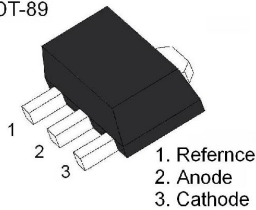


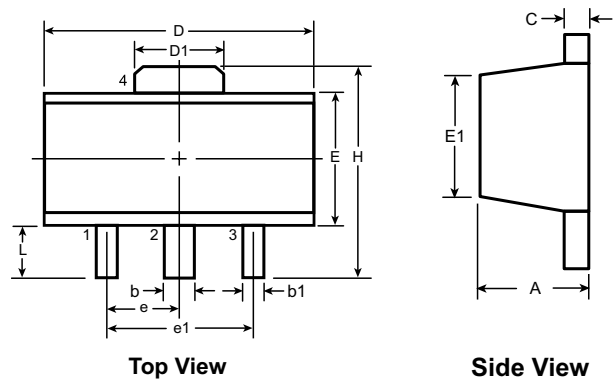
Features

- Output Current in Excess of 100mA
- Output Adjustable Between 1.2V and 37V
- Internal Thermal Overload Protection
- Internal Short Circuit Current Limiting
- Output Transistor Safe Area Compensation
- Floating Operation For High Voltage Applications

SOT-89



SOT-89 PACKAGE OUTLINE



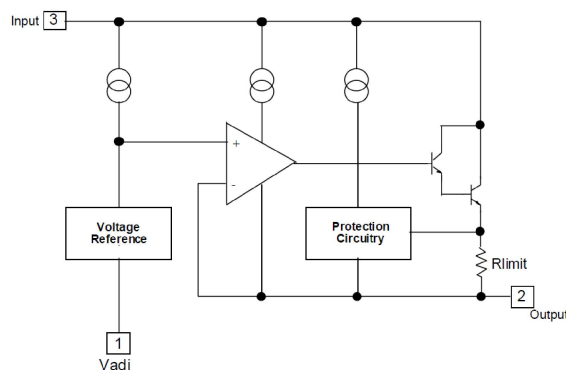
Symbol	A	b	b1	C	D	D1	E	E1	e	e1	H	L
Dimensions (mm)	MIN	1.40	0.44	0.36	0.3	4.40	1.50	2.29	2.00 [†]	1.50	3.94	0.89
	NOM	-	-	-	-	-	-	-	-	3.00	-	-
	MAX	1.60	0.56	0.48	0.5	4.60	1.75	2.60	2.29	3.00	4.25	1.20

Dimensions in mm

Description

The LM317L is a 3-terminal adjustable positive voltage regulator capable of supplying in excess of 100mA over an output voltage range of 1.2V to 37V. This voltage regulator is exceptionally easy to use and requires only two external resistors to set the output voltage.

Internal Block Diagram



LM317L

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Value	Unit
Input-Output Voltage Differential	$V_I - V_O$	40	V
Power Dissipation	P_D	Internally limited	mW
Operating Junction Temperature Range	T_{opr}	0 ~ +125	°C
Storage Temperature Range	T_{stg}	- 65 ~ +125	°C

Electrical Characteristics

($V_I - V_O = 5V$, $I_O = 40mA$, $0^\circ C \leq T_j \leq +125^\circ C$, $P_{DMAX} = 625mW$, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Line Regulation (Note)	R_{line}	$T_A = +25^\circ C$ $3V < V_I - V_O < 40V$	-		0.04	%V
		$3V < V_I - V_O < 40V$	-		0.07	
Load Regulation (Note)	R_{load}	$T_A = +25^\circ C$ $10mA \leq I_O \leq 100mA$ $V_O \leq 5V$ $V_O \geq 5V$	-		25 0.5	mV %/ V_O
		$10mA \leq I_O \leq 100mA$ $V_O \leq 5V$ $V_O \geq 5V$	-		70 1.5	
Adjustment Pin Current	I_{ADJ}				100	μA
Adjustment Pin Current Change	ΔI_{ADJ}	$3V \leq V_I - V_O \leq 40V$ $10mA \leq I_O \leq 100mA$ $P_D < P_{DMAX}$			5	μA
Reference Voltage	V_{REF}	$3V < V_I - V_O < 40V$ $10mA \leq I_O \leq 100mA$ $P_D \leq P_{DMAX}$	1.2		1.3	V
Minimum Load Current to Maintain Regulation	$I_{L(MIN)}$	$V_I - V_O = 40V$			10	mA
Maximum output Current	$I_{O(MAX)}$	$V_I - V_O \leq 15V$, $P_D < P_{DMAX}$	100			mA
		$V_I - V_O \leq 15V$, $P_D < P_{DMAX}$, $T_A = +25^\circ C$	25			
RMS Noise, %of V_{OUT}	eN	$T_A = +25^\circ C$, $10Hz < f < 10KHz$		0.003		% V_O
Ripple Rejection	RR	$V_O = 10V$, $f = 120Hz$ without C_{ADJ} $C_{ADJ} = 10\mu F$	66	80		dB

