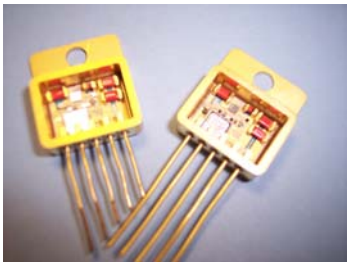
SAT8605R

Linear Voltage Regulator, Fixed, 5A, ULDO (Ultra-Low-Drop-Out)

(Preliminary)

MO-078 Package



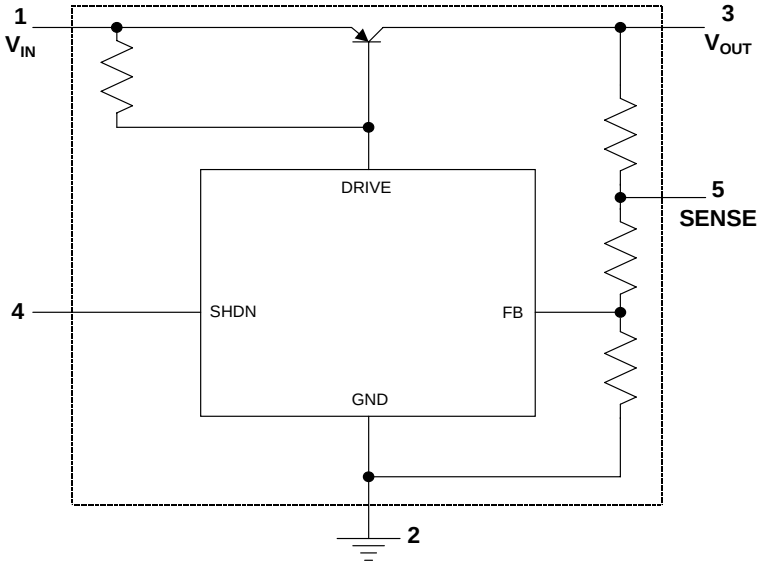
FEATURES

Remote sense capability
Ultra Low Dropout Voltage – 400mV max @ 5.0A
Similar to SAT8601, with added Sense Functionality
K-level screening
Shutdown pin for output control
Thermal Shutdown @ 150 deg. C
Optimized for operation at +3.3Vin or +5Vin
Standard Mil-Level screenings available

DESCRIPTION

The SAT8605R is a military qualified, ultra low dropout linear regulator designed for high temperature, high reliability applications. Packaged in a hermetic MO-078 package, the SAT8605R provides ultra low drop out of 400mV @ 5A. It is optimized for operation at +5V input or +3.3V input. Only one resistor is needed to set-up the output voltage in the adjustable configuration. The SAT8605R features fast transient response, thermal shutdown and remote sense capability. The remote sense feature adjusts the output voltage when optimal board placement is not possible. The internal capacitors used in the manufacturing of this device are in accordance with MIL-PRF-123 or MIL-PRF-55365.

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

(Exceeding maximum ratings may damage the device)

Symbol	Parameter	Value	unit
Vin	DC input Voltage Vin-Vground	10	V
Io	Output Current	9.0	A
Pd	Power Dissipation Tcase=25deg.C	25	W
Rthjc	Thermal Resistance, Junction to Case	3.0	^{o}C/W
Tstg	Storage Temperature	-65 to +150	^{o}C
Tj	Operating Temperature Range	-55 to +125	^{o}C
Tsold	Maximum Soldering Temperature, 10sec	300	^{o}C

ELECTRICAL CHARACTERISTICS @ Ta=-55deg.C to +125deg.C

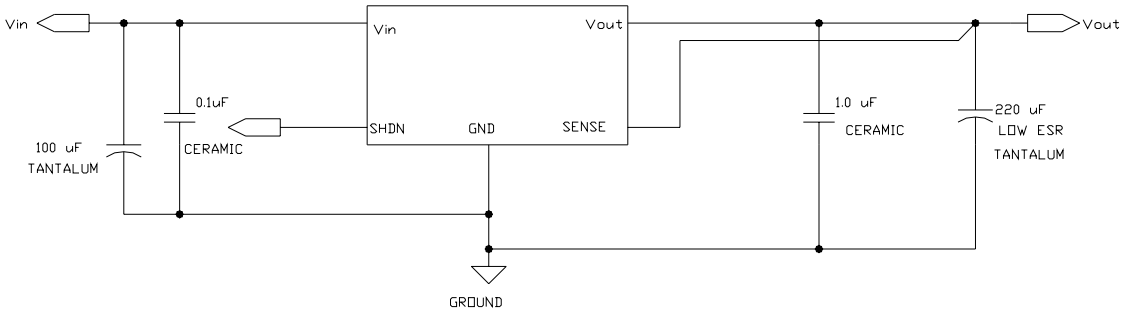
(Unless Otherwise Specified)

