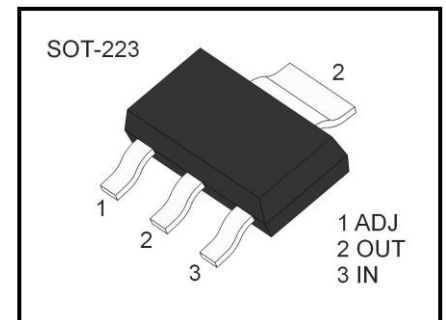


The LM317 are monolithic integrated circuit in SOT-89 packages intended for use as positive adjustable voltage regulators. They are designed to supply more than 1.5A of load current with an output voltage adjustable over a 1.2 to 37V range.

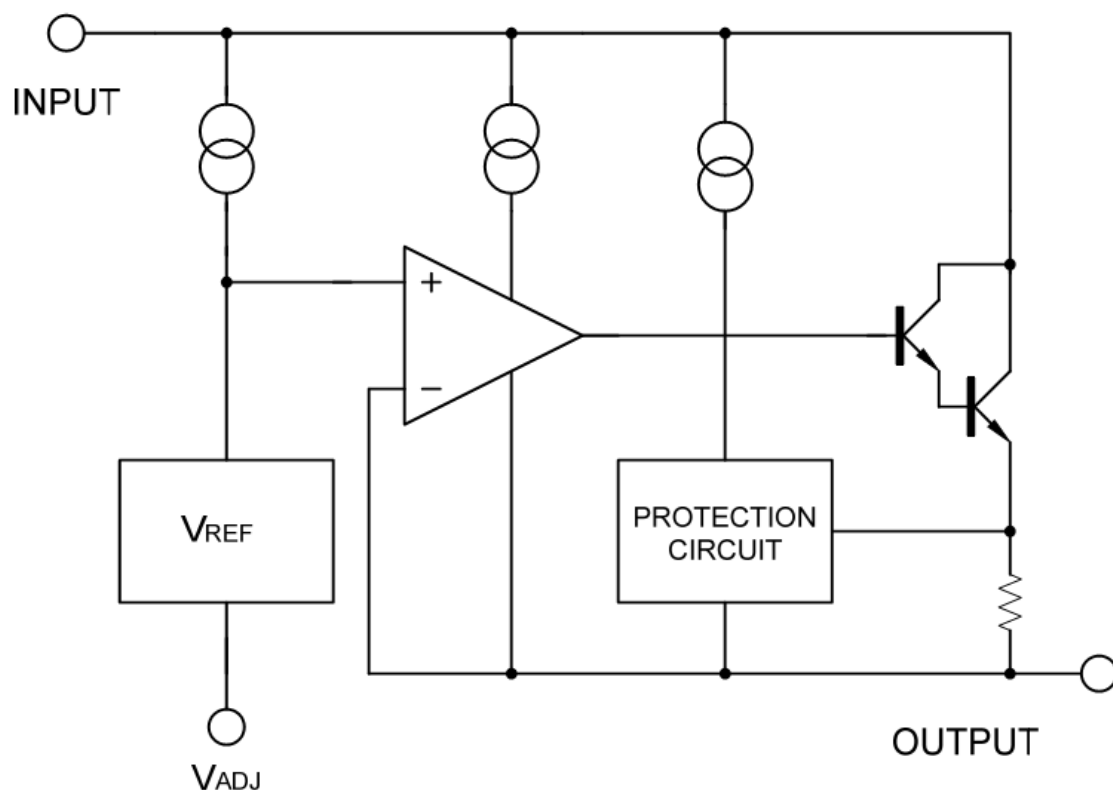
The nominal output voltage is selected by means of only a resistive divider, making the device exceptionally easy to use and eliminating the stocking of many fixed regulators

Features

- Output Voltage Range : 1.2 TO 37V
- Output Current in excess of 1.5A
- 0.1% Line and Load Regulation Voltages
- Floating Operation For High
- Complete Series of Protections:
Current Limiting, Thermal Shutdown and SOA Control