Note: Load and Line regulation are specified at constant junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

Typical Application

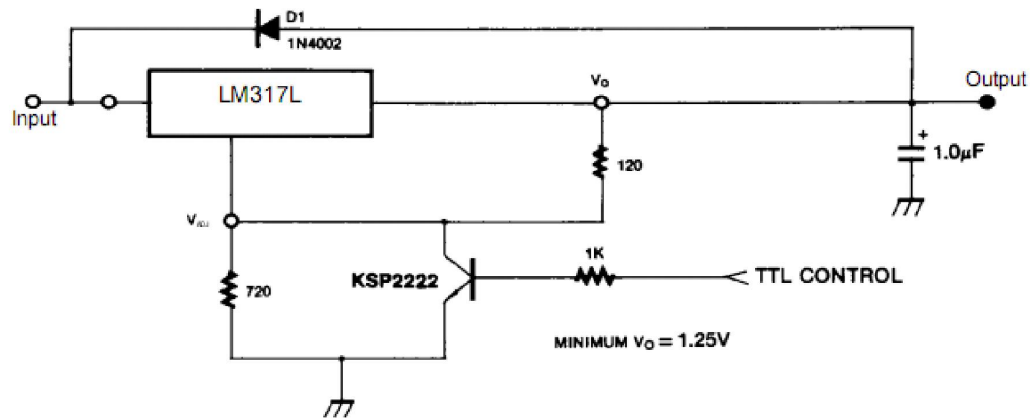


Figure 1.5V Electronic Shutdown Regulator

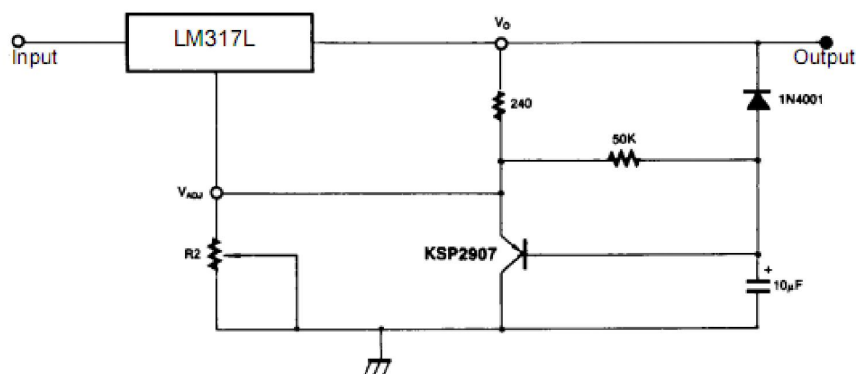
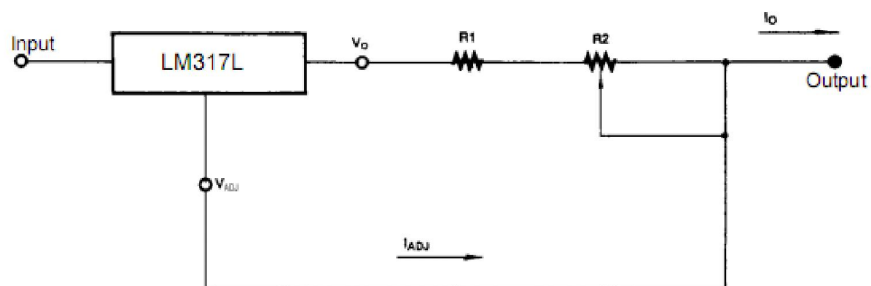


Figure 2.Slow Turn-On Regulator



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

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

$$5\text{mA} < I_O < 500\text{mA}$$

Figure 3.Current Regulator