Elektronische Bauelemente

SJ1116

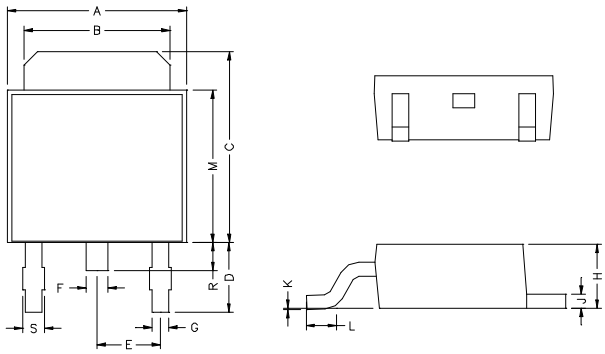
0.6A Low Dropout Positive
Adjustable or Fixed-Mode Regulator

RoHS Compliant Product

Description

The SJ1116 is a low dropout at positive adjustable or fixed-mode regulator with minimum of 0.6A output current capability. The product is specifically designed to provide well-regulated supply for low voltage IC applications such as high-speed bus termination and low current 3.3V logic supply. SJ1116 is also well suited for other applications such as VGA cards. SJ1116 is guaranteed to have lower than 1.3V dropout at full load current making it ideal to provide well regulated outputs of 1.25V to 5.0V with up to 12V input supply.

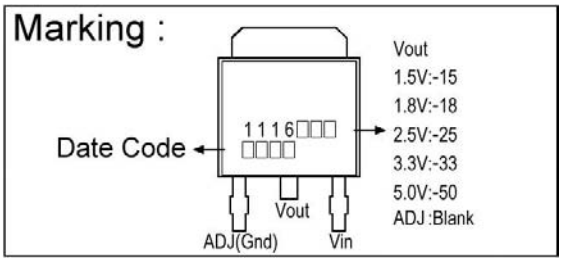
TO-252



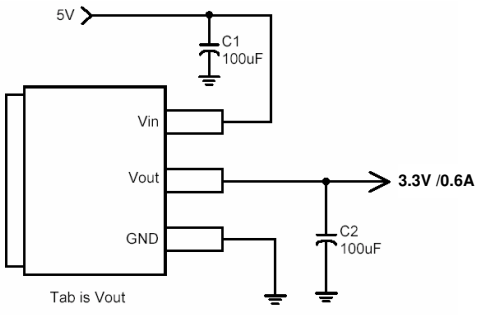
Features

* 1.3Vmaximum dropout full load current
* 3-Terminal Adjustable or Fixed 1.5V,1.8V,2.5V,3.3V,5.0V
* Output current limiting
* Good noise rejection
* Fast transient response
* Built-in thermal shutdown

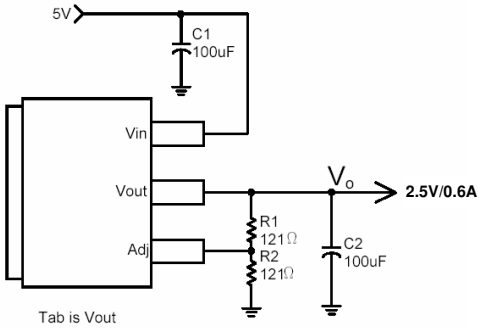
REF.	Millmeter		REF.	Millmeter	
	Min.	Max.		Min.	Max.
A	6.40	6.80	G	0.50	0.70
B	5.20	5.50	H	2.20	2.40
C	6.80	7.20	J	0.45	0.55
D	2.20	2.80	K	0	0.15
E	2.30 REF.		L	0.90	1.50
F	0.70	0.90	M	5.40	5.80
S	0.60	0.90	R	0.80	1.20



