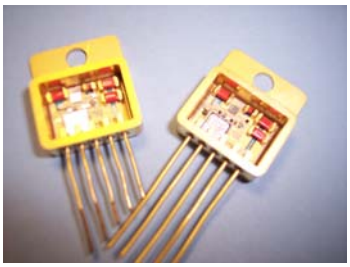
Linear Voltage Regulator, 3A & 5A, Ultra- Low- Dropout, (ULDO)

FEATURES

Ultra Low Dropout Voltage – 300mV @ 3.0A
Compatible with industry standard IRUH Series
Fixed and Adjustable versions
Shutdown pin for output control
Thermal Shutdown @ 150 deg. C
Optimized for operation at +3.3Vin or +5Vin



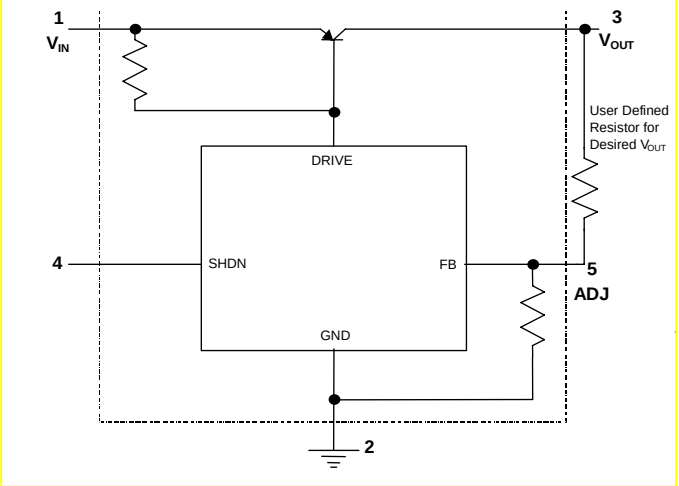
MO-078 Package

DESCRIPTION

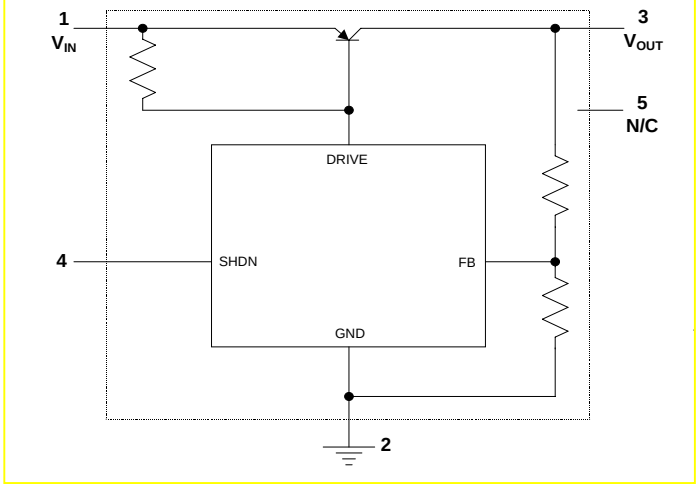
The SAT8601 is a military qualified, ultra low dropout linear regulator designed for high reliability applications. Assembled in a hermetic MO-078 package, the SAT8601 provides an ultra low drop out voltage of 300mV @ 3A and 450mV at 5A. The SAT8601 is optimized for operation at +5V input or +3.3V input. The internal capacitors used in the manufacturing of this device are in accordance with *MIL-PRF-123* or *MIL-PRF-55365*. The components are de-rated per SatCon's Class-K requirements.

BLOCK DIAGRAM

Adjustable Version



Fixed Output Version



ABSOLUTE MAXIMUM RATINGS

(Exceeding maximum ratings may damage the device)

Symbol	Parameter	Value		Unit
		-3 (3A Version)	-5 (5A Version)	
Vin	DC input Voltage Vin-Vground	10.0	10.0	V
Io	Output Current	6.5	9	A
Pd	Power Dissipation Tcase=25deg.C	25	25	W
Rthjc	Thermal Resistance, Junction to Case	4.0	4.0	^{o}C/W
Tstg	Storage Temperature	-65 to +150	-65 to +150	^{o}C
Tj	Operating Temperature Range	-55 to +125	-55 to +125	^{o}C
Tsold	Maximum Soldering Temperature, 10sec	300	300	^{o}C

