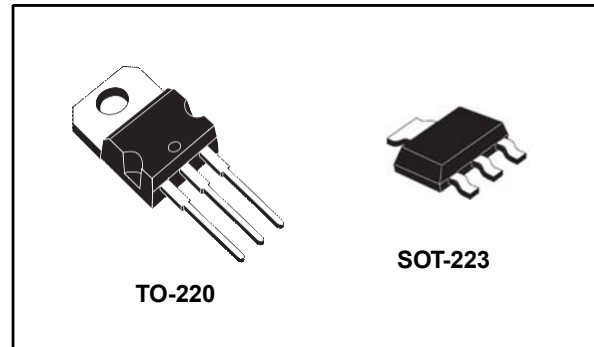


STC1117 series

1.0A Adjustable/Fixed Low Dropout Linear Regulator

Feature summary

- Low Dropout Voltage: 1.2V @ IOUT=1A
- Protection Circuit : Over-current protection Thermal protection
- Maximum Output Current: 1A
- Output Voltages: 1.8V, 2.5V, 3.3V, 5.0V, ADJ
- Adjust Pin Current: Less than 120 μ A (ADJ)
- Internal current and thermal limit
- Output Voltage Accuracy : $\pm 1\%$
- Environmentally Friendly : EU RoHS Compliant, Pb Free



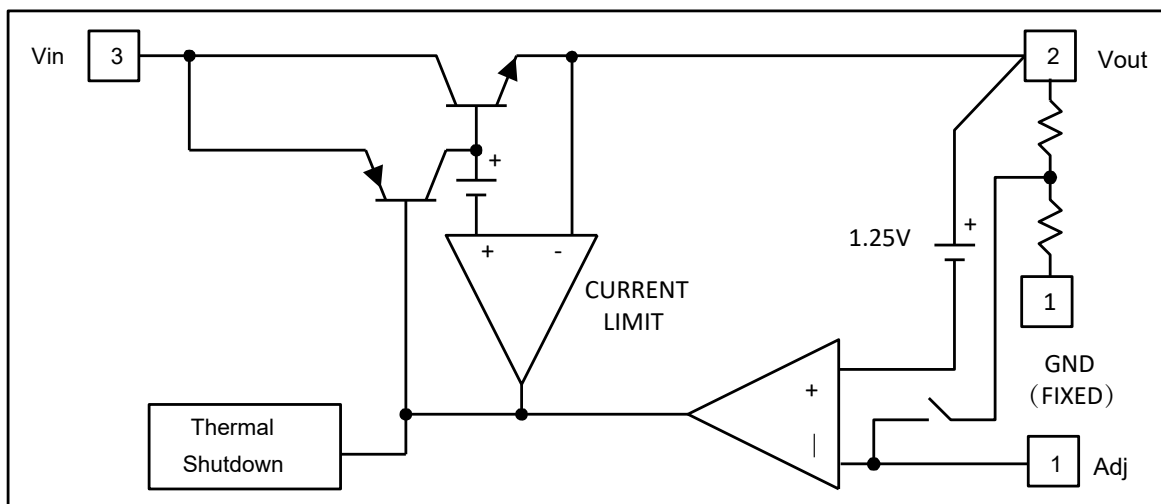
Description

The STC1117 series is 1A Bi-polar transistor LDO voltage regulator, Output voltage of the XB1117 series is fixed to 1.8V, 2.5V, 3.3V, and 5.0V. With the dropout voltage 1.2V (TYP.), output current can be generated up to 1A. Package is available in SOT-223 TO-220

