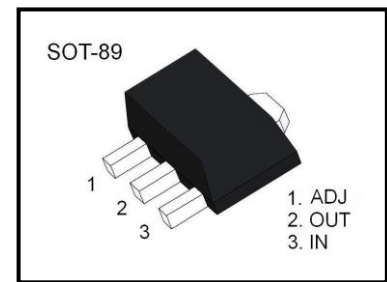
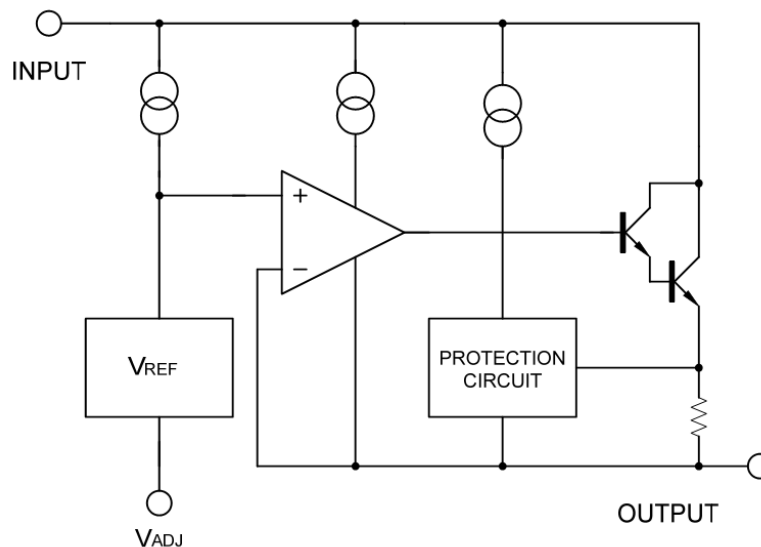


Description

The LM317L is a monolithic integrated circuit, designed to supply 100mA of output current with voltage adjustable from 1.25V to 37V.

Features

- Output Voltage adjustable from 1.25 to 37V
- Output current in excess of 100mA
- Internal thermal overload protection
- Internal short circuit current limiting
- Output transistor safe area compensation

**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	°C
T_{STG}	Storage Temperature	-60~+150	°C

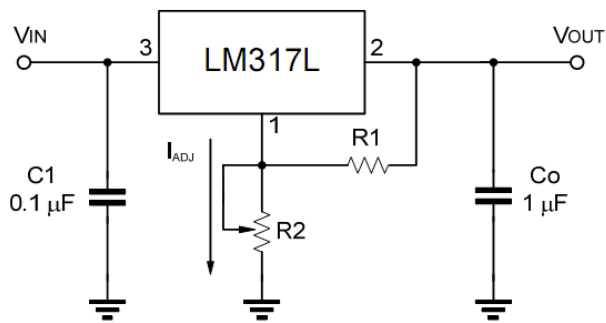
Electrical Characteristics

(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	$V_I - V_O = 3 \text{ to } 40\text{V}$, $I_{LOAD} \leq 20\text{mA}$				0.04	%V
Load Regulation	ΔV_O	$I_O = 5\text{mA} \sim 100\text{mA}$	$V_{OUT} \leq 5\text{V}$			25	mV
			$V_{OUT} \geq 5\text{V}$			0.5	%
Adjustment Pin Current	I_{ADJ}	$T_J = 25^\circ\text{C}$				100	μA
Adjustment Pin Current	ΔI_{ADJ}	$V_I - V_O = 3 \text{ to } 40\text{V}$, $I_O = 5\text{mA} \sim 100\text{mA}$				5	μA
Reference Voltage (between pin3 and pin1)	V_{REF}	$V_I - V_O = 3 \text{ to } 40\text{V}$ $I_O = 5\text{mA} \sim 100\text{mA}$, $P_D \leq 625\text{mW}$		1.20	1.25	1.30	V
Minimum Load Current	$I_{L(min)}$	$V_I - V_O = 40\text{V}$				10	mA
Maximum Output Current	$I_{O(max)}$	$V_I - V_O = 40\text{V}$, $P_D \leq 625\text{mW}$				100	mA
RMS Noise vs. %of V_{OUT}	eN	$f = 10 \text{ to } 10\text{KHz}$				0.01	%V
Ripple Rejection	RR	$V_{OUT} = 10\text{V}$, $f = 120\text{Hz}$	$C_{ADJ} = 0$		65		dB
			$C_{ADJ} = 10\mu\text{F}$	60			dB

Note: C_{ADJ} is connected between Adjust pin and Ground.

Application Circuits



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

C1 is required when regulator is located an appreciated distance from power supply. Co is needed to improve transient response.