Typical Circuit



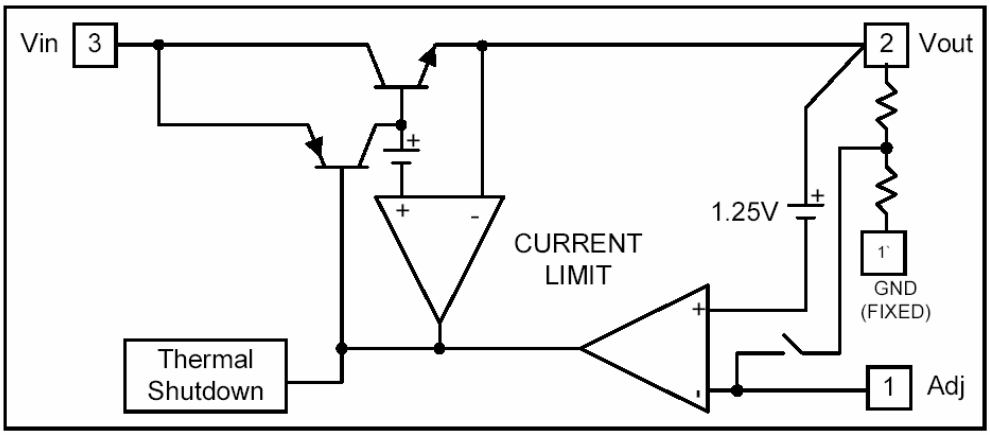
(5V/3.3V fixed output)



(5V/2.5V ADJ output)

Note: $V_o = V_{REF} * (1 + \frac{R_2}{R_1})$

Block Diagram



Pin Descriptions

Name	I/O	Pin#	Function
Adj (GND)		1	A resistor divider from this pin to the Vout pin and ground sets the output voltage (Ground only for fixed mode)
Vout	O	2	The output of the regulator. A minimum of 10uF capacitor (0.15Ω≤ ESR ≤20Ω) must be connected from this pin to ground to insure stability.
Vin	I	3	The input pin of regulator. Typically a large storage capacitor (0.15Ω≤ ESR ≤20Ω) below the minimum dropout voltage during the load transient response. must always be 1.3V higher than Vout in order for the device to regulate properly.

Absolute Maximum Ratings

Symbol	Parameter	Ratings	Unit
V_{IN}	DC Supply Voltage	-0.3 to 12	V
P_D	Power Dissipation	Internally Limited	
T_{ST}	Storage Temperature	-65 ~ + 150	℃
T_{OP}	Operating Junction Temperature Range	0 ~ + 150	℃

