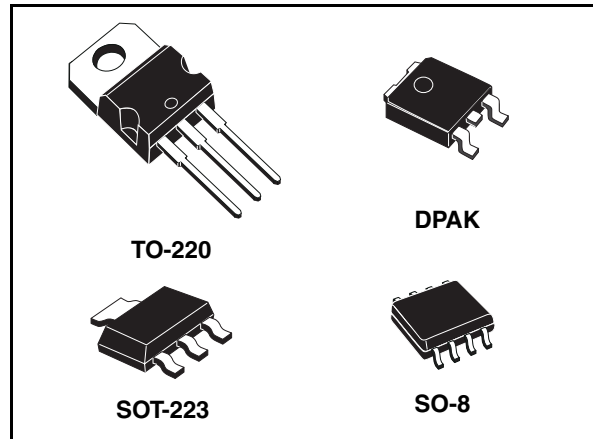


Low drop fixed and adjustable positive voltage regulators

Feature summary

- Low dropout voltage (1V TYP.)
- 2.85V Device performances are suitable for SCSI-2 active termination
- Output current up to 800 mA
- Fixed output voltage of: 1.2V, 1.8V, 2.5V, 2.85V, 3.0V, 3.3V, 5.0V
- Adjustable version availability ($V_{ref}=1.25V$)
- Internal current and thermal limit
- Available in $\pm 1\%$ (at 25°C) and 2% in full temperature range
- Supply voltage rejection: 75dB (typ.)

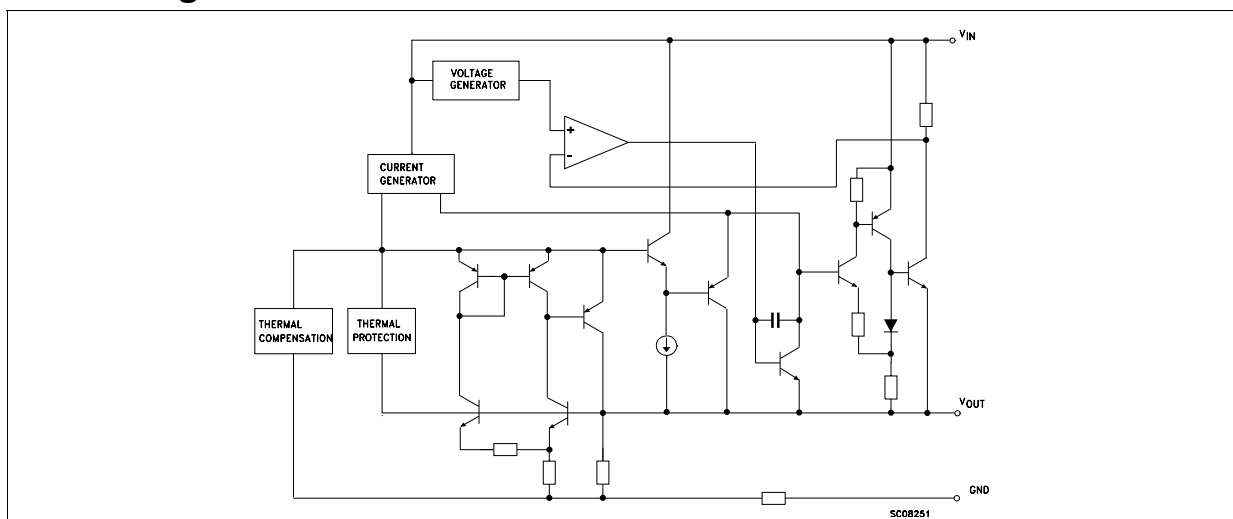


The SOT-223 and DPAK surface mount packages optimize the thermal characteristics even offering a relevant space saving effect. High efficiency is assured by NPN pass transistor. In fact in this case, unlike than PNP one, the Quiescent Current flows mostly into the load. Only a very common 10 μ F minimum capacitor is needed for stability. On chip trimming allows the regulator to reach a very tight output voltage tolerance, within $\pm 1\%$ at 25°C. The ADJUSTABLE LD1117 is pin to pin compatible with the other standard. Adjustable voltage regulators maintaining the better performances in terms of Drop and Tolerance.