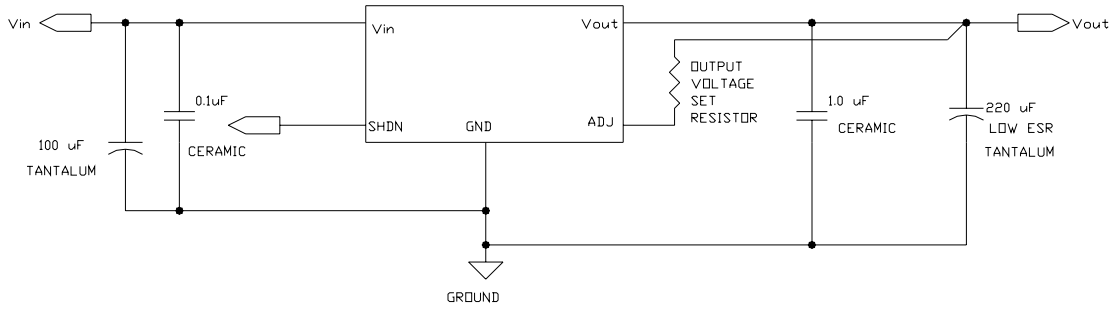
Electrical Characteristics (Ta= -55ºC to +125ºC)

Symbol	Parameter	Test Conditions	-3 (3A Version)			-5 (5A Version)			Units
			Min	Typ	Max	Min	Typ	Max	
Vout	Output Voltage accuracy	Vin=5.0V, Vin= 3.3V, Iout=2.0A		2.0			2.0		%
Vin (+3.3)	Input Voltage Range: +3.3V, (Note 3)	Iout=2.0A	2.8		3.6	2.8		3.6	V
Vin (+5.0)	Input Voltage Range: +5.0V (Note 3)	Iout=4.0A	4.5		5.5	4.5		5.5	V
Vdrop	Dropout Voltage	Iout=2.5A, Vout=+2.5V. (Note 3)			0.35			0.45	V
Isc	Current Limit	Vin=5.0V, 3.0V ≤ Vin ≤ 3.6V	3.5			5.5			A
	Ripple Rejection	F=120Hz, Iout=50mA	65			65			dB
Ishdn	Shutdown Source Current	Vshdn=5.0V		200			200		uA
Vshdn	Shutdown Input threshold	Vin=5.0, Vout < 0.5V. (Note 2)	1.0	1.6	2.0	1.0	1.6	2.0	V

Notes:

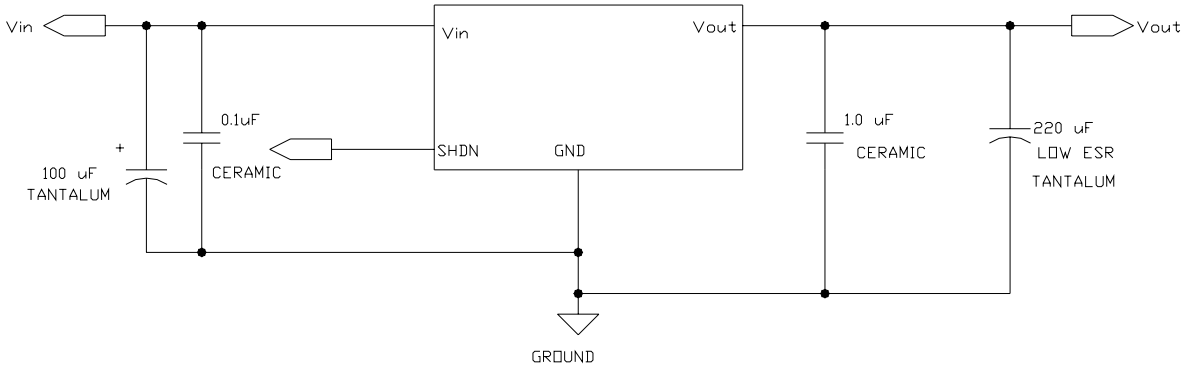
1. Shutdown pin voltage must be > 2.0V to initiate output inhibit. Pin should be grounded if not used.
2. Voltage dropout is dependent on a minimum input Voltage of +2.8V. Specification applies only to output voltages of +2.5V or greater. Output Voltages below 2.5V will have a greater minimum dropout requirement.
3. The SAT8601 is optimized for specific Input Voltage ranges. The –53 will have peak performance at +2.8V to +3.6V. The –55 will have peak performance at +4.5V to +5.5V. Input voltages outside of this range can affect short-circuit current, load current capability and create electrical overstress to internal components.