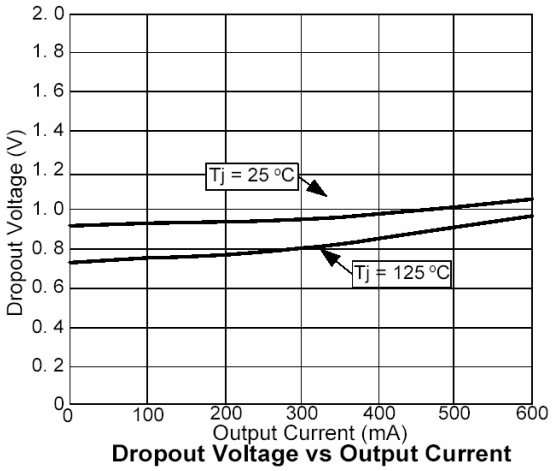
Electrical Characteristics

Parameter	Conditions		Min	Typ	Max	Unit
Reference Voltage	SJ1116ADJ	Io=10mA, T_J=25℃, (V_{IN}-V_{OUT})=1.5V	1.225	1.250	1.275	V
Output Voltage	SJ1116-1.5	Io=10mA, T_J=25℃, 3.0V≤ V_{IN} ≤12V	1.470	1.500	1.530	V
	SJ1116-1.8	Io=10mA, T_J=25℃, 3.3V≤ V_{IN} ≤12V	1.764	1.800	1.836	V
	SJ1116-2.5	Io=10mA, T_J=25℃, 4.0V≤ V_{IN} ≤12V	2.450	2.500	2.550	V
	SJ1116-3.3	Io=10mA, T_J=25℃, 4.8V≤ V_{IN} ≤12V	3.235	3.300	3.365	V
	SJ1116-5.0	Io=10mA, T_J=25℃, 6.5V≤ V_{IN} ≤12V	4.900	5.000	5.100	V
Line Regulation	SJ1116-XXX	Io=10mA, V_{OUT}+1.5V< V_{IN} <12V, T_J=25℃	-	-	0.2	%
Load Regulation	SJ1116ADJ	V_{IN}=3.3V, Vadj=0, 0mA< Io <0.6A, T_J=25℃ (Note 1,2)	-	-	1	%
	SJ1116-1.5	V_{IN}=3.0V, 0mA< Io <0.6A, T_J=25℃ (Note 1,2)	-	12	15	mV
	SJ1116-1.8	V_{IN}=3.3V, 0mA< Io <0.6A, T_J=25℃ (Note 1,2)	-	15	18	mV
	SJ1116-2.5	V_{IN}=4.0V, 0mA< Io <0.6A, T_J=25℃ (Note 1,2)	-	20	25	mV
	SJ1116-3.3	V_{IN}=5.0V, 0mA< Io <0.6A, T_J=25℃ (Note 1,2)	-	26	33	mV
	SJ1116-5.0	V_{IN}=8.0V, 0mA< Io <0.6A, T_J=25℃ (Note 1,2)	-	40	50	mV
Dropout Voltage (V_{IN}-V_{OUT})	SJ1116-XXX	Io=0.6A (Δ V_{OUT} =0.1% V_{OUT})	-	1.1	1.3	V
Current Limit	SJ1116-XXX	V_{IN}-V_{OUT}=5V	0.7	-	-	A
Minimum Load Current	Adjustable model	Vin=5V	-	5	10	mA
Adjust Pin Current	Adjustable model	Vin=12V, Io=10mA	-	50	100	uA
Quiescent Current	fixed model	Vin=12V, Io=0mA	-	-	12	mA
Thermal Regulation	T_A=25℃,30ms pulse		-	0.008	0.04	%/W
Ripple Rejection	F=120Hz, C_{OUT}=25uF Tantalum, I_{OUT}=0.6A					
	SJ1116-XXX	V_{IN}=V_{OUT}+3V	-	60	70	dB
Temperature Stability	I_O=10mA		-	0.5	-	%
θ_{JA} Thermal Resistance Junction-to-Ambient(No heat sink ;No air flow)			-	92	-	℃/W
θ_{JC} Thermal Resistance Junction-to-Case	Control Circuitry/Power Transistor		-	10	-	℃/W

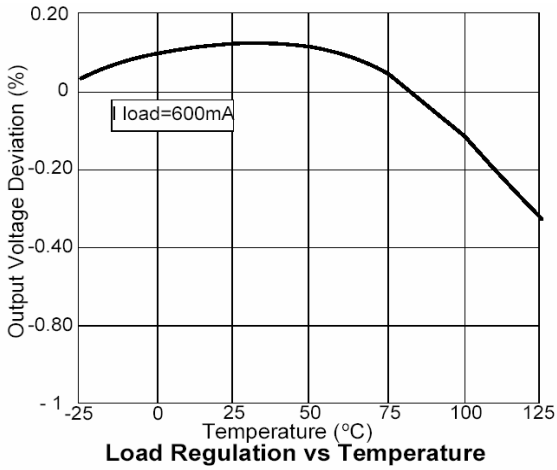
Note 1: See thermal regulation specifications for changes in output voltage due to heating effects. Line and load regulation are measured at a constant junction temperature by low duty cycle pulse testing. Load regulation is measured at the output lead =1/18" from the package.