Description

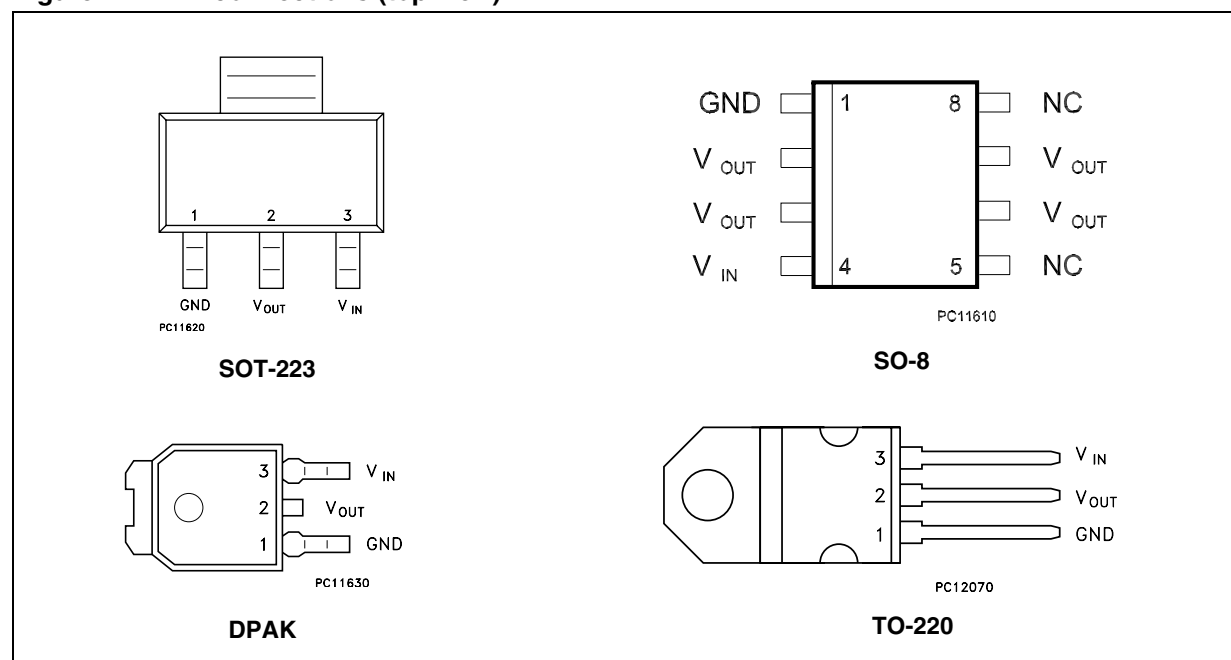
The LD1117 is a LOW DROP Voltage Regulator able to provide up to 800mA of Output Current, available even in adjustable version ($V_{ref}=1.25V$). Concerning fixed versions, are offered the following Output Voltages: 1.2V, 1.8V, 2.5V, 2.85V, 3.0V, 3.3V and 5.0V. The 2.85V type is ideal for SCSI-2 lines active termination. The device is supplied in: SOT-223, DPAK, SO-8 and TO-220.

Block diagram



1 Pin configuration

Figure 1. Pin connections (top view)



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

2 Maximum ratings

Table 1. Absolute maximum ratings

Symbol	Parameter		Value	Unit
V_{IN}	DC Input Voltage		15	V
P_{TOT}	Power Dissipation		12	W
T_{STG}	Storage Temperature Range		-40 to +150	°C
T_{OP}	Operating Junction Temperature Range	for C Version	-40 to +150	°C
		for standard Version	0 to +150	°C

Table 2. Thermal Data

Symbol	Parameter	SOT-223	SO-8	DPAK	TO-220	Unit
R_{thJC}	Thermal Resistance Junction-case	15	20	8	3	°C/W
R_{thJA}	Thermal Resistance Junction-ambient				50	°C/W

3 Schematic application

Figure 2. Application circuit (for 1.2V)

