Dual, Adjustable, Negative & Positive, Linear Voltage Regulator

(Preliminary)

FEATURES

Wide Input Voltage Range: +3.5V to +37V, -2.5V to –26V
COTS & MIL Level screening available
Dual Adjustable outputs
Compact Surface Mount Package
1% or 2% Initial output accuracy

DESCRIPTION

The SAT127 is a military qualified, wide-input range linear regulator designed for harsh environments. Packaged in a hermetic, 8-Pin package, this device is an excellent choice for applications with limited board space. The SAT127 provides ±1.0A of output current over the full Mil-Temp range of –55 ^{o}C to +125 ^{o}C . The device also features internal thermal shutdown, output current-limiting circuitry and ±1% output accuracy. The SAT127 is provided in adjustable and fixed output voltage configurations. The adjustable only requires 2 external resistors per output to program output voltages. Fixed versions do not require any additional components saving cost and board space.

ABSOLUTE MAXIMUM RATINGS
(Exceeding maximum ratings may damage the device)

Symbol	Parameter	Value	Unit
Vo	DC output Voltage	+37V, -26V	V
Io	Output Current	±1.0	A
Pd	Power Dissipation Tcase=25deg.C	TBD	W
Rthjc	Thermal Resistance, Junction to Case	3.0	^{o}C/W
Tstg	Storage Temperature	-65 to +150	^{o}C
Top	Operating Temperature Range	-55 to +125	^{o}C
Tj	Maximum Junction Temperature	150	^{o}C
W	Package weight	TBD	G
Tsold	Maximum Soldering Temperature, 10sec	300	^{o}C

ELECTRICAL CHARACTERISTICS @ Ta=-55deg.C to +125deg.C
(Unless Otherwise Specified)

Symbol	Parameter	Test Conditions	SAT127A			SAT127			Units
			Min	Typ	Max	Min	Typ	Max	
V_{REF}	Positive Reference Voltage accuracy	Vdiff = 3.0V, I_L =10 mA, Ta = 25 ^{o}C	1.238	1.25	1.262	1.225		1.275	V
V_{REF}	Negative Reference Voltage accuracy	Vdiff = 40V, I_L =10 mA, Ta = 25 ^{o}C	-1.270		-1.225	-1.300		-1.200	V
V_{IN+}	Input Voltage Range +	Iout=1.0A	+4.25		+40	+4.25		+40	V
V_{IN-}	Input Voltage Range -	Iout=1.0A	-2.25		-30	-2.25		-30	V
V_{LINE+}	Line Regulation (Note 1)	Vref= Vout – Vadj I_L =10 mA			27			27	mV
V_{LINE-}	Line Regulation (Note 1)	Vref= Vout – Vadj I_L =10 mA			27			27	mV
V_{load+}	Load Regulation (Note 1)	Vdiff= 3V, 3mA≤I_L≤1.0A			15			15	mV
V_{load-}	Load Regulation (Note 1)	Vdiff= 3V, 3mA≤I_L≤1.0A			15			15	mV
I_{adj}	Adjust-pin current	Vdiff= 3V, 10mA≤I_L≤5.5mA			100			100	µA
$\Delta Iadj$	Adjust Pin current change	Io= 0.5A,			5			5	µA
Icl+	Short-circuit Current	Vdiff=10.V			1.6			1.6	A
Icl-	Short-circuit Current	Vdiff=10.V			TBD			TBD	A

Notes:
1. Load & Line regulation are measured at constant (Tj) junction temperature using a low duty cycle pulse. Changes in output voltage due to heating effects must be evaluated separately.
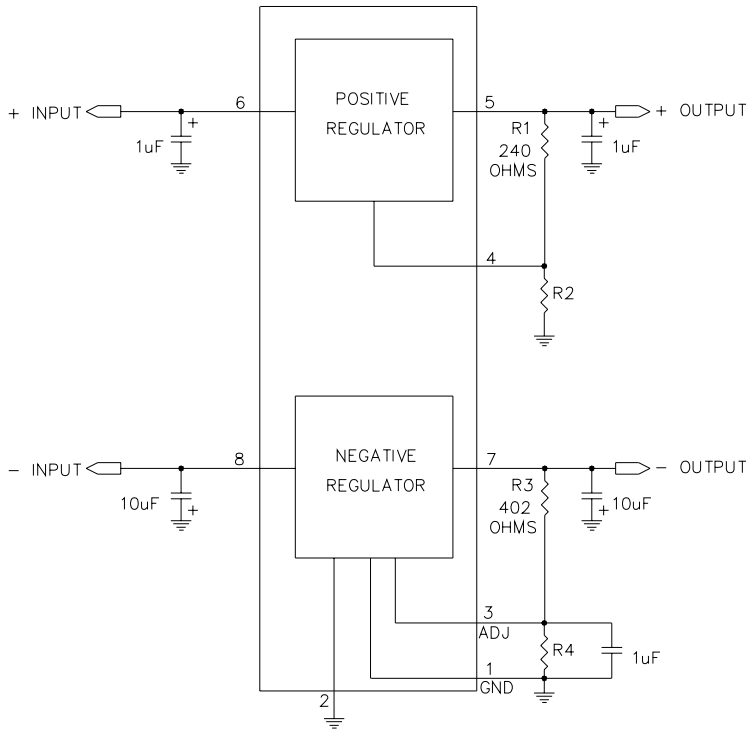
Application Circuit

Figure 1, Typical application circuit
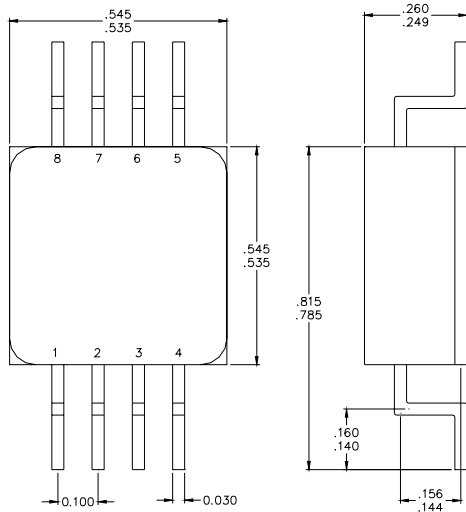
$$+Vout = 1.25\ (1 + R2/R1)$$
$$-Vout = 1.25\ (1 + R4/R3)$$

PIN DESCRIPTION

PIN ASSIGNMENT

PIN#	PIN NAME	PIN DESCRIPTION
1	−GND	GROUND
2	−SHDN	NEGATIVE SHUTDOWN
3	−ADJ	NEGATIVE ADJUST PIN
4	+ADJ	POSITIVE ADJUST PIN
5	+VOUT	POSITIVE OUTPUT VOLTAGE
6	+VIN	POSITIVE INPUT VOLTAGE
7	−VOUT	NEGATIVE OUTPUT VOLTAGE
8	−VIN	NEGATIVE INPUT VOLTAGE

PACKAGE OUTLINE- 8-Pin

ORDERING INFORMATION:

SAT127A	K	T	-ADJ
Product Number	**Screening Level**	**Package Type**	**Available Output Voltage Options**

SAT127A = 1%, Rad-Hard
SAT127 =   2%, Rad-Hard

B = Class-H (Full Mil. Comp.)
Blank= COTS

T = 8- Pin SMT

- ADJ = ADJUSTABLE
- 2.5 = 2.5V Fixed
- 3.3 = 3.3V Fixed
- 5.0 = 5.0V Fixed