ALPHA
SEMICONDUCTOR
Excellence in Analog Power Products

AS8877

150 mA, Low-Noise LDO Voltage Regulator

(PRELIMINARY INFORMATION)

FEATURES

- Ultra-Low Noise Output LDO
- Very Low Quiescent Current
- Low Dropout Voltage (165mV At 150mA)
- Current & Thermal Limiting
- Reverse-Battery Protection
- Output Voltages Preset from 2.5V to 5.0V in 100mV increments
- Zero Off-Mode Current
- Small 5-Pin SOT-23
- Same pinout as MAX8877

APPLICATIONS

- Battery Powered Systems
- Cellular Phone
- Cordless Telephones
- Radio Control Systems
- Portable/Palm Top/Notebook Computers
- Portable Consumer Equipment
- Portable Instrumentation
- Bar Code Scanners
- SMPS Post-Regulator

PRODUCT DESCRIPTION

The ALPHA Semiconductor AS8877 is a low-power positive voltage regulator with ultra low noise output and very low dropout voltage. In addition, this device offers very low quiescent current of approximately 800uA at 150mA output. The AS8877 initial tolerance is less than 2% max and has a logic compatible ON/OFF switching input. The unique features of the AS8877 include a reference bypass pin for the best performance results of low noise.

This device is an excellent choice for use in battery powered applications such as cellular/ cordless telephones, radio control systems, and portable computers. When disabled power consumption drops to nearly zero. The device also has a very low output temperature coefficient, making it a low power voltage reference. The AS8877 key features include protection against reversed battery, fold-back current limiting, and automotive load dump protection.

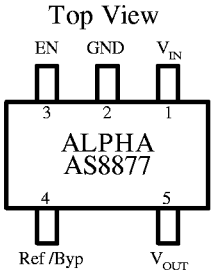
The AS8877 is available in many fixed voltages (3.0V, 3.3V, & 5.0V) or with an adjustable output. This device is offered in a small 5-pin SOT-23 package. Providing a small footprint with all the performance features with fixed or adjustable output.

ORDERING INFORMATION

Part Number	Temperature Range	Package Type
AS8877M-X	-40°C to +125°C	SOT-23-5

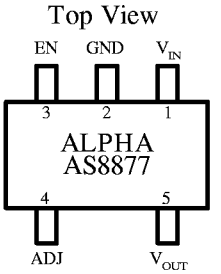
X = Output Voltage (X = 2.5V to 5.0V in 100mV increments or Blank for Adjustable).

PIN CONNECTIONS



AS8877M-X

Fixed Output Voltage



AS8877M-Adj

Adjustable Output Voltage

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Rev. 8/24/99

ABSOLUTE MAXIMUM RATINGS

Power Dissipation..... Internally Limited
Lead Temp. (Soldering, 5 Seconds) ..... 260°C
Operating Junction Temperature Range... -40°C to +125°C
Input Supply Voltage(Survival) .....-7V to +7V
Enable Input Voltage(Survival) .....-7V to +7V

RECOMMENDED OPERATING CONDITIONS

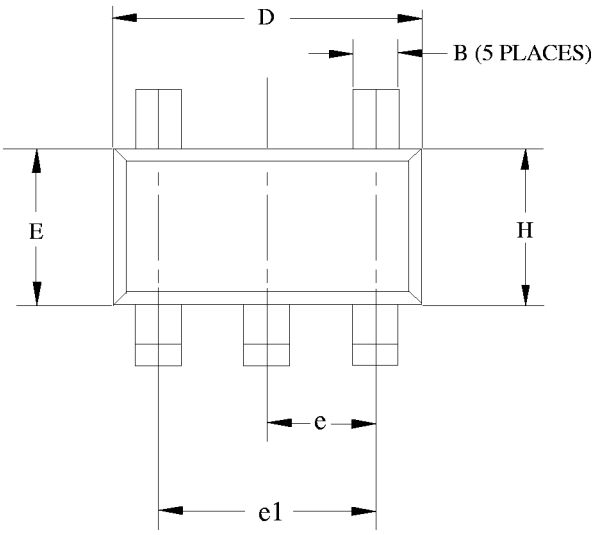
Input Voltage.....+2.5V to+6.5V
Operating Junction Temperature Range ... -40°C to +125°C
Enable Input Voltage ..... 0V to V_{IN}
SOT-23-5 θ_{JA}.....571mW

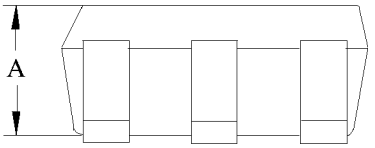
ELECTRICAL CHARACTERISTICS

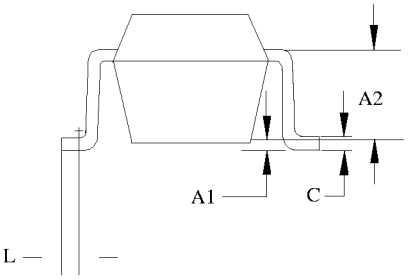
T_J = 25°C, V_{IN} = V_{OUT} + 0.5V. Unless otherwise specified boldface applies over the junction temperature range

Parameter	Test Conditions	Typ	Min	Max	Units
Output Voltage Tolerance(V_{OUT})			-1.4 -2	+1.4 +2	%V_{NOM}
Line Regulation	V_{IN} = V_{OUT} + 0.5o 6.5	0	-015	0.15	%
Dropout Voltage (V_{IN}- V_O)	I_L = 0	1.1			mV
	I_L = 10 mA	25			
	I_L = 50 mA	55		120	
	I_L = 100 mA	165			
Quiescent Current (I_{GND})	V_{ENABLE} ≤ 0.55V V_{ENABLE} ≧ 1.4V	< 1		1 4	µA
Ground Pin Current (I_{GND})	I_L = 0	85		180	µA
	I_L = 150 mA	100			
	$V_{ON/OFF}$ < 0.3V	0.01		0.8	
	$V_{ON/OFF}$ < 0.15V	0.10			
Ripple Rejection (PSRR)	V_{OUT} = 0V		45		dB
Current Limit (I_{LIMIT})	V_{OUT} = 0V		150		mA
Output Noise (e_{NO})	I_L = 50mA, C_L = 4.7µA 0.01µA from Ref BYP to ground		30		nV√Hz
Input Voltage Level Logic Low (V_{IL}) Input Voltage Level Logic High (V_{IL})	OFF ON	0.55 1.4		0.15 2	V
ENABLE Input Current	V_{IL} ≤ 0.18V V_{IH} ≧ 2.0V		0.01 5	-2 15	µA

PACKAGE DRAWING
SOT-23-5L (M5)







SYMBOL	MILLIMETERS			INCHES	
	MIN.	MAX		MIN.	MAX.
A	0.90	1.30		.035	.051
A1	0	0.10		0	.004
A2	0.80 REF			.0315 REF	
B	0.30	0.50		.012	.019
C	0.10	0.35		.004	.0137
D	2.70	3.10		.106	.122
E	1.40	1.80		.055	.071
e	0.95 BSC.			.037 BSC.	
e1	1.70	2.10		.066	.082
H	2.50	3.00		.098	.118
L	MIN 0.2			MIN .0078	

NOTE:

1. REFER TO APPLICABLE
2. CONTROLLING DIMENTION : MILLIMETER
3. PACKAGE SURFACE FINISHING TO BE SMOOTH FINISH.