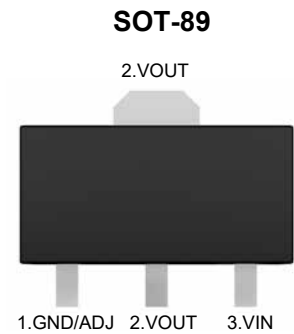


### Description

PJ1117SQ is a low-dropout three-terminal Linear regulator circuit with positive voltage output. It is divided into two versions, Fixed voltage output version and Adjustable voltage output version: The fixed output voltage is 1.2V、 1.8V、 2.5V、 3.3V、 5V and the adjustable version can provide the output voltage from 1.25V to 5V with only 2 external resistors.



### Features

- Range of operation input voltage : Max.15V
- Current limiting function
- Thermal Shutdown
- Operation Ambient Temperature : -40~85°C

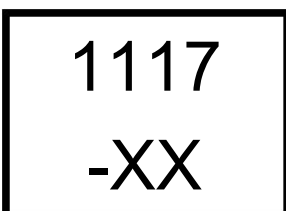
### Applications

- LCD Monitor and LCD TV
- DVD Decode Boar
- ADSL Modem

### Functional Pin Description

Pin Name	Pin Function
GND/ADJ	Ground/Adjustable Pin
VOUT	Output Voltage
VIN	Power Input Voltage

### Marking Code



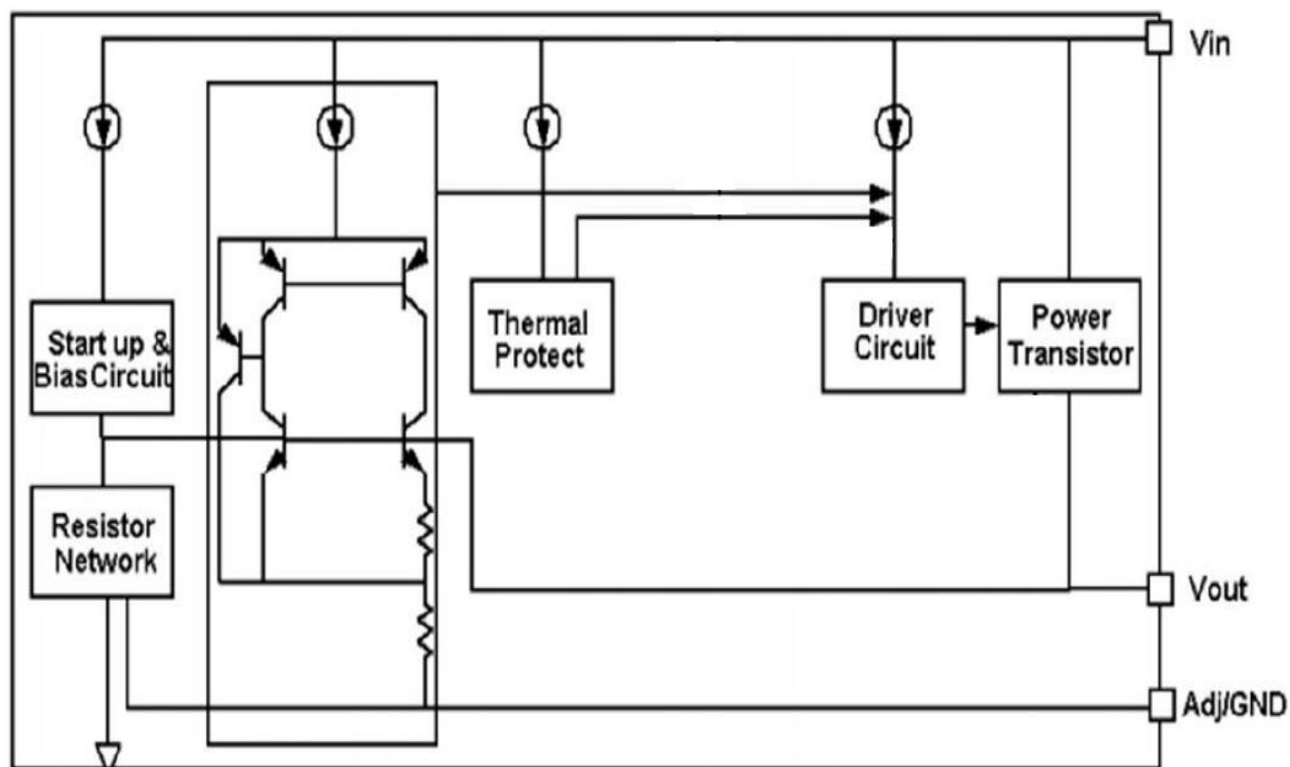
XX:Output Voltage  
e.g. 18:1.8V 33:3.3V

