGE



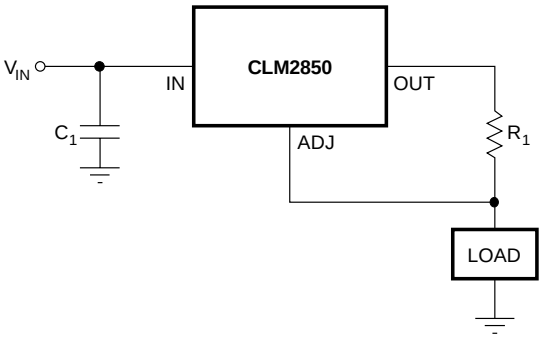
TEMPERATURE STABILITY



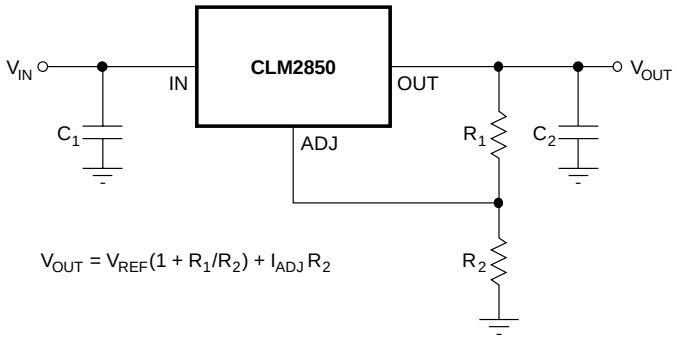
MINIMUM OPERATING CURRENT



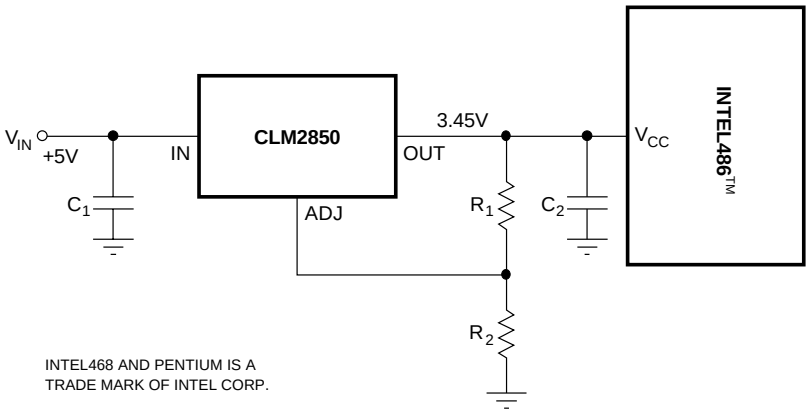
TYPICAL APPLICATIONS



5A CURRENT OUTPUT REGULATOR 1F-09



TYPICAL ADJUSTABLE REGULATOR 1F-10



POWERING INTEL PENTIUM WITH CLM2850 1F-11