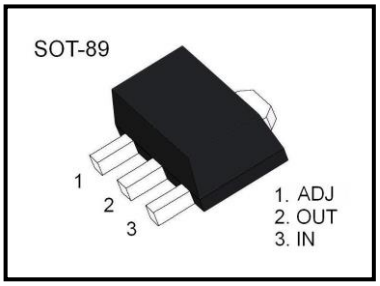
LM317L 3-Terminal 0.1A Positive Adjustable Regulator

Description

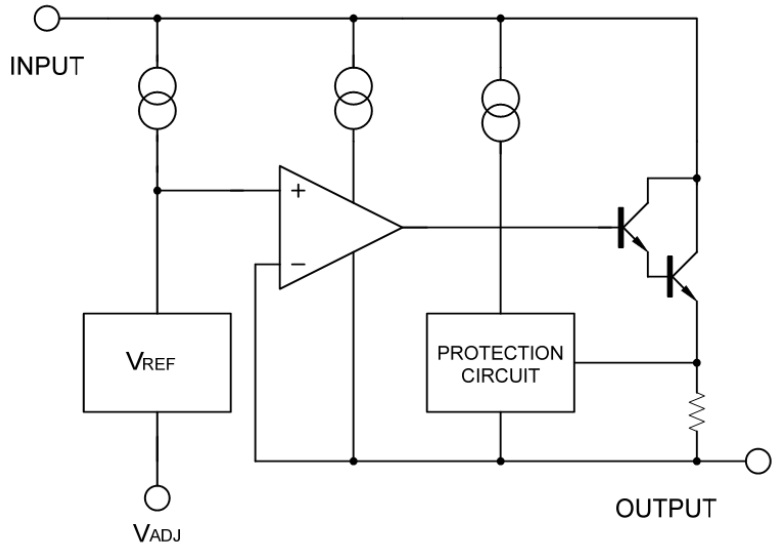
The LM317L is a monolithic integrated circuit, designed to supply 100mA of output current with voltage adjustable from 1.25V to 37V.



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	℃
T_{STG}	Storage Temperature	-60～＋150	℃

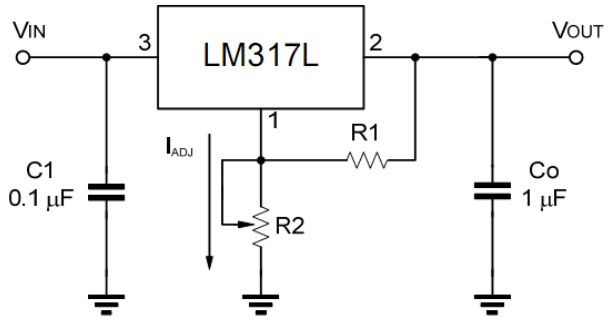
Electrical Characteristics

(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	V_I-V_O =3 to 40V, I_{LOAD} ≤20mA				0.04	%V
Load Regulation	ΔV_O	I_O = 5mA~100mA	V_{OUT}≤5V			25	mV
			V_{OUT}≥5V			0.5	%
Adjustment Pin Current	I_{ADJ}	Tj＝25℃				100	μA
Adjustment Pin Current	ΔI_{ADJ}	V_I-V_O = 3 to 40V, I_O = 5mA~100mA				5	μA
Reference Voltage (between pin3 and pin1)	V_{REF}	V_I-V_O = 3 to 40V I_O = 5mA~100mA, P_D ≤625mW		1.20	1.25	1.30	V
Minimum Load Current	$I_{L(min)}$	V_I-V_O = 40V				10	mA
Maximum Output Current	$I_{O(max)}$	V_I-V_O = 40V, P_D ≤625mW				100	mA
RMS Noise vs. %of V_{OU}T	eN	f = 10 to10KHz				0.01	%V
Ripple Rejection	RR	V_{OUT}=10V, f = 120Hz	C_{ADJ} = 0		65		dB
			C_{ADJ}= 10μF	60			dB