Note 2: Line and load regulation are guaranteed up to the maximum power dissipation of 15W. Power dissipation is determined by the difference between input and output and the output current. Guaranteed maximum power dissipation will not be available over the full input/output range.

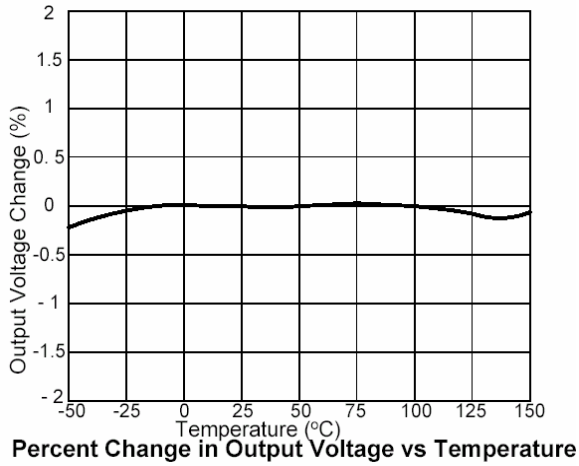
Typical Performance Characteristics



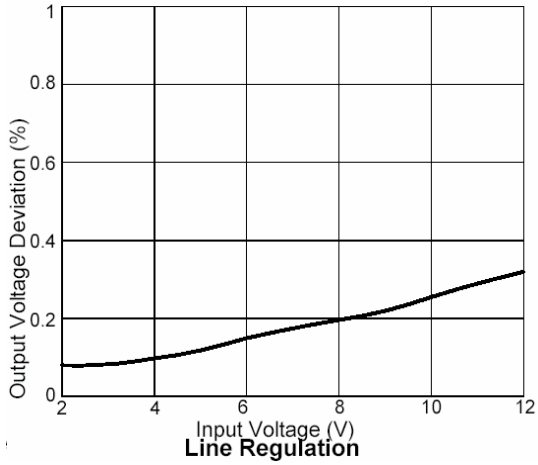
Dropout Voltage vs Output Current



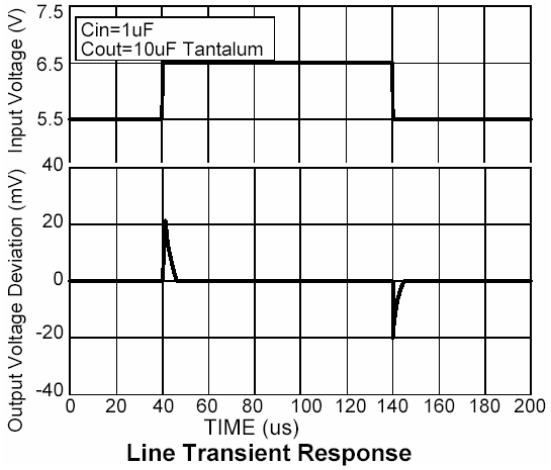
Load Regulation vs Temperature



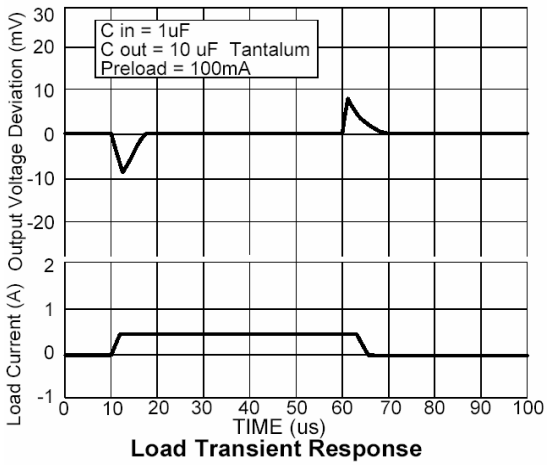
Percent Change in Output Voltage vs Temperature



Line Regulation



Line Transient Response



Load Transient Response