Application Circuit



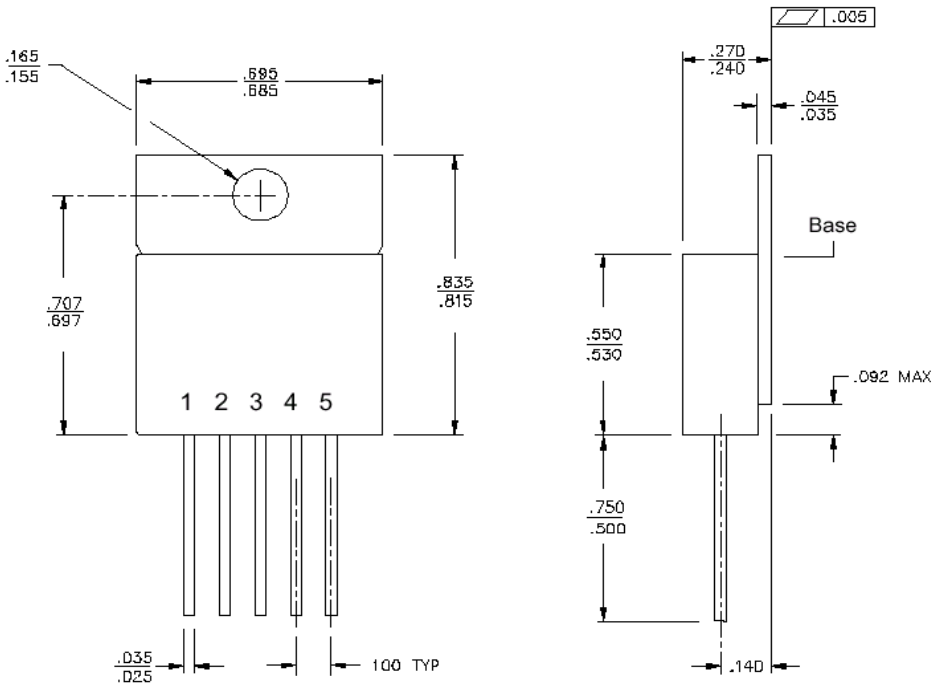
$V_{out} = V_{ref}$ x $(1+R_{adj}/1000)$, with Vref~1.265 Volts

Adjustable 3/5 Amp Regulator



Basic Fixed 3/5 Amp Regulator

PACKAGE OUTLINE: MO-078 Package



Pin Assignments

Pin No	Pin Name	Pin Description
1	Vin	Input Voltage
2	Gnd	Ground
3	Vout	Output Voltage
4	SHDN	Shutdown Pin. Output reset occurs when Vshdn> 1.6V
5	Adjust/ N/C	Adjust pin for Adjustable Output , Not connected for fixed version.

ORDERING INFORMATION*:

SAT8601	-33	K	T	-3.3
Product Number	Current Designation	Screening Level	Package Type	Available Output Voltage Options
SAT8601	- 33 = 3A, +3.3V Version - 35 = 3A, +5V Version - 53 = 5A, +3.3V Version - 55 = 5A, +5V Version	Blank= SatCon Commercial screen H= Class H Compliant K= Class K compliant EM = Eng. Model	T = MO-078	- ADJ = ADJUSTABLE - 1.3 = +1.3V Fixed -1.5 = +1.5V Fixed - 1.8 = +1.8V Fixed - 2.5 = +2.5V Fixed - 3.3 = +3.3V Fixed

165 Cedar Hill st., Marlborough, Massachusetts 01752, USA
Tel: 508-485-6350
Fax: 508-485-5168
E-Mail: Electronics.sales@satcon.com
For more information about SatCon Power Products, visit us at: www.satconelectronics.com

Specifications in this document are subject to change without notice.