

RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

The SJ1085 is a low drop voltage regulator able to provide up to 3A output current. The dropout voltage of the device is guaranteed at a maximum 1.3V at the maximum output current, decreasing at lower loads.

The SJ1085 is pin compatible with older 3-terminal adjustable regulators, but has better performances in term of drop and output tolerance.

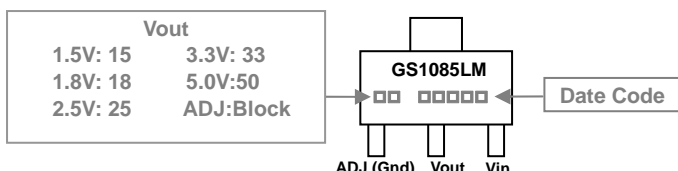
FEATURES

- Guaranteed Output Current up to 3A
- Typical Dropout 1.3V (at 3A)
- Output Tolerance: $\pm 2\%$ at 25 °C
- Wind Operating Temperature Range: -40 °C ~ 125 °C

APPLICATIONS

- Post Regulators for Switching Supply
- Battery-Powered Circuitry
- Low Voltage Logic Supplies
- High efficiency linear regulators
- Adjustable power supply

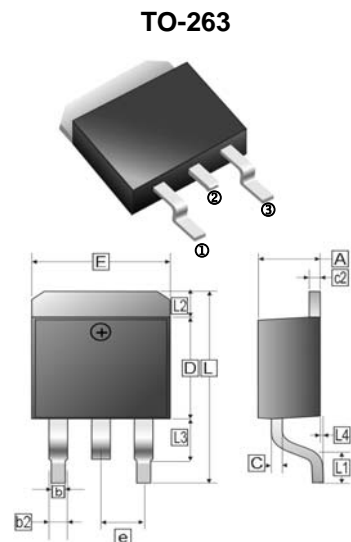
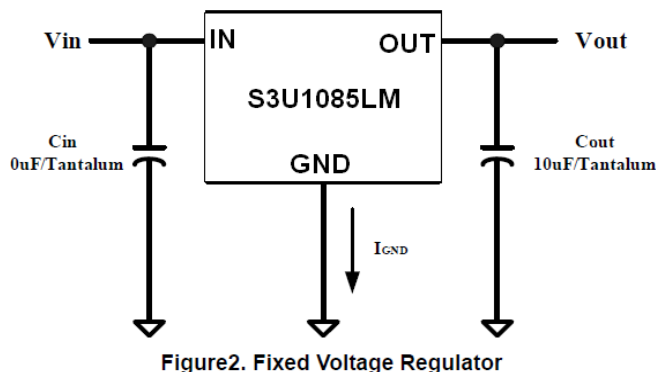
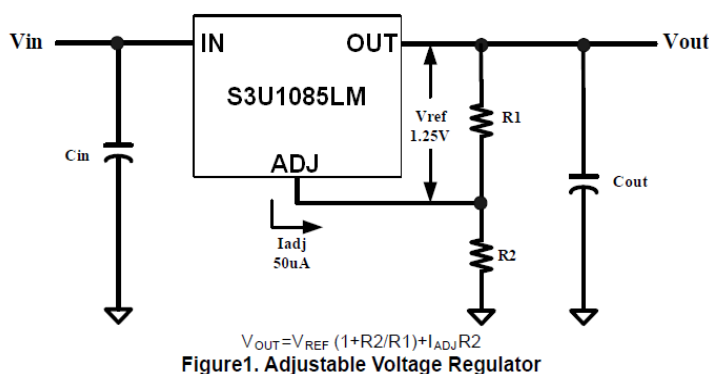
MARKING