Fig.1 Programmable Voltage Regulator

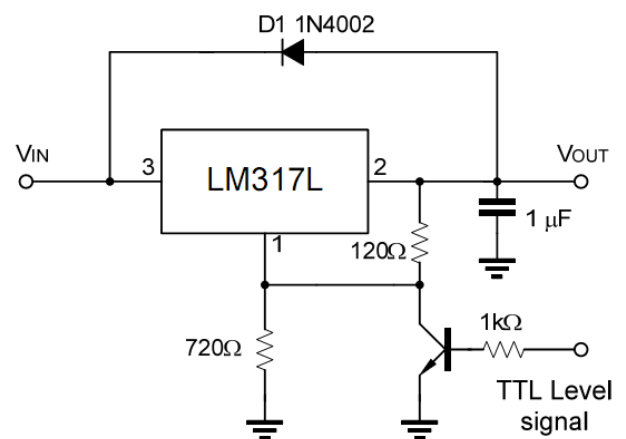


Fig.2 Regulator with ON-off controll

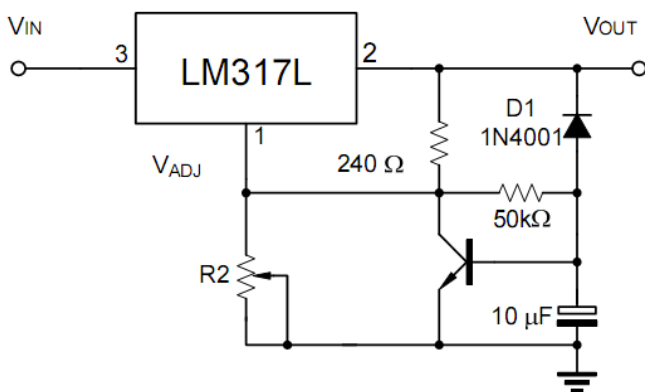
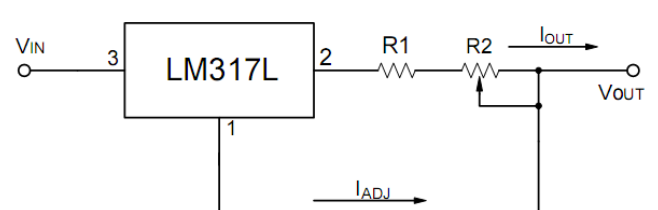


Fig.3 Soft Start Application



$$I_{O(MAX)} = \left(\frac{V_{REF}}{R1} \right) + I_{ADJ} = \frac{1.25V}{R1}$$

$$I_{O(MIN)} = \left(\frac{V_{REF}}{R1+R2} \right) + I_{ADJ} = \frac{1.25V}{R1+R2}$$