### Ordering Information

PJ1117SQ-□□

- Output Voltage
  - 12 : 1.2V 18 : 1.8V 25 : 2.5V
  - 33 : 3.3V 50 : 5.0V
- Package Type
  - SQ : SOT-89

### Function Block Diagram





### Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Rating	Unit
Supply Voltage	$V_{IN}$	18	V
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-40 to +150	°C
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	45	°C/W

Note: These are stress ratings only. Stresses exceeding the range specified under Absolute Maximum Ratings may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

### Recommended Operating Conditions

Parameter	Symbol	Rating	Unit
Recommended Maximum Input Voltage	$V_{IN}$	15	V
Recommended Operating Junction Temperature	$T_{opr}$	-40 to +85	°C



### Fixed Voltage Output Version

#### Electrical Characteristics

( $T_A=25^{\circ}\text{C}$  , unless otherwise noted.)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	$\Delta V_{\text{OUT}}$	$0 \leq I_{\text{OUT}} \leq 1\text{A}, V_{\text{IN}} = V_{\text{OUT}} + 2\text{V}$	-2	--	+2	%
Quiescent Current	$I_{\text{Q}}$	$V_{\text{OUT}} = 1.2\text{V}$ $I_{\text{OUT}} = 0\text{mA}, V_{\text{IN}} = 10\text{V}$	--	2	5	mA
		$1.8\text{V} \leq V_{\text{OUT}} \leq 5\text{V}$ $I_{\text{OUT}} = 0\text{mA}, V_{\text{IN}} = 12\text{V}$	--	2	5	mA
Dropout Voltage	$V_{\text{DROP}}$	$I_{\text{OUT}} = 100\text{mA}$	--	1.15	1.3	V
		$I_{\text{OUT}} = 1\text{A}$	--	1.3	1.5	V
Line Regulation	$\Delta V_{\text{LINE}}$	$V_{\text{OUT}} = 1.2\text{V}$ $I_{\text{OUT}} = 10\text{mA}, 2.7\text{V} \leq V_{\text{IN}} \leq 10\text{V}$	--	0.03	0.2	%/ $V$
		$1.8\text{V} \leq V_{\text{OUT}} \leq 5\text{V}$ $I_{\text{OUT}} = 10\text{mA}, V_{\text{OUT}} + 1.5\text{V} \leq V_{\text{IN}} \leq 12\text{V}$	--	0.03	0.2	
Load Regulation	$\Delta V_{\text{LOAD}}$	$10\text{mA} \leq I_{\text{OUT}} \leq 1\text{A}, V_{\text{IN}} = V_{\text{OUT}} + 1.5\text{V}$	--	--	36	mV
Temperature coefficient	$\Delta V/\Delta T$		--	+100	--	ppm