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

Application Circuits



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

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

Fig.1 Prgrammable Voltage Regulator

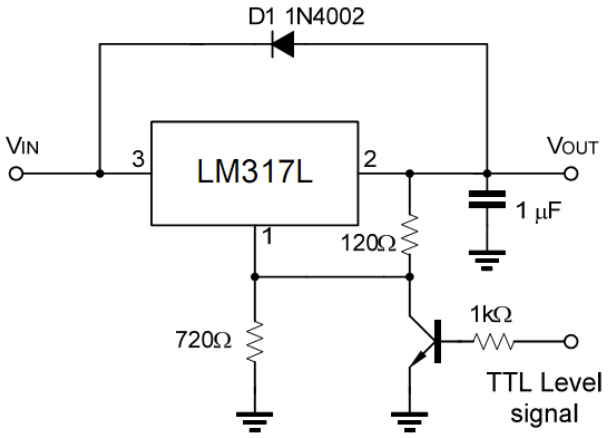


Fig.2 Regulator with ON-off controll

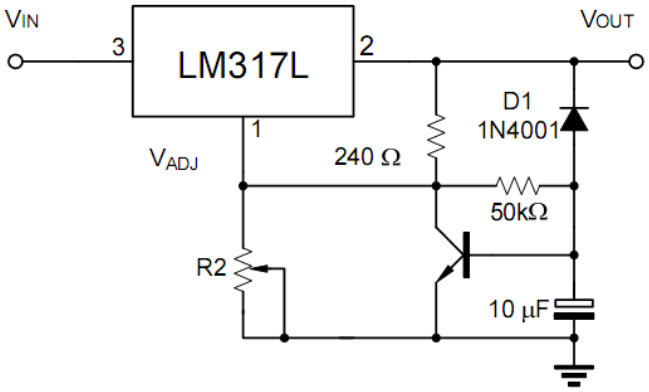
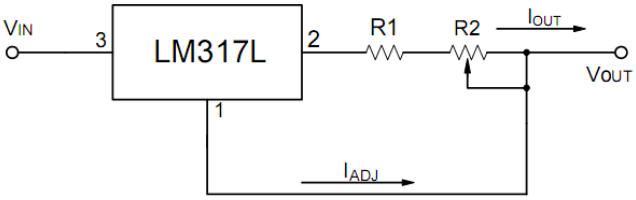


