

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

## DESCRIPTION

The SJTS1117B-XXX is a series of low dropout three-terminal regulators with a dropout of 1.3V(Typ.) at 1A output current.

The SJTS1117B-XXX series provides current limiting and thermal shutdown. Its circuit includes a trimmed band gap reference to assure output voltage accuracy to be within 1.5%. Current limit is trimmed to ensure specified output current and controlled short-circuit current. On-chip thermal shutdown provides protection against any combination of overload and ambient temperature that would create excessive junction temperature.

The SJT1117B-XXX has an adjustable version, that can provide the output voltage from 1.2V~12V with only 2 external resistors.

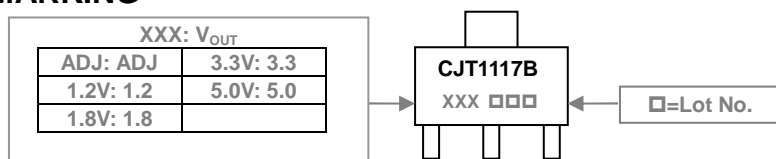
## FEATURES

- Low Dropout Voltage: 1.3V(Typ.) at 1A Output Current
- Trimmed Current Limit
- On-Chip Thermal Shutdown
- Three-Terminal Adjustable to 1.2V, 1.8V, 3.3V, 5V
- Operation Junction Temperature: -25°C~125°C

## APPLICATIONS

- PC Motherboard
- LCD Monitor
- Graphic Card
- DVD Video Player
- NIC/Switch
- Telecom Modem
- ADSL Modem
- Printer and Other Peripheral Equipment

## MARKING



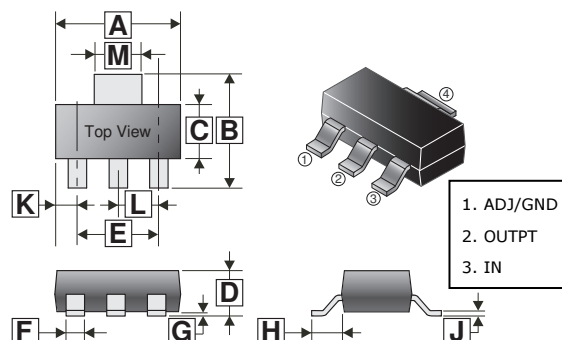
## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-223	2.5K	13 inch

## ORDER INFORMATION

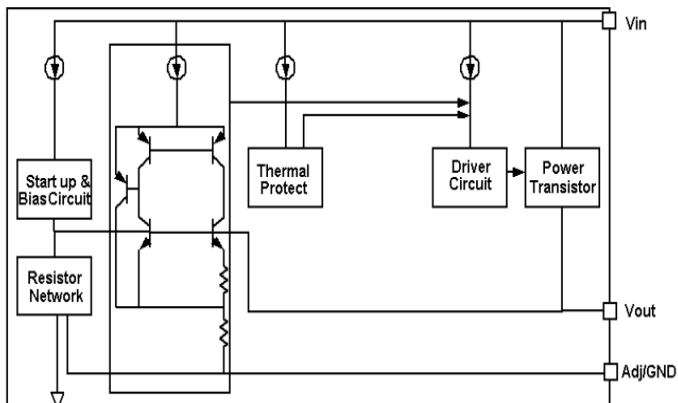
Part Number	Type
SJTS1117B-XXX	Lead (Pb)-free
SJTS1117B-XXX-C	Lead (Pb)-free and Halogen-free

## SOT-223

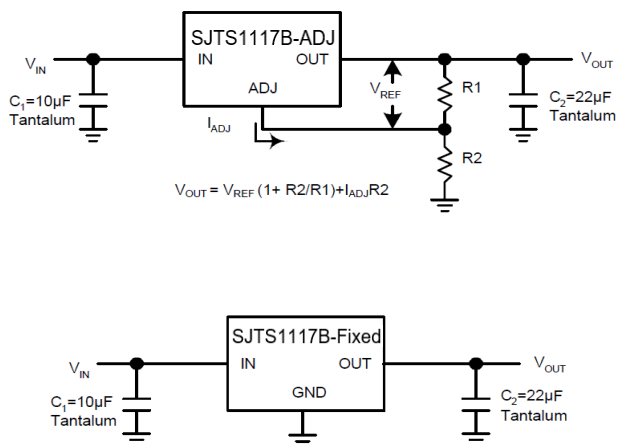


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.90	6.70	G	-	0.18
B	6.70	7.30	H	2.00	REF.
C	3.30	3.80	J	0.20	0.40
D	1.40	1.90	K	1.10	REF.
E	4.60	REF.	L	2.30	REF.
F	0.60	0.85	M	2.80	3.20

