ALPHA SEMICONDUCTOR
Excellence in Analog Power Products

AS80

Low Quiescent Current CMOS Low Dropout Voltage Regulator

(Advanced Information) - Production 2Q `97

FEATURES

- **Extremely Low Quiescent Current.....3.5µA**
- Low Dropout Voltage..... 30mv @ 1ma Typ
- High Accuracy Output Voltage..... ±5%
- Wide Choice Of V_{out} 2.0V, 3.0V, 4.0V, 5.0V
- Offered In TO-92, SOT-89, & SOT-23

APPLICATIONS

- Battery Operating Equipment
- Post-Regulator For Boost Converters In Portable Equipment
- Cellular Phones
- Portable / Palm Top / Notebook Computers
- Portable Instrumentation's

PRODUCT DESCRIPTION

The ALPHA Semiconductor AS80 is a high accuracy 3-terminal CMOS Voltage Regulator. The output currents extend to 80mA, with quiescent currents as low as 1µA. the design features very low dropout voltage and fast recovery from turn-on transients, both important features for battery-operated communications equipment. The device is also suitable as a micropower voltage reference.

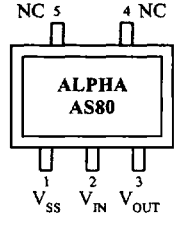
Available output voltages extend from 2.0V to 6.0V in 0.1V steps. The AS80 is available in SOT-23, SOT-89, and TO-92 packages.

ORDERING INFORMATION

TO-92 3-PIN	SOT-23 5-PIN	SOT-89 3-PIN	Oper. Temp. Range
AS46N	AS46M	AS46M1	IND.

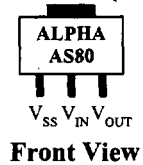
PIN CONFIGURATIONS

SOT-23-5 (M)



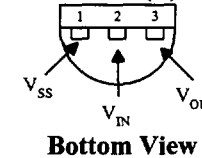
Top View

SOT-89-3 (M1)



Front View

TO-92 (N)



Bottom View

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Test Conditions	Unit
Input Voltage	V_{IN}	+12	V
Output Current	I_{OUT}	150	mA
Output Voltage	V_{OUT}	(V_{SS} - 0.3) to (V_{IN} + 0.3)	V
Power Dissipation TO-92, SOT-89-3, and SOT-23-5	Pd1 Pd2	300 150	mW
Operating Temperature Range	T_A	-40 to +85	°C
Storage Temperature Range	T_{stg}	-65 to +150	°C
Soldering Temperature	T_{solder}	260°C, 10 sec	

Input Voltage (V_{IN})..... +12V
Output Current (I_{OUT})..... 150mA

ELECTRICAL CHARACTERISTICS: (T_A = 25° C),unless otherwise specified.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$10\mu A \le I_{OUT} \le 10mA$	0.975		1.025	V
Output Current	I_{OUT}	$V_{IN} = V_{OUT} + 2.0V$ V_{OUT} = 2.0V V_{OUT} = 3.0V V_{OUT} = 4.0V V_{OUT} = 5.0V, 6.0V	 25 35 45 55	 35 50 65 80		mA
Load Regulation	V_{OUT}	$V_{IN} = V_{OUT} + 2.0V$ V_{OUT} = 2.0V, 1mA ≤ I_{OUT} ≤ 35mA V_{OUT} = 3.0V, 1mA ≤ I_{OUT} ≤ 50mA V_{OUT} = 4.0V, 1mA ≤ I_{OUT} ≤ 65mA V_{OUT} = 5.0V, 6.0V, 1mA ≤ I_{OUT} ≤ 80mA		 30 40 50 60	 45 60 75 90	mV
Dropout Voltage	Vdif	I_{OUT} = 1mA V_{OUT} = 2.0V V_{OUT} = 3.0V V_{OUT} = 4.0V, 5.0V, 6.0V		 60 40 25	 90 60 38	mV
Quiescent Current	I_{SS}	$V_{IN} = V_{OUT} + 2.0V$ V_{OUT} = 2.0V V_{OUT} = 3.0V V_{OUT} = 4.0V V_{OUT} = 5.0V, 6.0V				μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN}}$	I_{OUT} = 1mA (V_{OUT} + 0.5V) ≤ V_{IN} ≤ 10V				%/V
Input Voltage	V_{IN}				10	V
Temperature Coefficient	$\Delta V_{OUT}/\Delta T_A$	I_{OUT} = 10mA - 40°C ≤ T_A ≤ 85°C		±100		ppm/°C