APPLICATIONS

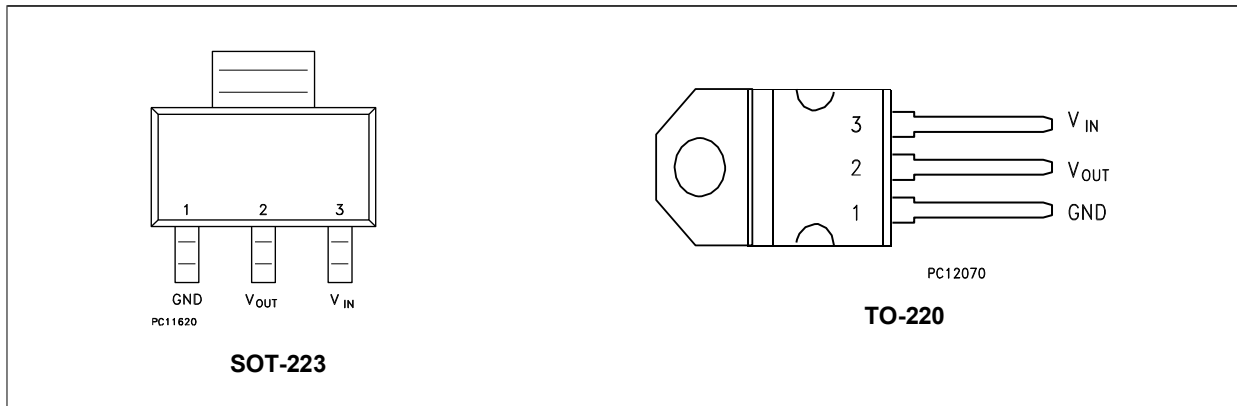
- Highly efficient linear regulators.
- 5V ~ 3.3V DC / DC converter
- Battery charger
- Local power supply inside equipment
- Battery powered equipment

Block diagram



1 Pin configuration

Figure 1. Pin connections (top view)



Note: The TAB is connected to the V_{OUT}.

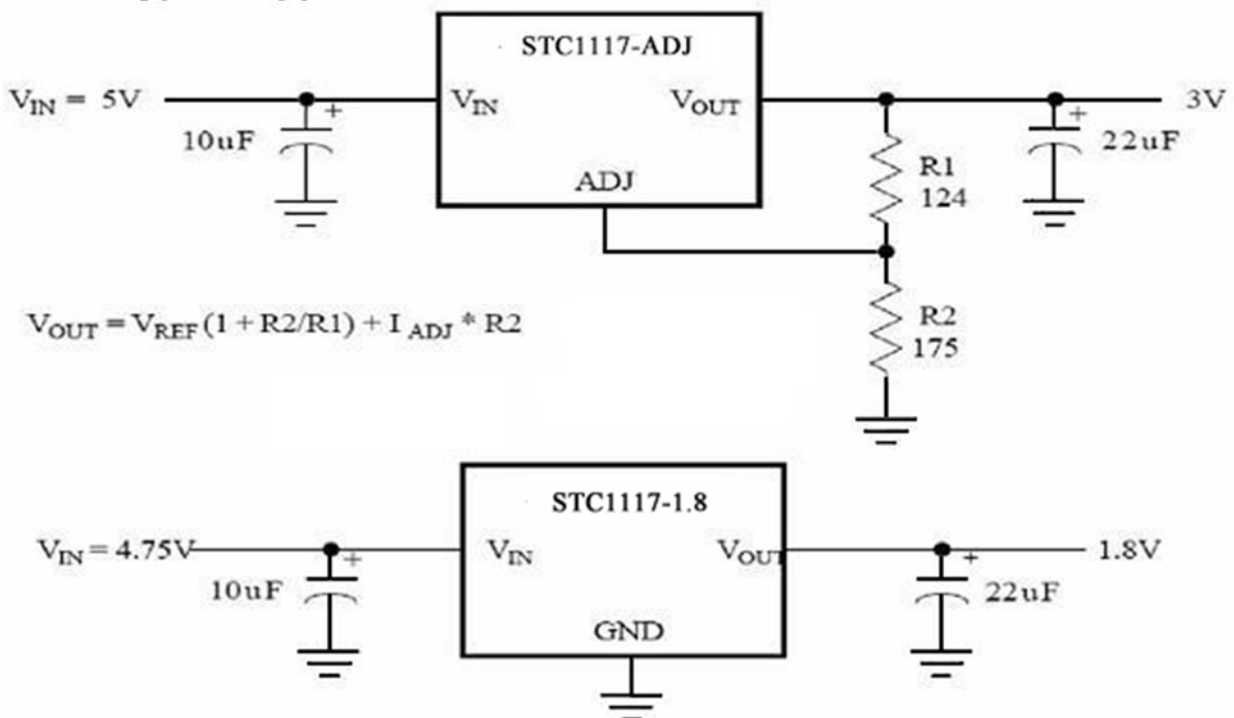
2 Pin assignment

Table 1.