**FUNCTIONAL BLOCK DIAGRAM**



**TYPICAL APPLICATION CIRCUIT**



**RECOMMENDED OPERATING CONDITIONS**

Parameter	Symbol	Value	Unit
Input Voltage	$V_I$	15	V
Operating Junction Temperature	$T_J$	-25~125	°C

**ABOSLUTE MAXIMUM RATINGS** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

Parameter	Symbol	Value	Unit
Input Voltage	$V_I$	20	V
ESD Voltage (Machine Model)	$V_{ESD}$	400	V
Thermal Resistance from Junction-Ambient	$R_{\theta JA}$	100	°C/W
Lead Temperature (Soldering, 10sec.)	$T_L$	260	°C
Operating Junction Temperature Range	$T_J$	-25~125	
Storage Temperature Range	$T_{STG}$	-55~150	

- Note:
- Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

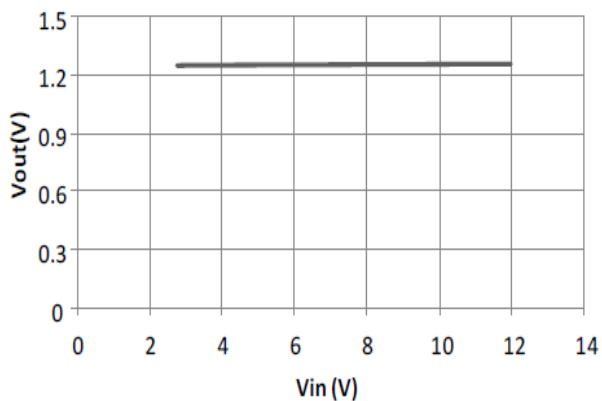
**ELECTRICAL CHARACTERISTICS** ( $V_{IN} \leq 10V$ ,  $T_J = 25^\circ C$  unless otherwise specified.)