### Adjustable Voltage Output Version

#### Electrical Characteristics

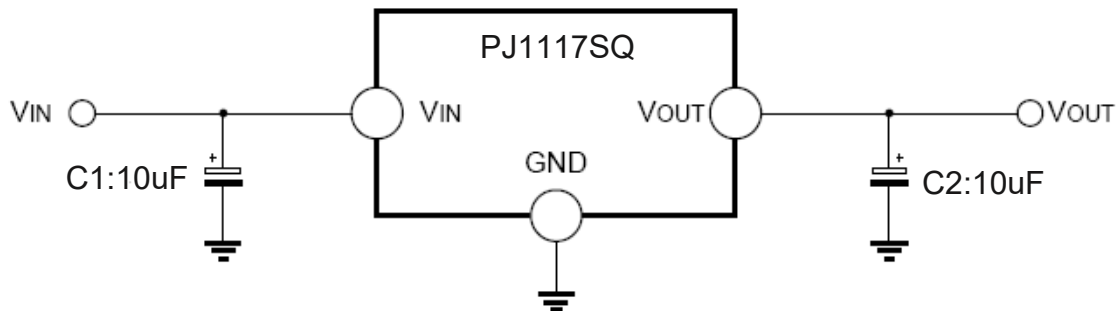
( $T_A=25^{\circ}\text{C}$  , unless otherwise noted.)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reference voltage	$V_{\text{ref}}$	$10\text{mA} \leq I_{\text{OUT}} \leq 1\text{A}, V_{\text{IN}} = 3.25\text{V}$	1.225	1.25	1.275	V
Line Regulation	$\Delta V_{\text{LINE}}$	$I_{\text{OUT}} = 10\text{mA}, 2.75\text{V} \leq V_{\text{IN}} \leq 12\text{V}$	--	0.03	0.2	%/ $V$
Load Regulation	$\Delta V_{\text{LOAD}}$	$10\text{mA} \leq I_{\text{OUT}} \leq 1\text{A}, V_{\text{IN}} = 2.75\text{V}$	--	2	8	mV
Minimum load current	$I_{\text{min}}$		--	2	10	mA
Adjust pin current	$I_{\text{adj}}$	$10\text{mA} \leq I_{\text{OUT}} \leq 1\text{A}, V_{\text{IN}} = 5\text{V}$	--	55	120	$\mu\text{A}$
$I_{\text{adj}}$ change	$I_{\text{change}}$	$10\text{mA} \leq I_{\text{OUT}} \leq 1\text{A}, V_{\text{IN}} = 5\text{V}$	--	0.2	10	$\mu\text{A}$

### Typical Application Circuit

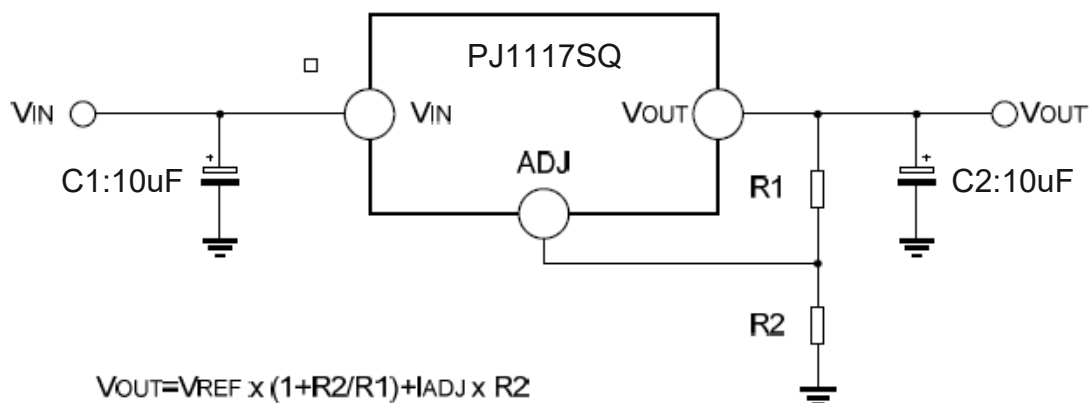
PJ1117SQ has an adjustable version and six fixed versions (1.2V, 1.8V, 2.5V, 3.3V and 5V)

#### Fixed Voltage Output Version



1. Recommend using 10uF tan capacitor as bypass capacitor (C1) for all application circuit.
2. Recommend using 10uF tan capacitor to assure circuit stability.

