

Adjustable Micropower Voltage Reference

FEATURES

- Adjustable Voltage.....1.24 to 5.3Volt
- Dynamic Impedance 1Ω Max
- Low Temperature Coefficient..... 30 ppm/°C Typ
- Operating Current..... 10μA to 20mA
- Initial Tolerance1% & 2%
- Direct pin compatible to LM185/285/385

APPLICATIONS

- Portable Meter Reference
- Portable Test Instruments
- Battery Operated Systems
- Panel Meter
- Current Loop Instrumentation

PRODUCT DESCRIPTION

The ALPHA Semiconductor AS385 is a micropower 3-terminal adjustable band-gap voltage reference with a very wide operating current range from 10μA to 20 mA. It provides a stable voltage that can be adjusted from 1.24 to 5.3V without changing much in dynamic impedance or in temperature coefficient. The high stability of this device is primarily the result of the low temperature coefficient Thin Film Resistor process and Laser Trimming of the output voltage at the wafer level.

The AS385 is available in a TO-46 package with an operating temperature range of -55°C to +125°C, and TO-92, SO-8 and SOT-89 packages with an operating temperature range of -40°C to 85°C. Extended temperature range also available for TO-92 and SO-8 packages. The ALPHA Semiconductor 2.5 & 1.2 volts fixed is also available (AS385-1.2 & AS385-2.5).

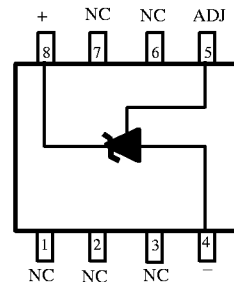
ORDERING INFORMATION

Max. Tempco ppm/C*	Part Number	Package Type	TEMP. RANGE
50	AS385AT	TO-46	MIL
100	AS385BT	TO-46	MIL
50	AS385AN	TO-92	COM
100	AS385BN	TO-92	COM
50	AS385AS	SO-8	COM
100	AS385BS	SO-8	COM
50	AS385AM	SOT-89	COM
100	AS385BM	SOT-89	COM

* For lower Tempco Consult Factory

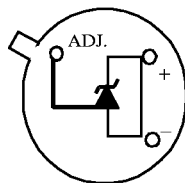
PIN CONNECTIONS

8-Pin Surface Mount



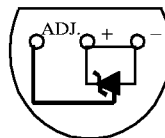
Top View

TO-46 Metal Can Package



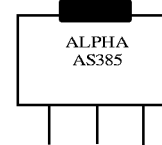
Bottom View

TO-92 Plastic Package



Bottom View

SOT-89



REF ANODE CATHODE

Front View

ABSOLUTE MAXIMUM RATINGS

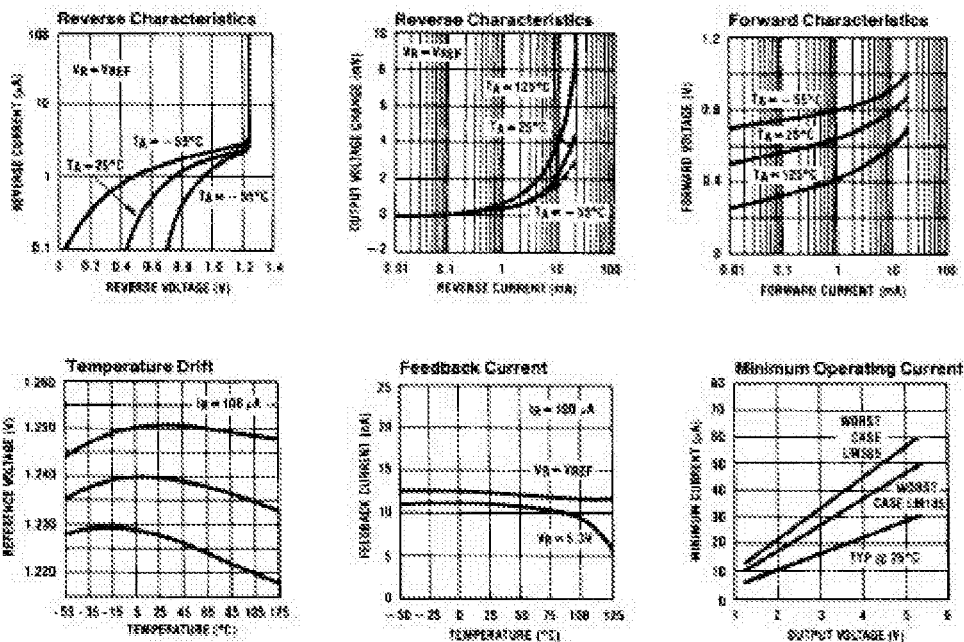
Reverse Current.....30 mA
 Forward Current.....10mA
 Operating Temperature Range
 TO-46 Package.....-55 °C to +125°C
 SO-8, SOT-89 and TO-92 Packages-40°C to +85°C
 Storage temperature.....-55°C to +150°C

ELECTRICAL CHARACTERISTICS at $I_{in}=100\mu A$, $T_a=25^\circ C$, unless otherwise specified.