Fig.3 Soft Start Application



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

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

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

Fig.4. Constant Current Application

Typical Characteristics

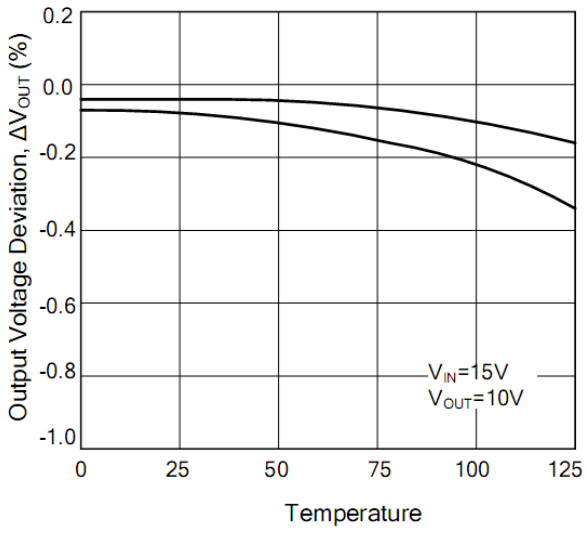


Fig.1. Load Regulation vs. temperature

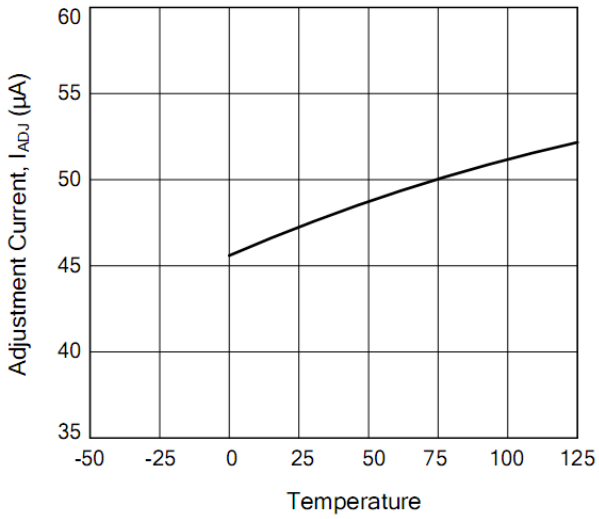


Fig.2. Adjustment Current vs. Temperature

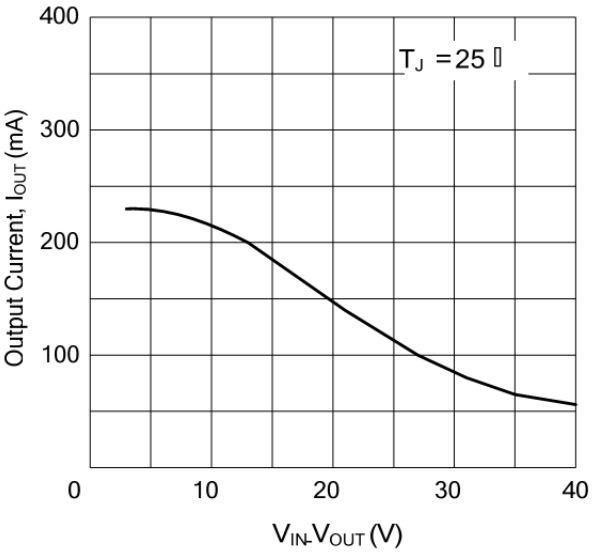


Fig.3. Currents Limit

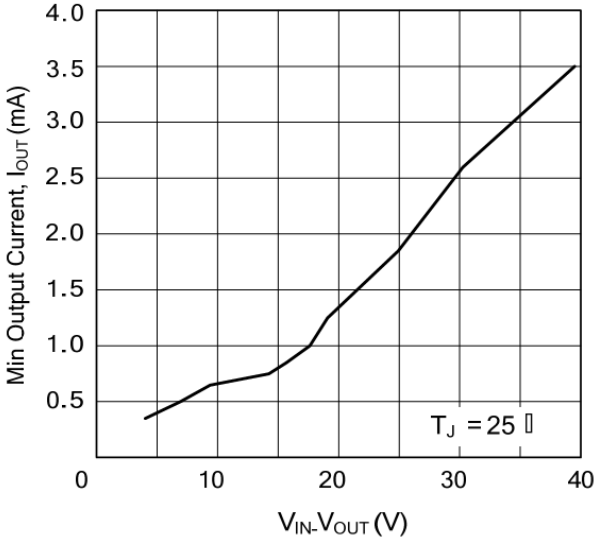
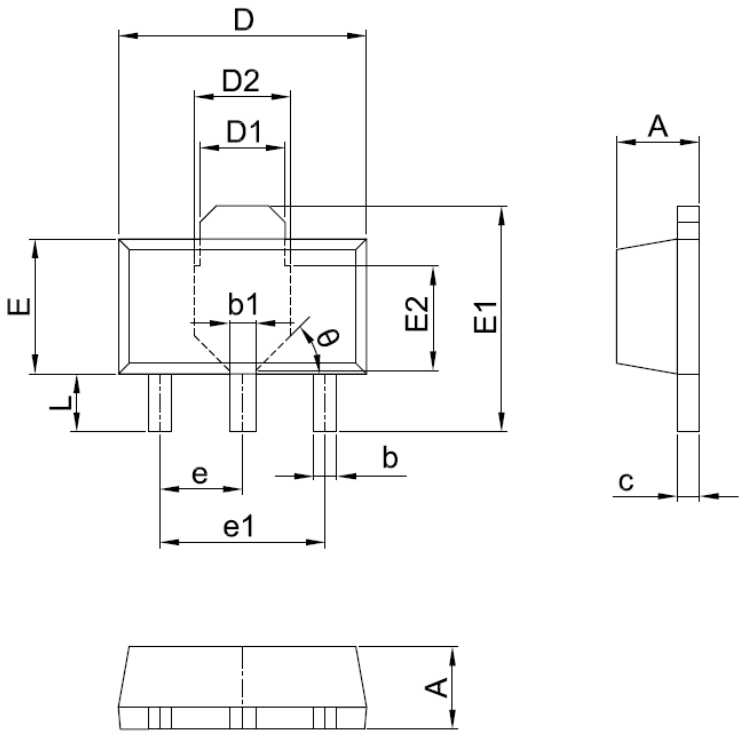


Fig.4. Minimum Opreating Current

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°	