$$5mA < I_{OUT} < 100mA$$

Fig.4. Constant Current Application

Typical Characteristics

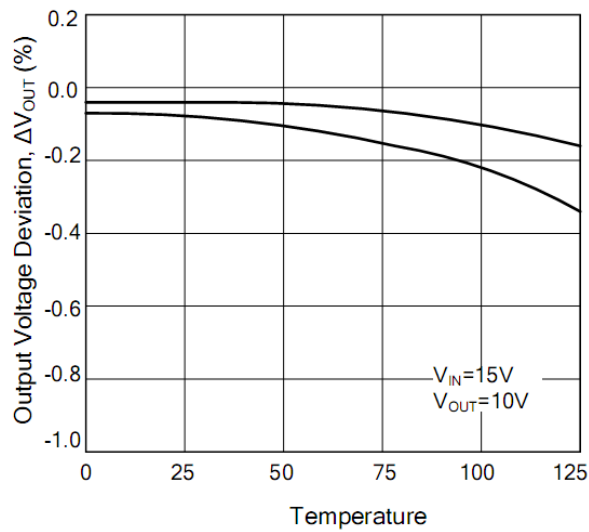


Fig.1. Load Regulation vs. temperature

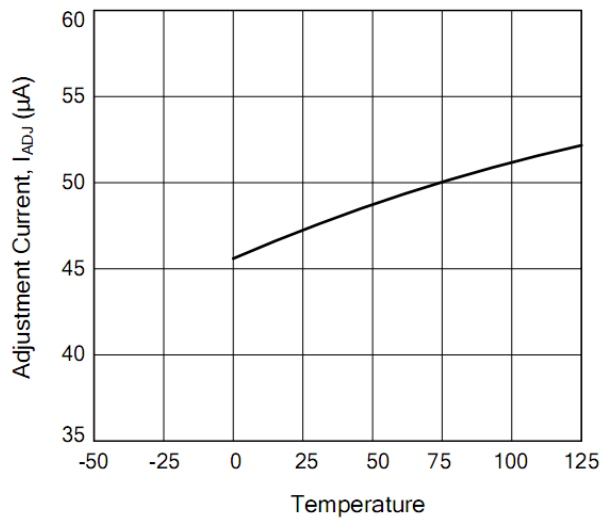


Fig.2. Adjustment Current vs. Temperature

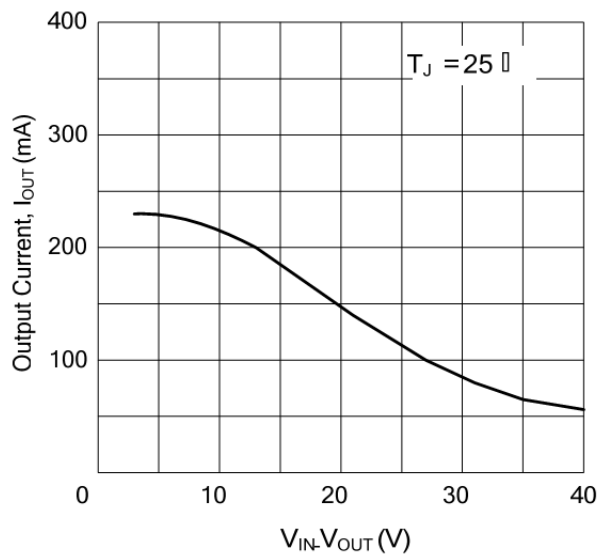


Fig.3. Currents Limit

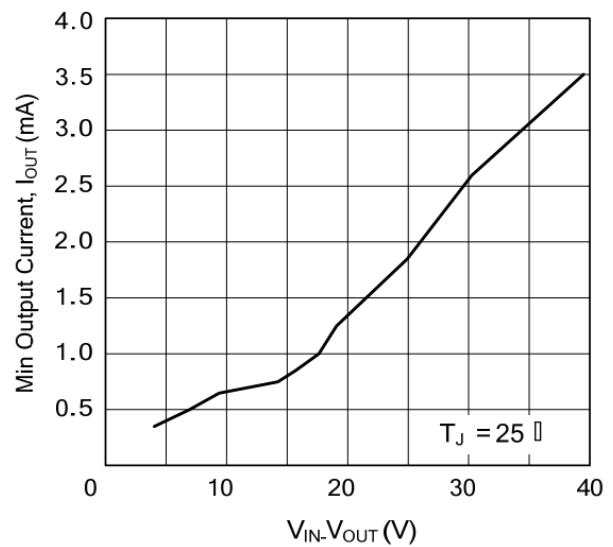
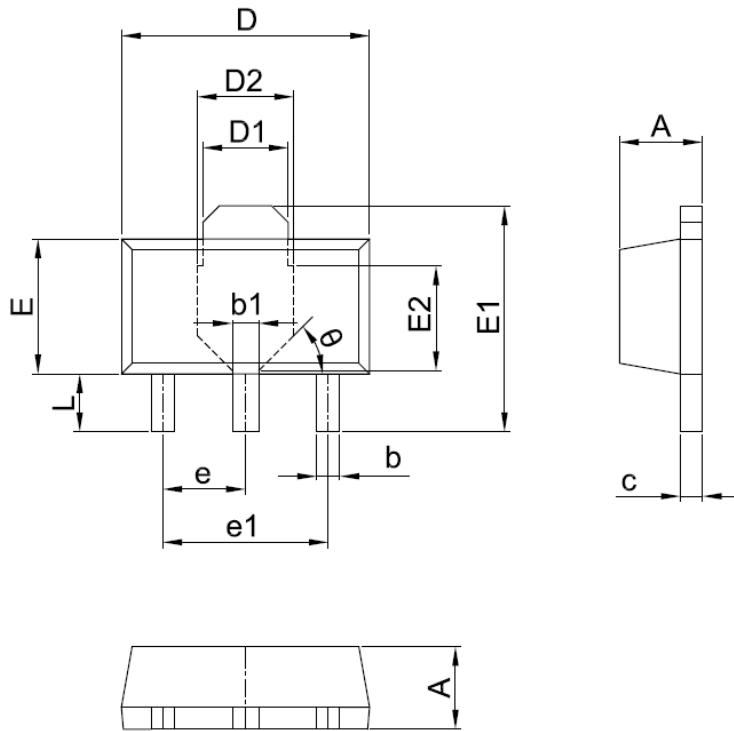


Fig.4. Minimum Operating Current

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°	