PACKAGE INFORMATION

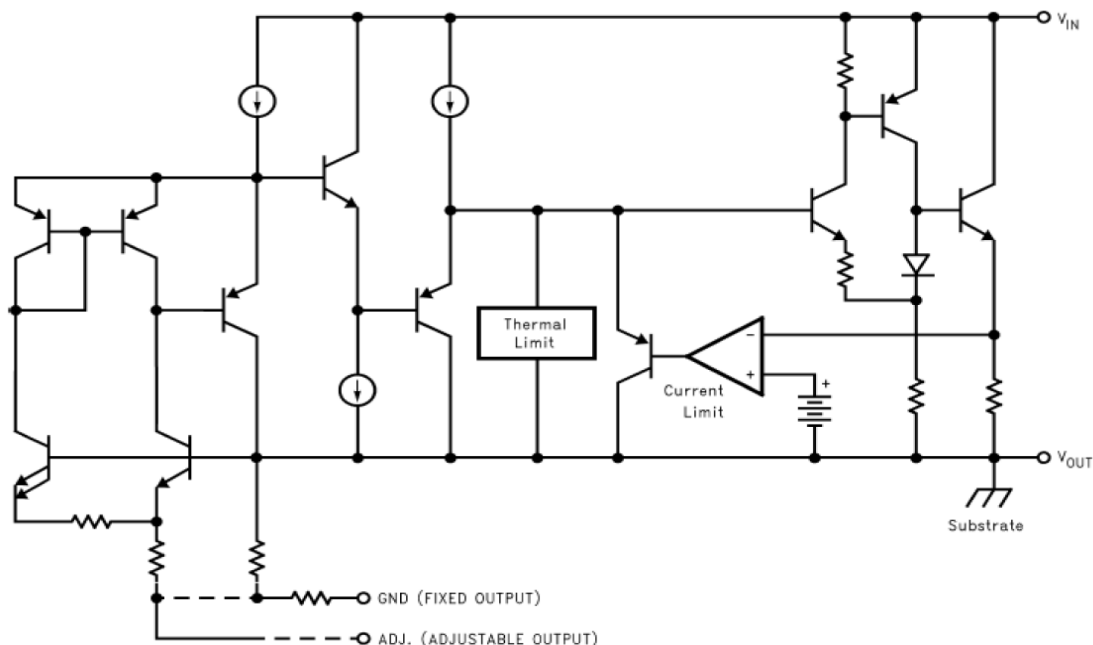
Package	MPQ	Leader Size
TO-263	0.8K	13' inch

TYPICAL CIRCUIT



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.00	4.85	c2	1.10	1.65
b	0.51	1.00	b2	1.34	REF
L4	0.00	0.30	D	8.0	9.65
C	0.36	0.74	e	2.54	REF
L3	1.50	REF	L	14.6	15.88
L1	1.78	2.79	L2	1.27	REF
E	9.60	10.67			

BLOCK DIAGRAM



PIN DESCRIPTIONS

Name	I/O	Pin#	Description
ADJ (GND)		1	A resistor divider from this pin to the V_{OUT} pin and ground sets the output voltage (Ground only for fixed mode)
V_{OUT}	O	2	The output pin of regulator. A min. of $10\mu\text{F}$ capacitor must be connected from this pin to ground to insure stability.
V_{IN}	I	3	The input pin of regulator. Typically a large storage capacitor is connected from this pin to ground to insure that the input voltage does not sag below the min. dropout voltage during the load transient response. This pin must always be 1.3V higher than V_{OUT} in order for the device to regulate properly.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
DC Supply Voltage	V_{in}	15	V
Thermal Resistance (Junction to Case)	$R_{\theta JC}$	3	$^{\circ}\text{C} / \text{W}$
Thermal Resistance (Junction to Ambient)	$R_{\theta JA}$	62.5	$^{\circ}\text{C} / \text{W}$
Power Dissipation ($T_A = 25^{\circ}\text{C}$)	P_D	2	W
Operating, Storage Temperature Range	T_{OPR}, T_{STG}	-40~125, -65~150	$^{\circ}\text{C}$
Lead Temperature(Soldering 10sec)	T_{LEAD}	300	$^{\circ}\text{C}$

Note:

1. Stress above the listed absolute maximum rating may cause permanent damage to the device

ELECTRICAL CHARACTERISTICS

($I_{OUT}=0$, $T_J=25^{\circ}\text{C}$, unless otherwise noted)

