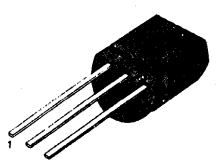
3-TERMINAL 0.1A POSITIVE ADJUSTABLE REGULATOR

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.

TO-92



1:Adj 2:Output 3:Input

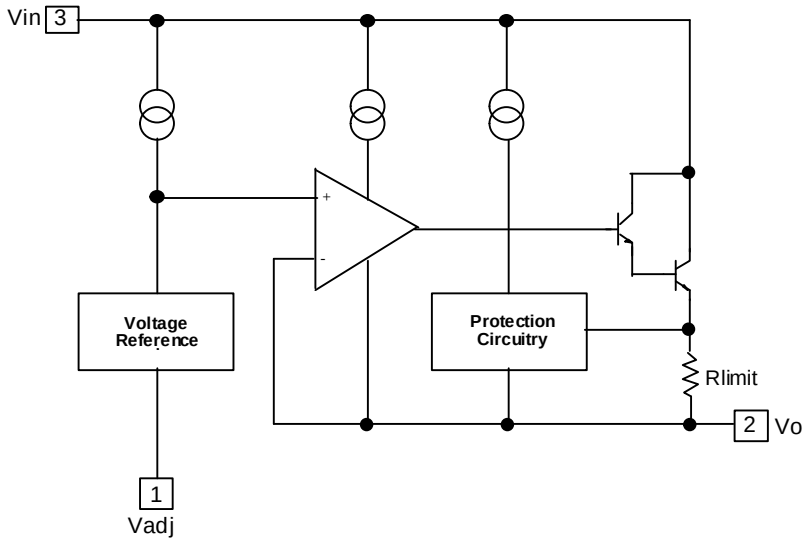
FEATURES

- 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

ORDERING INFORMATION

Device	Package	Operating Temperature
LM317LZ	TO-92	0 ~ 125°C

BLOCK DIAGRAM



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ABLOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Input-Output Voltage Differential	V_I - V_O	40	V
Power Dissipation	P_D	Internally limited	W
Operating Temperature Range	T_{OPR}	0 ~ +125	°C
Storage Temperature Range	T_{STG}	-65 ~+125	°C

ELECTRICAL CHARACTERISTICS

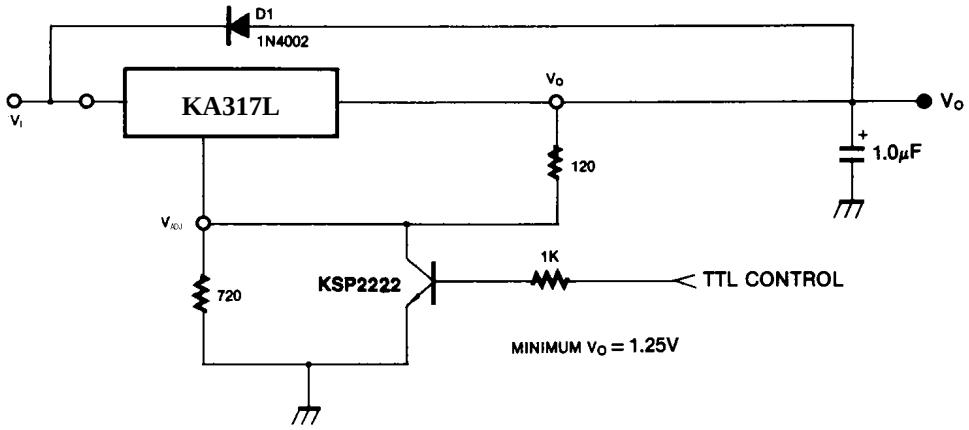
(V_I - V_O = 5V, I_O = 40mA, 0°C ≤ T_J ≤ +125°C, P_{DMAX} = 625mW, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
*Line Regulation	ΔV_O	T_A = +25°C 3V ≤ V_I ≤ V_O ≤ 40V		0.01	0.04	%/V
		3V ≤ V_I ≤ V_O ≤ 40V		0.02	0.07	
*Load Regulation	ΔV_O	T_A = +25°C 10mA ≤ I_O ≤100mA V_O ≤ 5V V_O ≥5V		 5 0.1	 25 0.5	 mV %/ V_O
		10mA ≤ I_O ≤ 100mA V_O ≤ 5V V_O ≥ 5V		 20 0.3	 70 1.5	 mV %/ V_O
Adjustment Pin Current	I_{ADJ}			50	100	µA
Adjustment Pin Current Change	ΔI_{ADJ}	3V ≤ V_I - V_O ≤ 40V 10mA ≤ I_O ≤ 100mA P_D < P_{DMAX}		0.2	5	µA
Reference Voltage	V_{REF}	3V < V_I - V_O <40V 10mA ≤ I_O ≤100mA P_D ≤ P_{DMAX}	1.20	1.25	1.30	V
Temperature Stability	ST_T			0.7		%
Minimum Load Current to Maintain Regulation	$I_{L(MIN)}$	V_I - V_O = 40V		3.5	10	mA
		V_I - V_O = 5V P_D < P_{DMAX}	100	200		
		V_I - V_O = 40V P_D < P_{DMAX}, T_A = +25°C	25	50		
RMS Noise, % of V_{OUT}	e_N	T_A =+ 25°C 10Hz < f <10KHz		0.003		%/ V_O
Ripple Rejection	RR	V_O = 10V, f = 120Hz without C_{ADJ} C_{ADJ} = 10µF	66	65 80		dB
Long-Term Stability	ST	T_J = +125 °C, 1000 Hours		0.3		%

