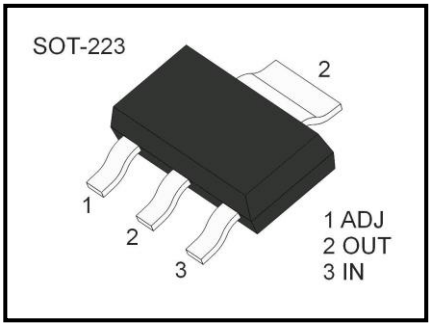
LM317 3-Terminal 1.5A Positive Adjustable Regulator

The LM317 are monolithic integrated circuit in SOT-223 packagesintended 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.

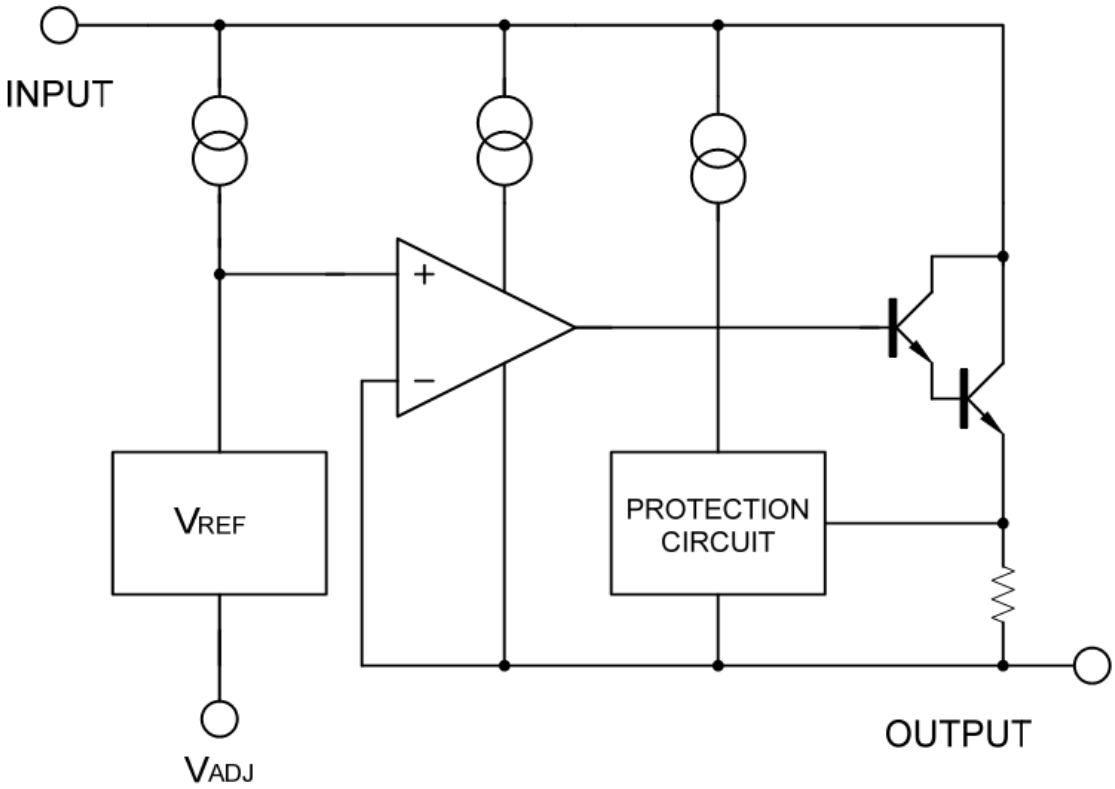
The nominal output voltage is selected by means of only a resistive divider, making the device exceptionally easy to use and eliminatingthestocking of many fixed regulators

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 Shudown and SOA Control



Block Diagram



Absolute Maximum Ratings

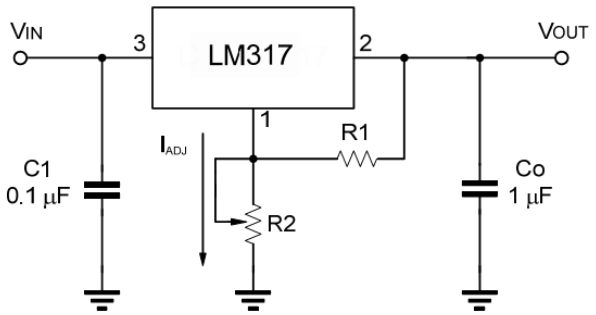
Symbol	Parameter	Value	Unit
V_{i-O}	Input-output Differential Voltage	40	V
I_O	Output Current	Intenrally Limited	
V_O	Out put Voltage	5	V
T_{OP}	Operating Junction Temperature	0～＋125	℃
T_{STG}	Storage Temperature	-60～＋150	℃

Electrical Characteristics

(Vi - Vo = 5 V, Io = 500 mA, I_{MAX} = 1.5A and P_{MAX} = 20W, unless otherwise specified)