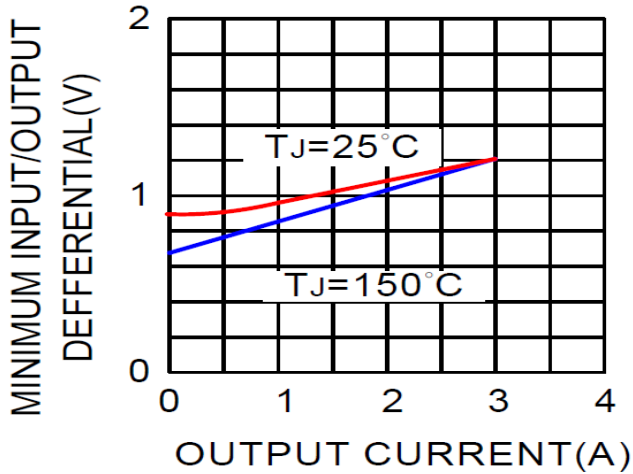
Parameter	Test Conditions	Min.	Typ.	Max	Unit	
Reference Voltage ¹	S3U1085LM-ADJ $V_{IN}=2.75\text{V}$, $I_o=10\text{mA}$	1.238	1.25	1.263	V	
	$V_{IN}=2.7\text{V}\sim 7\text{V}$, $I_o=10\text{mA}\sim 3\text{A}$	1.225	1.25	1.275		
Output Voltage	S3U1085LM -1.5	$V_{IN}=4\text{V}$	1.485	1.5	1.515	V
		$V_{IN}=3\text{V}$, $0 \leq I_o \leq 3\text{A}$	1.47	1.5	1.53	
	S3U1085LM -1.8	$V_{IN}=4.3\text{V}$	1.782	1.8	1.818	V
		$V_{IN}=3.3\text{V}$, $0 \leq I_o \leq 3\text{A}$	1.764	1.8	1.836	
	S3U1085LM -2.5	$V_{IN}=5\text{V}$	2.475	2.5	2.525	V
		$V_{IN}=4\text{V}$, $0 \leq I_o \leq 3\text{A}$	2.45	2.5	2.55	
	S3U1085LM -3.3	$V_{IN}=5.8\text{V}$	3.267	3.3	3.333	V
		$V_{IN}=4.8\text{V}$, $0 \leq I_o \leq 3\text{A}$	3.234	3.3	3.366	
	S3U1085LM -5.0	$V_{IN}=7.5\text{V}$	4.95	5	5.05	V
		$V_{IN}=6.5\text{V}$, $0 \leq I_o \leq 3\text{A}$	4.9	5	5.1	
	Line Regulation ¹	All $I_o=10\text{mA}$, $(V_{out}+1.5\text{V}) \leq V_{IN} \leq 7\text{V}$	-	0.04	0.2	%
	Load Regulation ¹	All $V_{IN}=V_o+2.5\text{V}$, $0 \leq I_o \leq 3\text{A}$	-	0.08	0.4	%
Dropout Voltage ($V_{IN}-V_{OUT}$) ^{1,3}	All ΔV_{out} , $\Delta V_{REF}=1\%$, $I_{OUT}=3\text{A}$	-	1.1	1.3	V	
Current Limit ¹	All	3	4	-	A	
Quiescent Current	All $V_{IN}=5\text{V}$	-	5	10	mA	
Ripple Rejection ¹	All $f=120\text{Hz}$, $C_{OUT}=25\mu\text{F}$ Tantalum, $I_{OUT}=3\text{A}$, $(V_{IN}-V_{OUT})=3\text{V}$, $C_{ADJ}=25\mu\text{F}$	60	75	-	dB	
Adjust Pin Current	Adjustable	-	50	120	μA	
Temperature Stability		-	0.5	-	%	
Long Term Stability	$T_A=25^{\circ}\text{C}$, 1000Hrs	-	0.03	1	%	

Note:

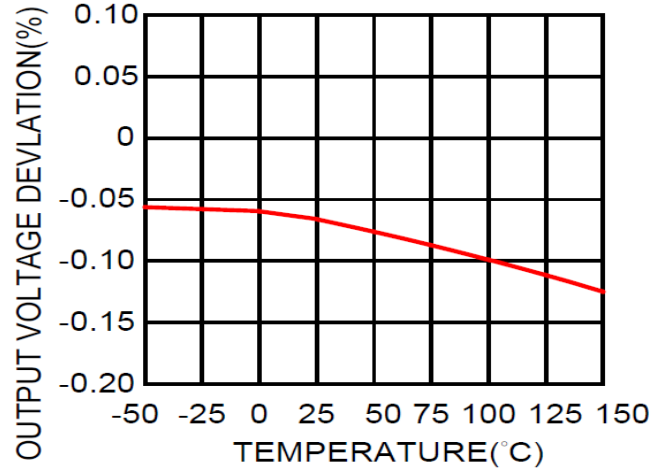
1. For S3U1085LM(ADJ) $V_{ADJ}=0\text{V}$
2. For the adjustable device the minimum load current is the minimum current required to maintain regulation. Normally the current in the resistor divider used to set the output voltage is selected to meet the minimum load current requirement.
3. The specification represent the minimum input/output voltage required to maintain 1% regulation.