Symbol	Parameter	Test Conditions	Parameter			Units
			Min	Typ	Max	
Vout	Output Voltage accuracy	Iout=2.0A		2.0		%
Vin (+3.3)	Input Voltage Range: +3.3V, (Note 2)	Iout=5.0A	2.9		3.6	V
Vin (+5.0)	Input Voltage Range: +5.0V (Note 2)	Iout=5.0A	4.5		5.5	V
Vdrop	Dropout Voltage	Iout=rated current, Vout=2.5V, Vin=2.9V, (Note 3)			0.45	V
Isc	Current Limit	Vin=5.0V, Over current Latch Up	5.5			A
	Ripple Rejection	F=120Hz, Iout=50mA	65			dB
Ishdn	Shutdown Source Current	Vshdn=5.0V		200		uA
Vshdn	Shutdown Input Voltage (Note 1)	Vin=5.0, Vout < 0.5V,	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 +2.9V. 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 SAT8605R is optimized for specific Input Voltage ranges. The –53 will have peak performance at +2.9V 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 and load current capability.

Application Circuits



Basic Remote Sense 5 Amp regulator

ORDERING INFORMATION*:

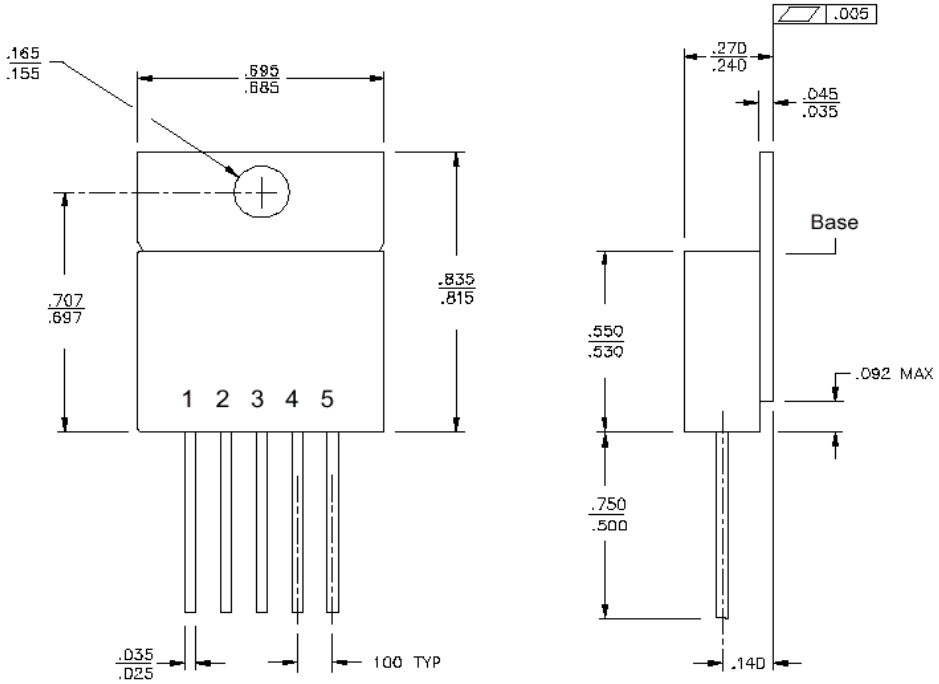
SAT8605R	-53	K	T	-3.3
Product Number	Current Designation	Screening Level	Package Type	Output Voltage Options
R= Remote Sense Version	- 55 = 5A, +5Vin, Version - 53 = 5A, +3.3Vin, Version	K = Class-K screened B = Class-H (Full Mil. Comp.) *Blank* = No screening (COTS)	T = 5-Pin MO-078	- 1.3 = +1.3V Fixed -1.5 = +1.5V Fixed - 1.8 = +1.8V Fixed - 2.5 = +2.5V Fixed - 3.3 = +3.3V Fixed

PIN DESCRIPTION

Table 2.

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	SENSE	Sense Pin

Package Outline



MO-078 Package