#### Adjustable Voltage Output Version



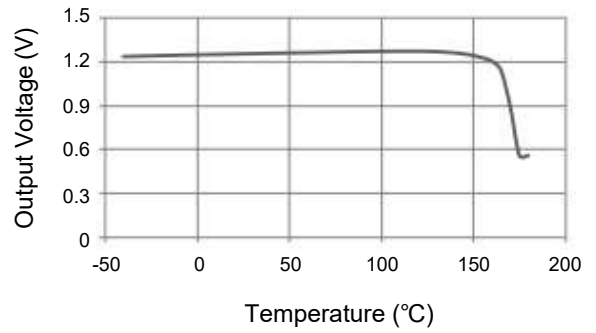
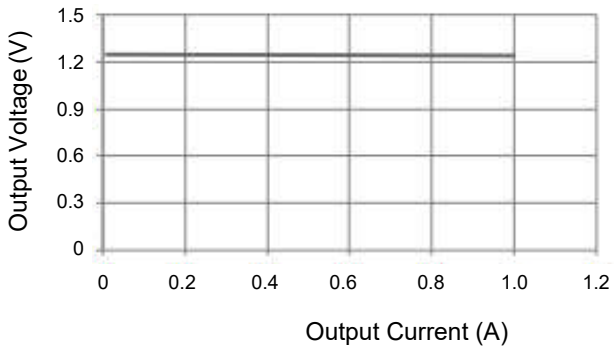
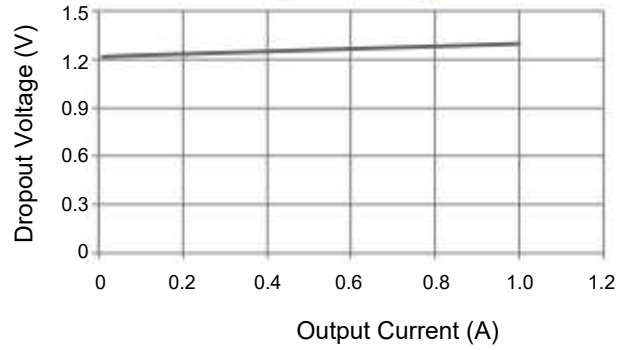
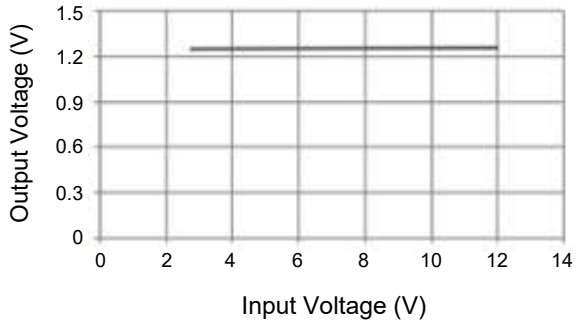
The output voltage of adjustable version follows the equation:  $V_{OUT} = 1.25 \times (1 + R2/R1) + I_{ADJ} \times R2$ . We can ignore  $I_{ADJ}$  because  $I_{ADJ}$  (about 50uA) is much less than the current of  $R1$  (about 2~10mA).

(1). To meet the minimum load current (>10mA) requirement,  $R1$  is recommended to be 125ohm or lower. As PJ1117SQ-ADJ can keep itself stable at load current about 2mA,  $R1$  is not allowed to be higher than 625Ω.

(2). Using a bypass capacitor (CADJ) between the ADJ pin and ground can improve ripple rejection. This bypass capacitor prevents ripple from being amplified as the output voltage is increased. The impedance of CADJ should be less than  $R1$  to prevent ripple from being amplified. As  $R1$  is normally in the range of 100Ω~500Ω, the value of CADJ should satisfy this equation:  $1/(2\pi \times f_{ripple} \times CADJ) < R1$ .