PIN NUMBER	PIN NAME	FUNCTIONS
1	ADJ/GND	ADJ/Ground
2	V _{OUT}	Output
3	V _{IN}	Input

* The electrical potential of the package fin is the same as the V_{OUT} pin

3 Typical application



$$V_{OUT} = V_{REF} (1 + R2/R1) + I_{ADJ} * R2$$

Typical Applications of STC1117

4 Maximum ratings

Table 2. Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Maximum Input Voltage	V_{in}	18	V
Power Dissipation	P_D	Internally Limited	
Operating Junction Temperature Range	T_J	150	°C
Storage Temperature	T_{ST}	-65 to +150	°C

5 Electrical characteristics

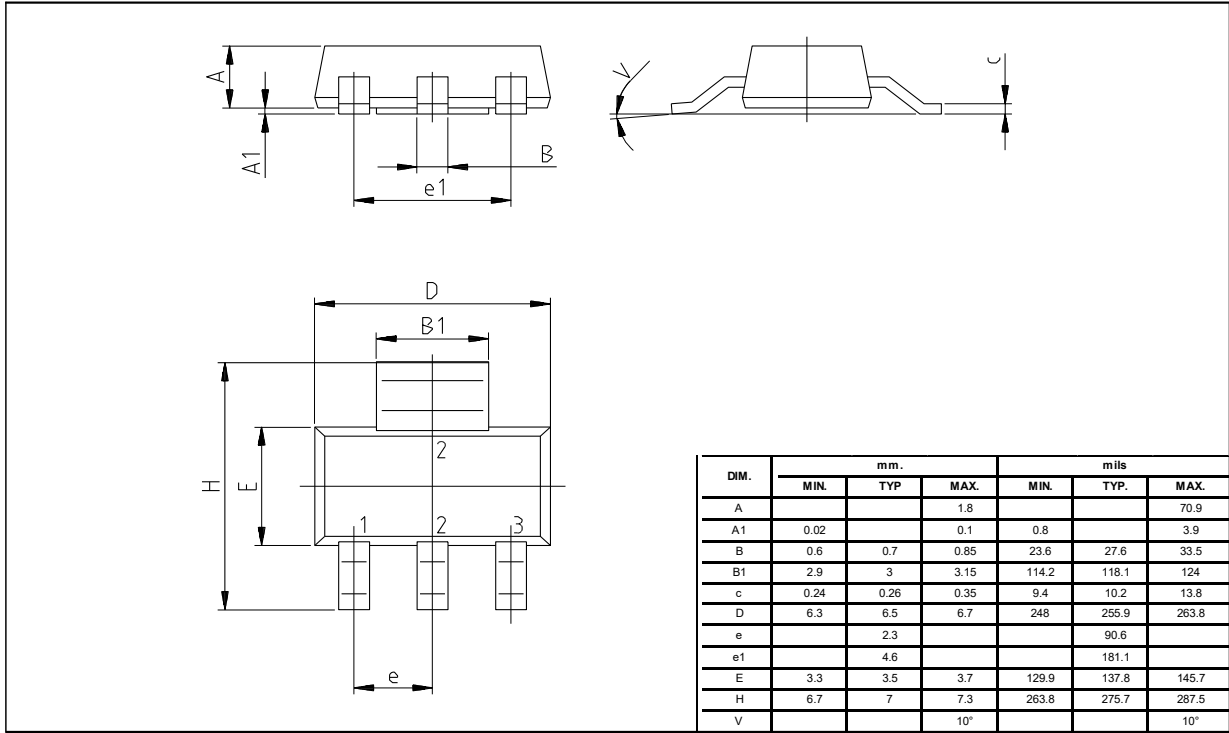
Table 3. Electrical characteristics of STC1117