Block Diagram



Absolute Maximum Ratings

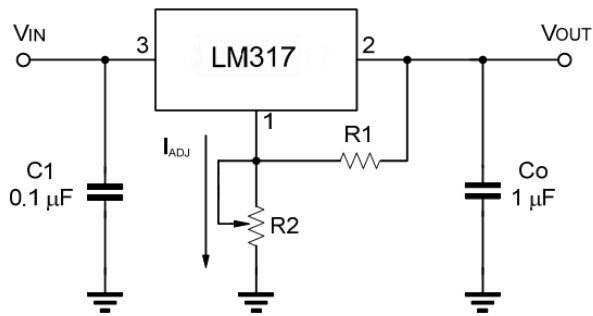
Symbol	Parameter	Value	Unit
V_{i-o}	Input-output Differential Voltage	40	V
I_o	Output Current	Intenrally Limited	
V_o	Out put Voltage	5	V
T_{OP}	Operating Junction Temperature	$0 \sim +125$	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	$-60 \sim +150$	$^{\circ}\text{C}$

Electrical Characteristics

($V_i - V_o = 5\text{ V}$, $I_o = 500\text{ mA}$, $I_{MAX} = 1.5\text{ A}$ and $P_{MAX} = 20\text{ W}$, unless otherwise specified)

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Line Regulation	ΔV_o	$V_i - V_o = 3\text{ to }40\text{ V}$	$T_j = 25^{\circ}\text{C}$		0.04	%V
					0.07	
Load Regulation	ΔV_o	$V_o \leq 5\text{ V}$ $I_o = 10\text{ mA} \sim I_{MAX} 1.5\text{ A}$	$T_j = 25^{\circ}\text{C}$		25	mV
					70	
		$V_o \geq 5\text{ V}$ $I_o = 10\text{ mA} \sim I_{MAX} 1.5\text{ A}$	$T_j = 25^{\circ}\text{C}$		0.5	%V
					1.5	
Adjustment Pin Current	I_{ADJ}	$T_j = 25^{\circ}\text{C}$			100	μA
Adjustment Pin Current	ΔI_{ADJ}	$V_i - V_o = 2.5\text{ to }40\text{ V}$ $I_o = 10\text{ mA} \sim I_{MAX} 1.5\text{ A}$			5	μA
Output Voltage Drift	$\Delta V / \Delta T$	$I_o = 5\text{ mA}$		-0.8		$\text{mV}/^{\circ}\text{C}$
Reference Voltage (between pin3 and pin1)	V_{REF}	$V_i - V_o = 2.5\text{ to }40\text{ V}$ $I_o = 10\text{ mA} \sim I_{MAX} 1.5\text{ A}$ $P_D \leq P_{MAX}$	1.2	1.25	1.3	V
Output Voltage Temperature Stability	$\Delta V_o / \Delta V_o$			1		%
Minimum Load Current	$I_{O(min)}$	$V_i - V_o = 40\text{ V}$			10	mA
Maximum Load Current	$I_{O(max)}$	$V_i - V_o \leq 15\text{ V}$, $P_D < P_{MAX}$	1.5			A
		$V_i - V_o = 40\text{ V}$, $P_D < P_{MAX}$, $T_j = 25^{\circ}\text{C}$		0.4		