Parameter	Symbol	Conditions		Value			Unit
				Min	Typ	Max	
Line Regulation	ΔV_O	Vi-Vo=3 to 40V	Tj＝25℃			0.04	%V
						0.07	
Load Regulation	ΔV_O	$V_o \leqslant 5V$ I_O = 10mA~I_{Max}1.5A	Tj＝25℃			25	mV
						70	
		$V_o \geqslant 5V$ I_O = 10mA~I_{Max}1.5A	Tj＝25℃			0.5	%V
						1.5	
Adjustment Pin Current	I_{ADJ}	Tj＝25℃				100	μA
Adjustment Pin Current	ΔI_{ADJ}	Vi-Vo = 2.5 to 40V I_O = 10mA~I_{Max}1.5A				5	μA
Output Voltage Drift	$\Delta V / \Delta T$	I_O = 5mA			-0.8		mV/℃
Reference Voltage (between pin3 and pin1)	V_{REF}	Vi-Vo = 2.5 to 40V I_O = 10mA~I_{Max}1.5A $P_D \leqslant P_{MAX}$		1.2	1.25	1.3	V
Output Voltage Temperature Stability	$\Delta V_O / \Delta V_O$				1		%
Minimum Load Current	$I_{O(min)}$	Vi-Vo = 40V				10	mA
Maximum Load Current	$I_{O(max)}$	Vi-Vo ≤ 15V, $P_D < P_{MAX}$		1.5			A
		Vi-Vo = 40V, $P_D < P_{MAX}$, Tj＝25℃			0.4		