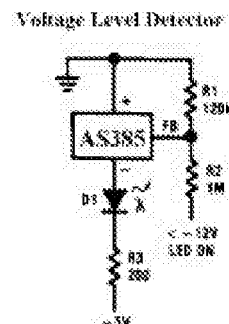
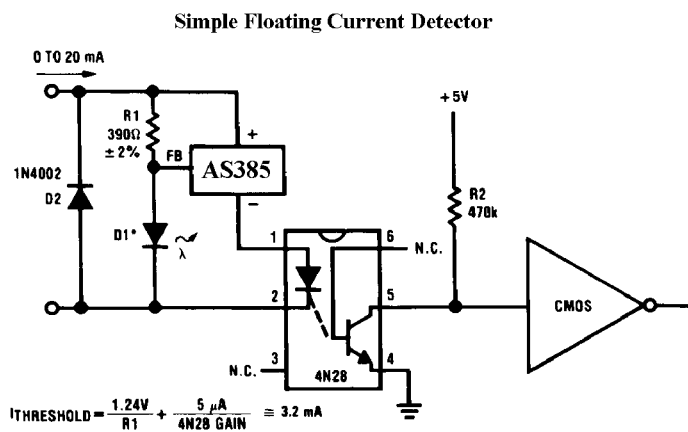
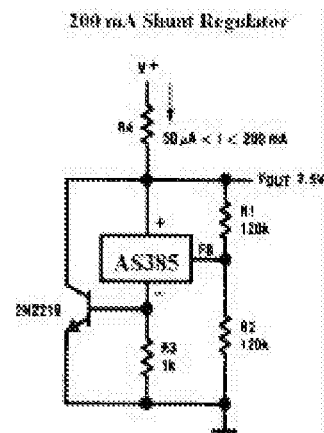
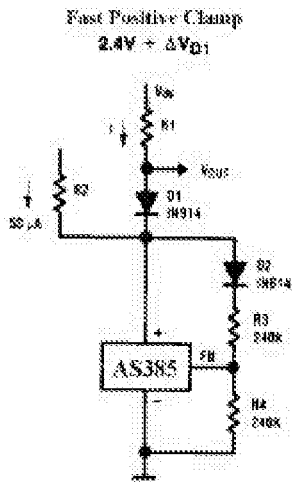
PARAMETER	CONDITIONS	AS385AT			AS385BT			AS385AN/AS			AS385BN/BS			UNITS
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Reference Voltage		1.240	1.25	1.260	1.23	1.250	1.27	1.23	1.25	1.26	1.23	1.250	1.27	V
Dynamic Output Impedance	$f=100\text{Hz}$ $V_i=V_{ref}$ $V_i=5.3\text{V}$		0.6 0.6	1.0 1.5		0.6 0.6	1.0 1.5		0.6 0.6	1.0 1.5		0.6 0.6	1.0 1.5	Ω Ω
Feedback Current			15			15			15			15		nA
Temperature Coeff.	Note 1		30	50		60	100		30	50		60	100	ppm/°C
Minimum Operating Current	$V_i=V_{ref}$ $V_i=5.3$		6 30	10 60		6 30	10 60		6 30	10 60		6 30	10 60	μA μA
Output Wideband Noise	$10\text{Hz} < f$ $V_i=V_{ref}$ $f \leq 10\text{kHz}$ $V_i=5.3\text{V}$		50 170			50 170			50 170			50 170		μV_{rms} μV_{rms}
Operating Temperature		-55		+125	-55		+125	-40		+85	-40		+85	°C

Note 1: Three point measurement guarantees the error band over the specified temperature range.

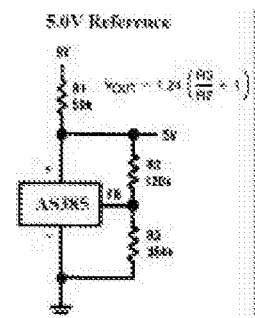
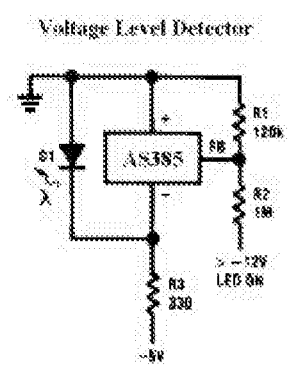
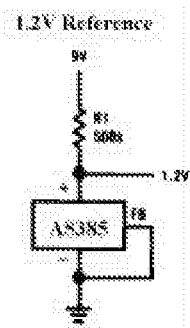
TYPICAL PERFORMANCE CHARACTERISTICS



AS385 APPLICATIONS



AS385 APPLICATIONS (Continued)



SCHEMATIC DIAGRAM