Application Circuits



$$V_{out} = 1.25 \cdot (1 + R2/R1) + I_{ADJ} \cdot R2$$

Fig.1 Programmable Voltage Regulator

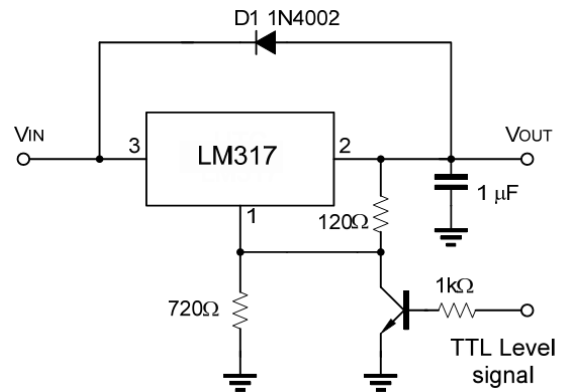


Fig.2 Regulator with ON-off controll

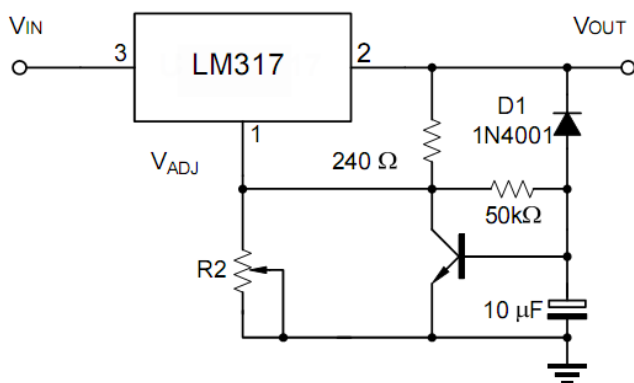


Fig.3 Soft Start Application

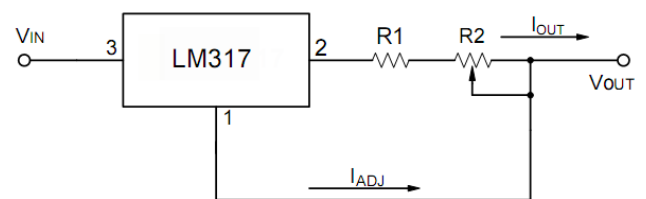


Fig.4. Constant Current Application

Typical Characteristics

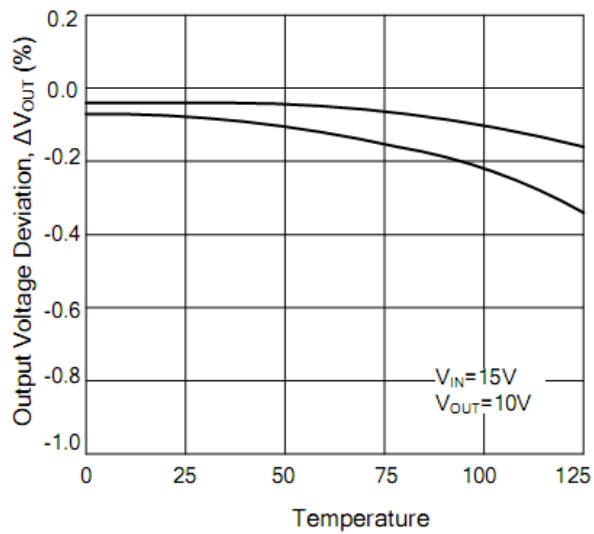


Fig.1. Load Regulation vs. temperature

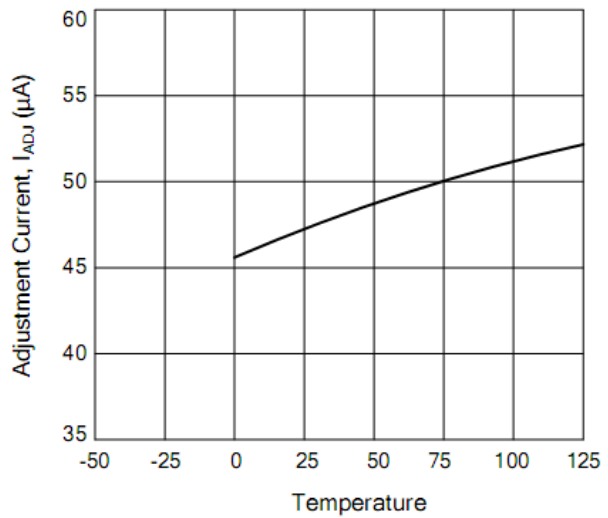