Parameter	Symbol	Part No.	Test conditions	Min.	Typ.	Max.	Unit
Reference Voltage	$V_{IROC}$	SJTS1117B-ADJ	$I_{OUT} = 10mA$ , $V_{IN} = 3.23V$	1.225	1.25	1.275	V
			$10mA \leq I_{OUT} \leq 1A$ , $2.75V \leq V_{IN} - V_{OUT} \leq 12V$	1.219	1.25	1.281	
Output Voltage	$V_O$	SJTS1117B-1.2	$I_{OUT} = 10mA$ , $V_{IN} = 3.2V$	1.176	1.2	1.224	V
			$10mA \leq I_{OUT} \leq 1A$ , $2.7V \leq V_{IN} \leq 12V$	1.17	1.2	1.23	
		SJTS1117B-1.8	$I_{OUT} = 10mA$ , $V_{IN} = 3.8V$	1.764	1.8	1.836	
			$10mA \leq I_{OUT} \leq 1A$ , $3.3V \leq V_{IN} \leq 12V$	1.755	1.8	1.845	
		SJTS1117B-3.3	$I_{OUT} = 10mA$ , $V_{IN} = 5.3V$	3.234	3.3	3.366	
			$10mA \leq I_{OUT} \leq 1A$ , $4.8V \leq V_{IN} \leq 12V$	3.218	3.3	3.382	
SJTS1117B-5.0	$I_{OUT} = 10mA$ , $V_{IN} = 7V$	4.9	5	5.1			
	$10mA \leq I_{OUT} \leq 1A$ , $6.5V \leq V_{IN} \leq 12V$	4.875	5	5.125			
Line Regulation	LNR	SJTS1117B-ADJ	$I_{OUT} = 10mA$ , $1.5V \leq V_{IN} - V_{OUT} \leq 10.75V$	-	0.03	0.2	%  %/V
		SJTS1117B-1.2	$I_{OUT} = 10mA$ , $1.5V \leq V_{IN} - V_{OUT} \leq 8.8V$	-	0.03	0.2	
		SJTS1117B-1.8	$I_{OUT} = 10mA$ , $1.5V \leq V_{IN} - V_{OUT} \leq 10.2V$	-	0.03	0.2	
		SJTS1117B-3.3	$I_{OUT} = 10mA$ , $1.5V \leq V_{IN} - V_{OUT} \leq 8.7V$	-	0.03	0.2	
		SJTS1117B-5.0	$I_{OUT} = 10mA$ , $1.5V \leq V_{IN} - V_{OUT} \leq 7V$	-	0.03	0.2	
Load Regulation	LDR	SJTS1117B-ADJ	$V_{IN} - V_{OUT} = 1.5V$ , $10mA \leq I_{OUT} \leq 1A$	-	2	8	mV
		SJTS1117B-1.2		-	2	8	
		SJTS1117B-1.8		-	3	12	
		SJTS1117B-3.3		-	6	24	
		SJTS1117B-5.0		-	9	36	
Dropout Voltage	$V_D$		$\Delta V_{REF} = 1\%$ , $I_{OUT} = 1A$	-	1.3	1.5	V
Adjust Pin Current	$I_{ADJ}$	SJTS1117B-ADJ	$V_{IN} = 5V$ , $10mA \leq I_{OUT} \leq 1A$	-	55	120	$\mu A$
Minimum Load Current	$I_L$		$2.75V \leq V_{IN} - V_{OUT} \leq 12V$ (ADJ only)	-	2	10	mA
Quiescent Current	$I_q$		$V_{IN} = V_{OUT} + 1.25V$ (ADJ except)	-	2	10	mA
Ripple Rejection	RR		$f = 120Hz$ , $C_{OUT} = 22\mu F$ Tantalum, $V_{IN} - V_{OUT} = 3V$ , $I_{OUT} = 1A$	-	60	-	dB

**CHARACTERISTICS CURVE**

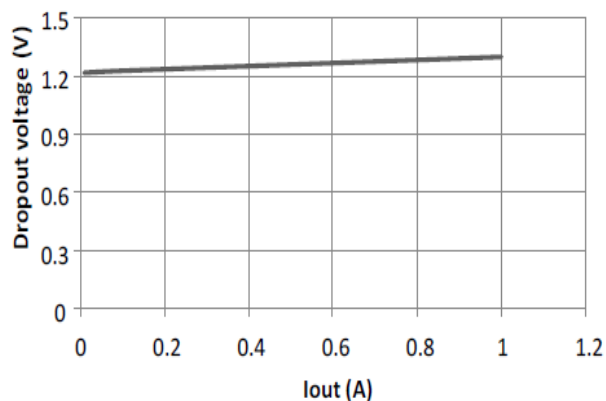
**Line regulation for SJTS1117B-ADJ**

**Vout Vs. Vin**



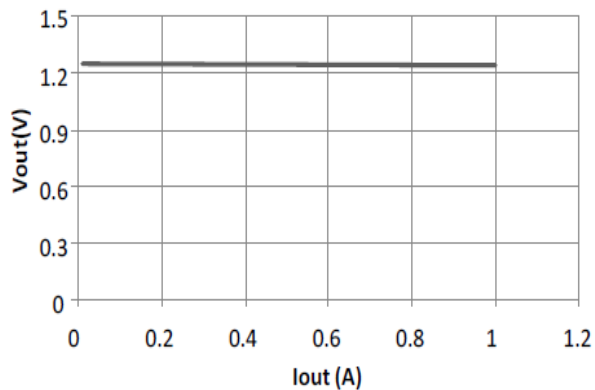
**Dropout voltage**

**Dropout Vs. Iout**



**Load regulation for SJTS1117B-ADJ**

**Vout Vs. Iout**



**Thermal performance with OTP**

**Vout Vs. Temp**