$T_a=25^{\circ}\text{C}$

Parameter		Testconditions	Min	Typ	Max	Unit
Reference Voltage	STC1117-ADJ	$T_J=25^{\circ}\text{C}, (V_{IN}-V_{OUT})=1.5\text{V}, I_o=10\text{mA}$	1.225	1.250	1.275	V
Output Voltage	STC1117-1.5	$I_{OUT} = 10\text{mA}, T_J = 25^{\circ}\text{C}, 3\text{V} < V_{IN} < 12\text{V}$	1.470	1.500	1.530	V
	STC1117-1.8	$I_{OUT} = 10\text{mA}, T_J = 25^{\circ}\text{C}, 3.3\text{V} < V_{IN} < 12\text{V}$	1.764	1.800	1.836	V
	STC1117-1.9	$I_{OUT} = 10\text{mA}, T_J = 25^{\circ}\text{C}, 3.3\text{V} < V_{IN} < 12\text{V}$	1.862	1.900	1.938	V
	STC1117-2.5	$I_{OUT} = 10\text{mA}, T_J = 25^{\circ}\text{C}, 4\text{V} < V_{IN} < 12\text{V}$	2.450	2.500	2.550	V
	STC1117-3.3	$I_{OUT} = 10\text{mA}, T_J = 25^{\circ}\text{C}, 4.8\text{V} < V_{IN} < 12\text{V}$	3.235	3.300	3.365	V
	STC1117-5.0	$I_{OUT} = 10\text{mA}, T_J = 25^{\circ}\text{C}, 6.5\text{V} < V_{IN} < 12\text{V}$	4.900	5.000	5.100	V
Line Regulation	STC1117-XXX	$I_o=10\text{mA}, V_{OUT}=1.5\text{V} < V_{IN} < 12\text{V}, T_J=25^{\circ}\text{C}$			0.2	%
Load Regulation	STC1117-ADJ	$V_{IN}=3.3\text{V}, V_{adj}=0, I_o=1\text{A}, T_J=25^{\circ}\text{C}$			1	%
	STC1117-1.5	$V_{IN}=3\text{V}, I_o=1\text{A}, T_J=25^{\circ}\text{C}$		12	15	mV
	STC1117-1.8	$V_{IN}=3.3\text{V}, I_o=1\text{A}, T_J=25^{\circ}\text{C}$		15	18	mV
	STC1117-1.9	$V_{IN}=3.3\text{V}, I_o=1\text{A}, T_J=25^{\circ}\text{C}$		16	19	mV
	STC1117-2.5	$V_{IN}=4\text{V}, I_o=1\text{A}, T_J=25^{\circ}\text{C}$		20	25	mV
	STC1117-3.3	$V_{IN}=5\text{V}, I_o=1\text{A}, T_J=25^{\circ}\text{C}$		26	33	mV
	STC1117-5.0	$V_{IN}=8\text{V}, I_o=1\text{A}, T_J=25^{\circ}\text{C}$		40	50	mV
Dropout Voltage ($V_{IN}-V_{OUT}$)	STC1117-XXX	$I_{OUT} = 1\text{A}, V_{OUT}=0.1\%V_{OUT}$		1.3	1.4	V
Current Limit	STC1117-XXX	$(V_{IN}-V_{OUT}) = 5\text{V}$	1.1			A
Minimum Load Current	STC1117-XXX	$0 < T_J < 125^{\circ}\text{C}$		5	10	mA
Thermal Regulation		$T_a=25^{\circ}\text{C}, 30\text{ms pulse}$		0.008	0.04	%/W
Ripple Rejection	$F=120\text{Hz}, C_{OUT}=25\mu\text{F Tantalum}, I_{OUT}=1\text{A}$					
	STC1117-XXX	$V_{IN}=V_{OUT}+3\text{V}$		60	70	dB
Temperature Stability		$I_o=10\text{mA}$		0.5		%

6 Packaging information

SOT-223



TO-220