Fig.2. Adjustment Current vs. Temperature

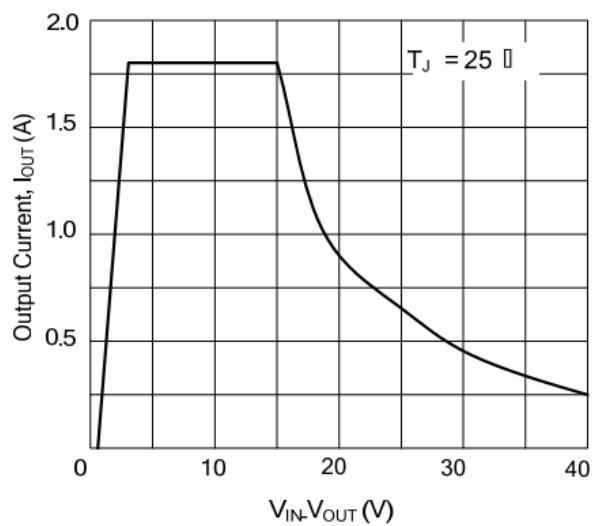


Fig.3. Currents Limit

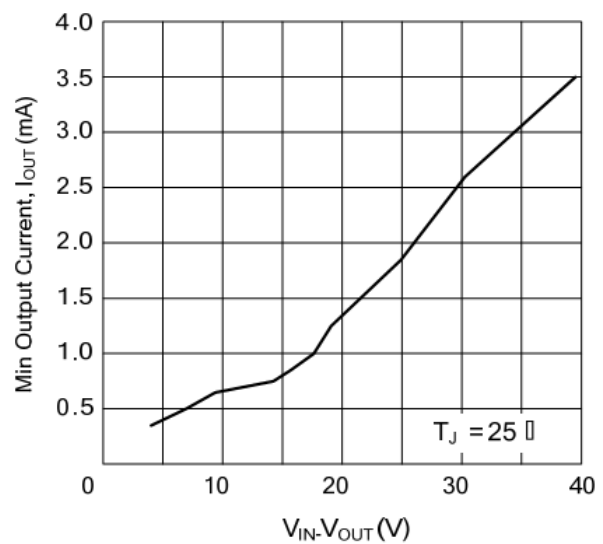
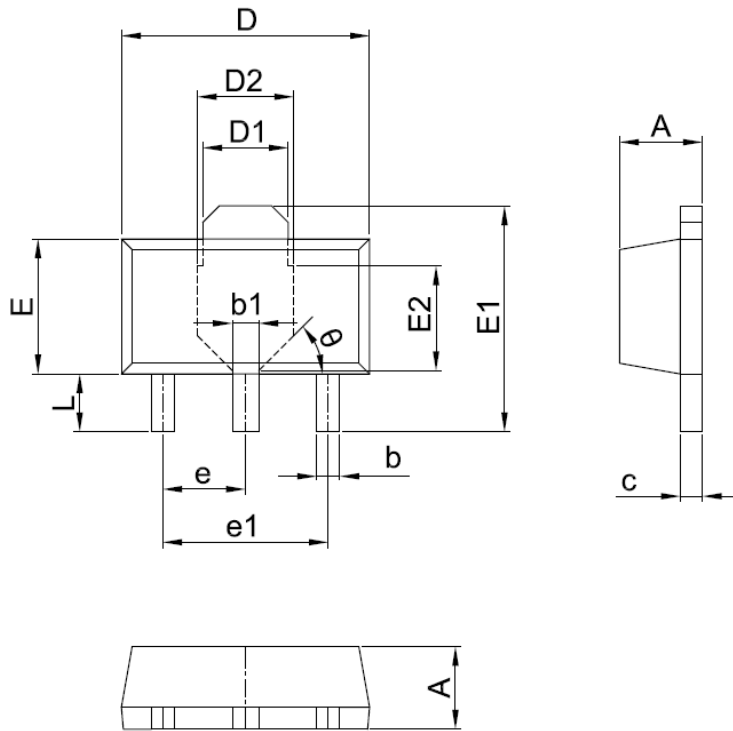


Fig.4. Minimum Operating Current

Package Dimensions (Unit:mm)



Symbol	Min.	Typ	Max.
A	1.40	1.50	1.60
b	0.32	0.42	0.52
b1	0.38	0.48	0.58
c	0.35	0.40	0.45
D	4.40	4.50	4.60
D1	1.45	1.55	1.65
D2	1.70	1.75	1.80
E	2.30	2.45	2.60
E1	3.95	4.10	4.25
E2	1.80	1.90	2.00
e	1.40	1.50	1.60
e1	2.80	3.00	3.20
L	0.90	1.05	1.20
θ		45°	