CHARACTERISTIC CURVES

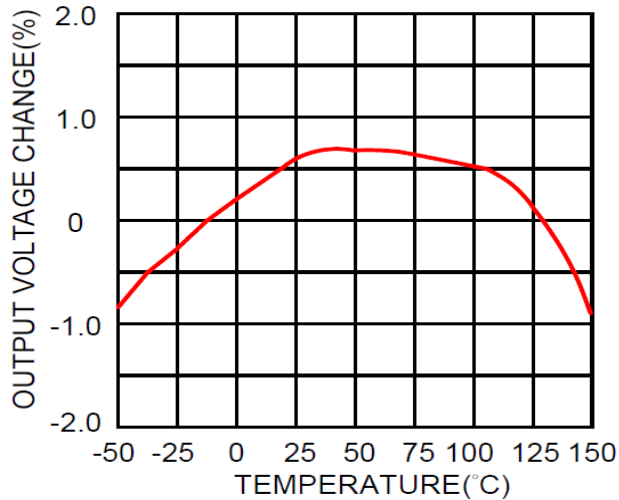
Drop Voltage



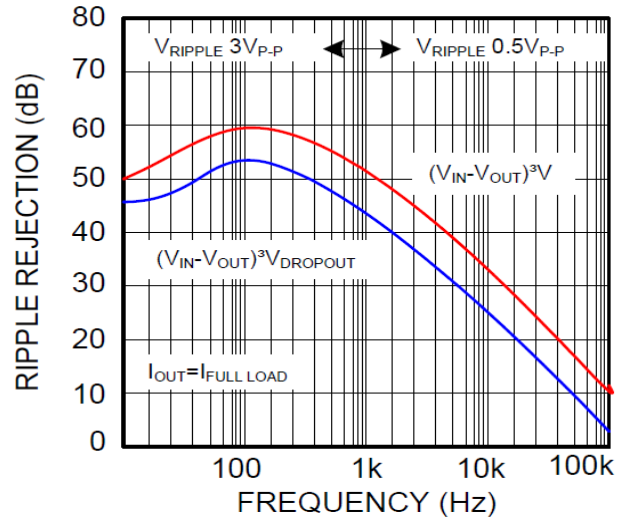
Load Regulation



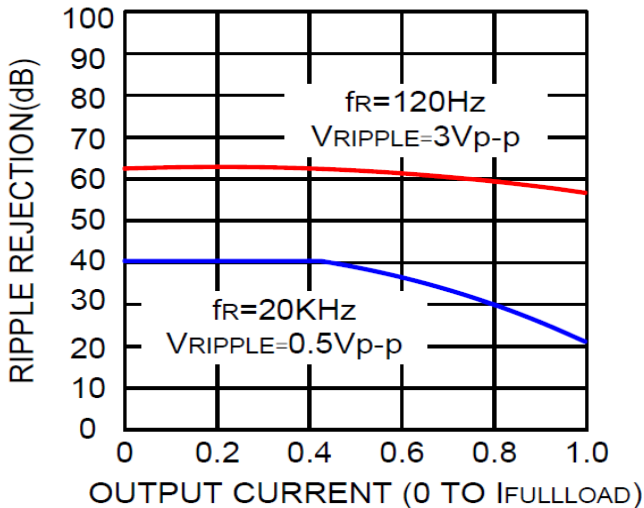
Temperature Stability



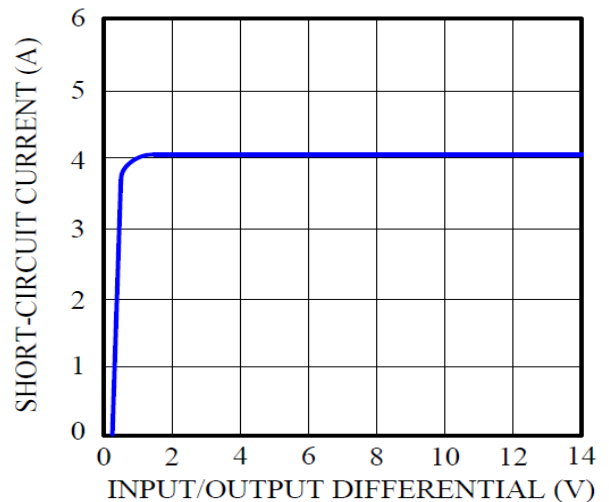
Ripple Rejection