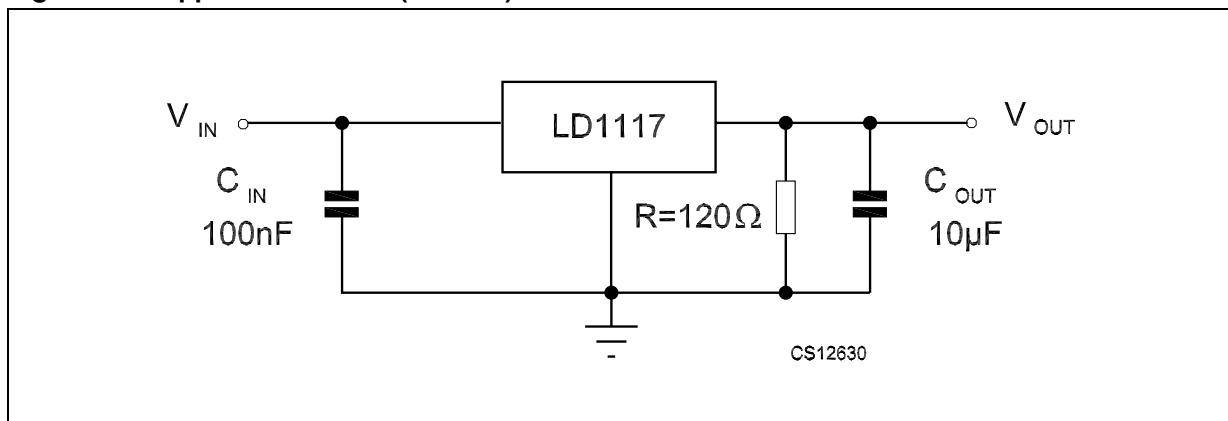
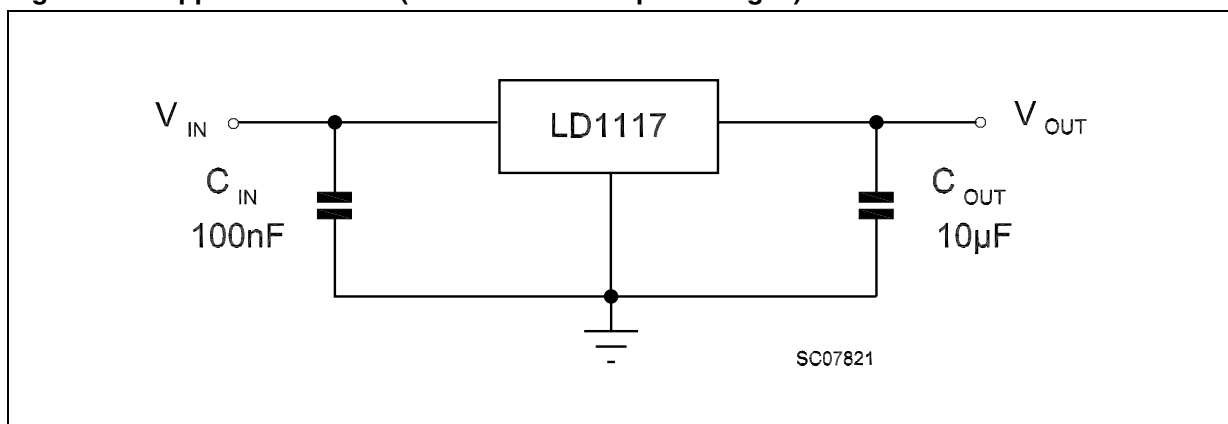


Figure 3. Application circuit (for other fixed output voltages)



4 Electrical characteristics

Table 3. Electrical characteristics of LD1117#12

(refer to the test circuits, $T_J = 0$ to 125°C , $C_O = 10\ \mu\text{F}$, $R = 120\ \Omega$ between GND and OUT pins, unless otherwise specified).

Symbol	Parameter	Test	Min.	Typ.	Max.	Unit
V_O	Output voltage	$V_{in} = 3.2\ \text{V}$, $I_O = 10\ \text{mA}$, $T_J = 25^\circ\text{C}$	1.188	1.20	1.212	V
V_O	Reference voltage	$I_O = 10$ to $800\ \text{mA}$ $V_{in} - V_O = 1.4$ to $10\ \text{V}$	1.140	1.20	1.260	V
ΔV_O	Line regulation	$V_{in} - V_O = 1.5$ to $13.75\ \text{V}$, $I_O = 10\ \text{mA}$		0.035	0.2	%
ΔV_O	Load regulation	$V_{in} - V_O = 3\ \text{V}$, $I_O = 10$ to $800\ \text{mA}$		0.1	0.4	%
ΔV_O	Temperature stability			0.5		%
ΔV_O	Long term stability	1000 hrs, $T_J = 125^\circ\text{C}$		0.3		%
V_{in}	Operating input voltage				15	V
I_{adj}	Adjustment pin current	$V_{in} \leq 15\ \text{V}$		60	120	μA
ΔI_{adj}	Adjustment pin current change	$V_{in} - V_O = 1.4$ to $10\ \text{V}$ $I_O = 10$ to $800\ \text{mA}$		1	5	μA
$I_{O(min)}$	Minimum load current	$V_{in} = 15\ \text{V}$		2	5	mA
I_O	Output current	$V_{in} - V_O = 5\ \text{V}$, $T_J = 25^\circ\text{C}$	800	950	1300	mA
eN	Output noise (% V_O)	$B = 10\text{Hz}$ to 10KHz , $T_J = 25^\circ\text{C}$		0.003		%
SVR	Supply voltage rejection	$I_O = 40\ \text{mA}$, $f = 120\text{Hz}$, $T_J = 25^\circ\text{C}$ $V_{in} - V_O = 3\ \text{V}$, $V_{ripple} = 1\ \text{V}_{PP}$	60	75		dB
V_d	Dropout voltage	$I_O = 100\ \text{mA}$		1	1.1	V
		$I_O = 500\ \text{mA}$		1.05	1.15	
		$I_O = 800\ \text{mA}$		1.10	1.2	
	Thermal regulation	$T_a = 25^\circ\text{C}$, 30ms Pulse		0.01	0.1	%/W

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