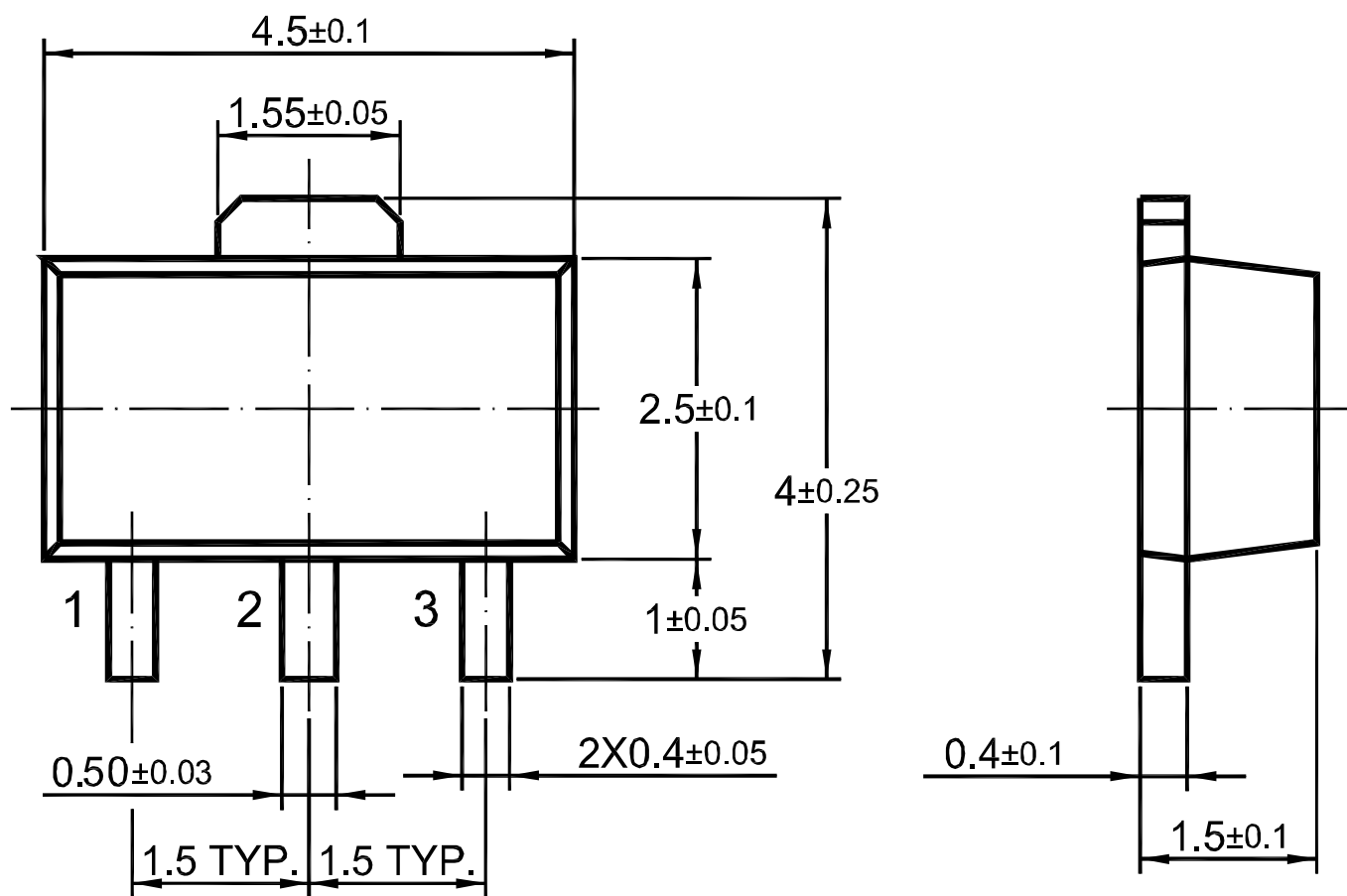
### Typical Characteristics Curves



### Package Outline

SOT-89

Dimensions in mm



### Ordering Information

Device	Package	Shipping
PJ1117SQ	SOT-89	3,000PCS/Reel&13inches