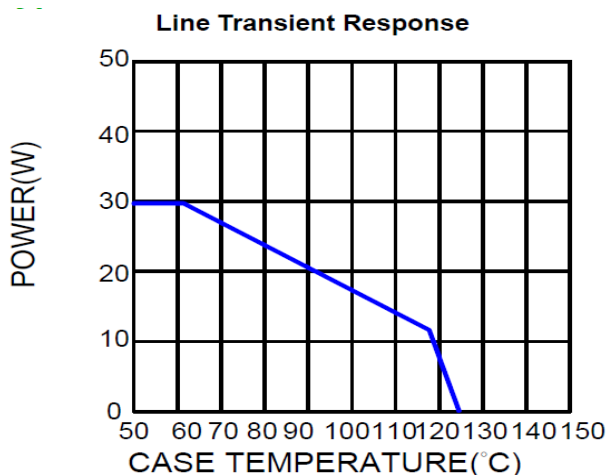
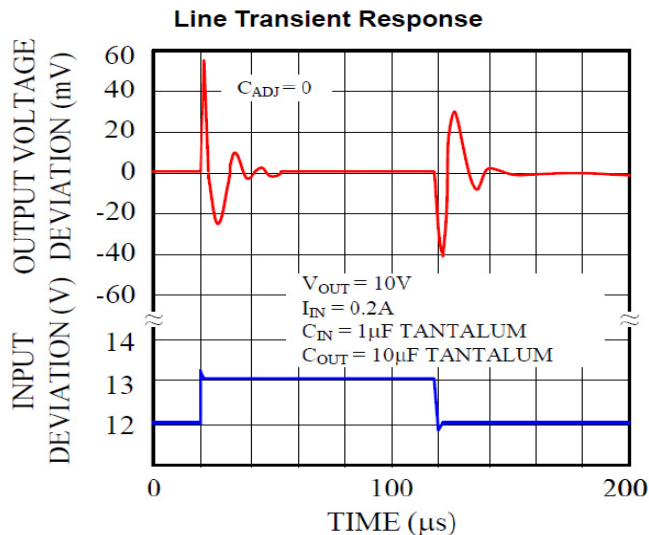
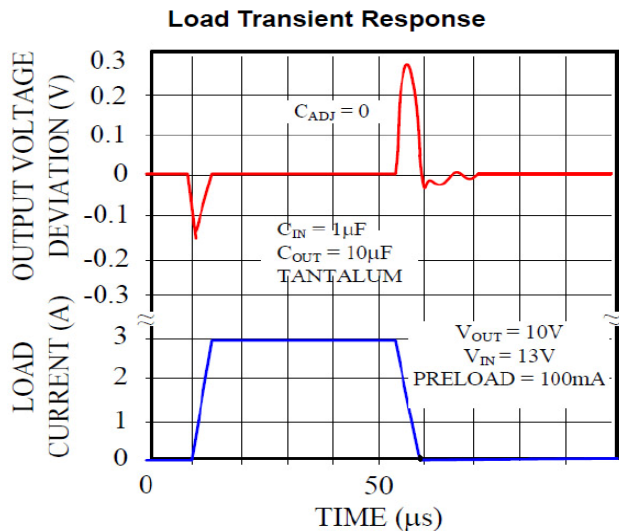
Ripple Rejection vs. Current



Short-Circuit Current



CHARACTERISTIC CURVES



*AS LIMITED BY MAXIMUM JUNCTION TEMPERATURE