Application Circuits



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

Fig.1 Prgrammable Voltage Regulator

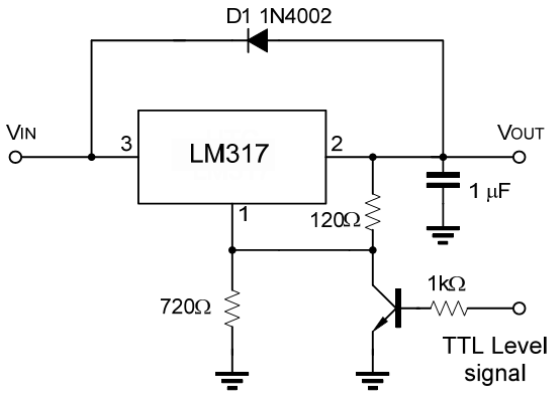


Fig.2 Regulator with ON-off controll

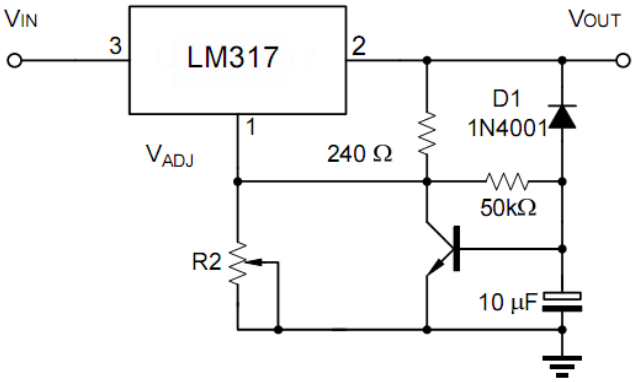


Fig.3 Soft Start Application

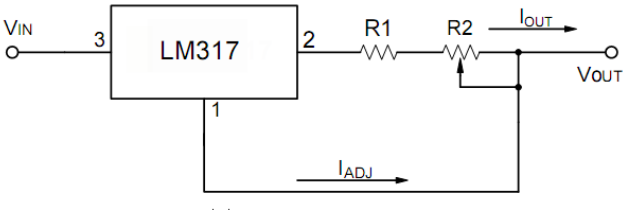


Fig.4. Constant Current Application

Typical Characteristics

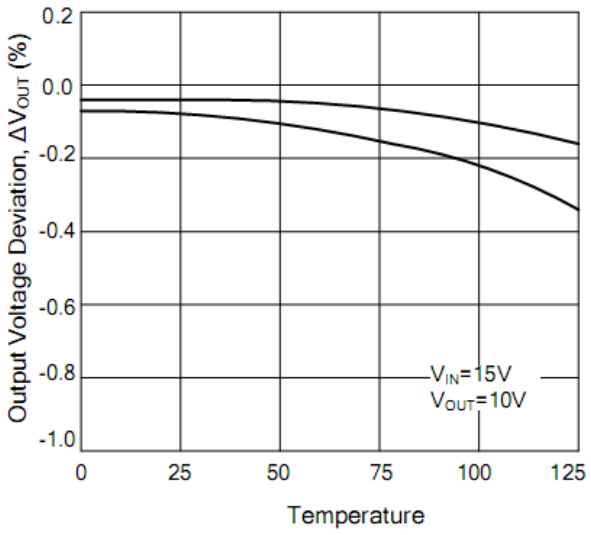


Fig.1. Load Regulation vs. temperature

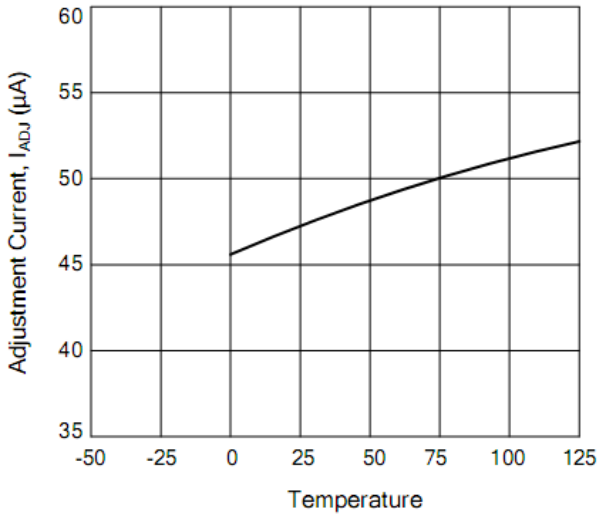


Fig.2. Adjustment Current vs. Temperature

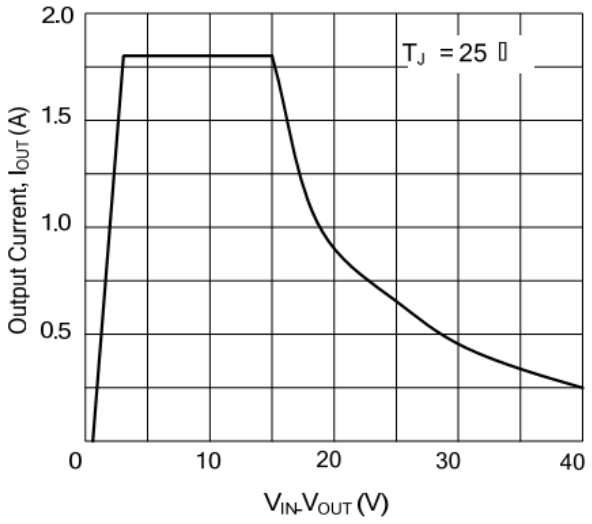


Fig.3. Currents Limit

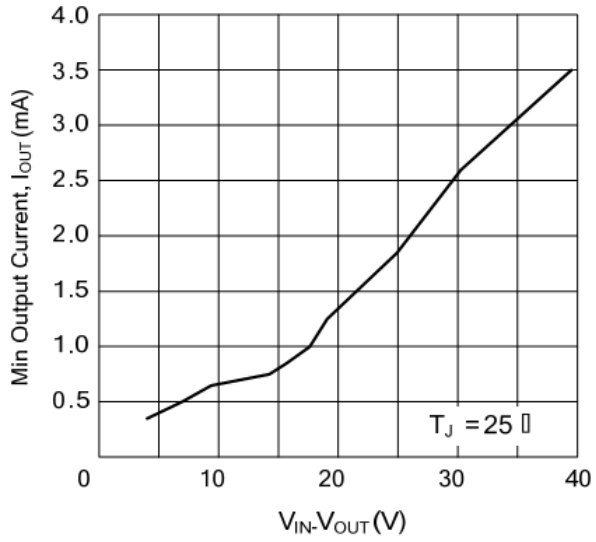
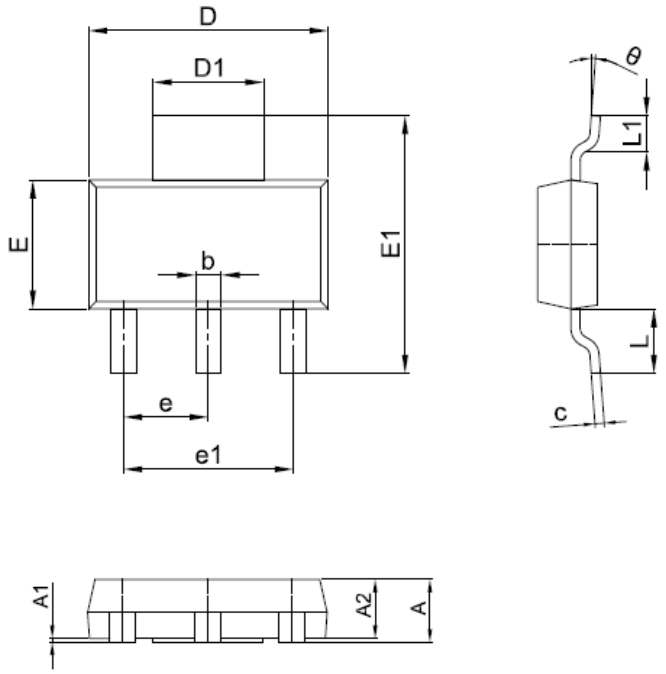


Fig.4. Minimum Opreating Current

Package Dimensions (Unit:mm)



Symbol	Min.	Typ	Max.
A	1.52	1.62	1.80
A1	0.00	0.05	0.10
A2	1.50	1.60	1.70
b	0.65	0.70	0.75
c	0.20	0.25	0.30
D	6.40	6.50	6.60
D1	2.90	3.00	3.10
E	3.30	3.50	3.70
E1	6.85	7.00	7.15
e	2.20	2.30	2.40
e1	4.40	4.60	4.80
L	1.65	1.75	1.85
L1	0.90	1.00	1.10
θ	0°	5°	10°