* 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 APPLICATIONS

Fig. 1 5V Electronic Shutdown Regulator



D1 protects the device during an input short circuit.

Fig. 2 Slow Turn-On Regulator

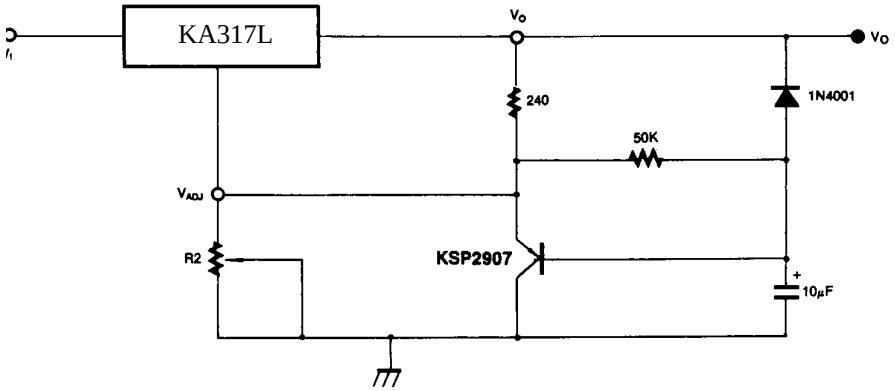
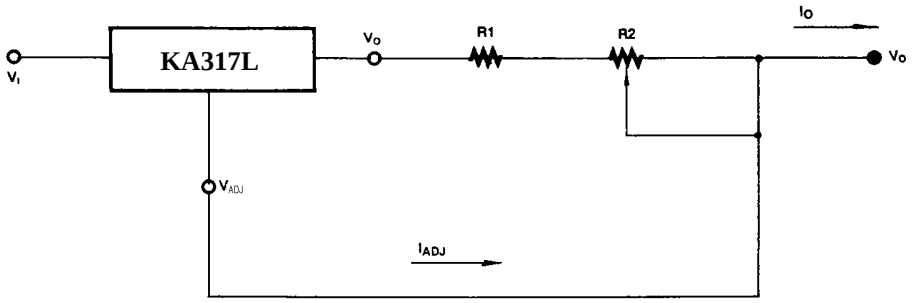


Fig. 3 Current Regulator



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

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

$5mA < I_O < 500mA$

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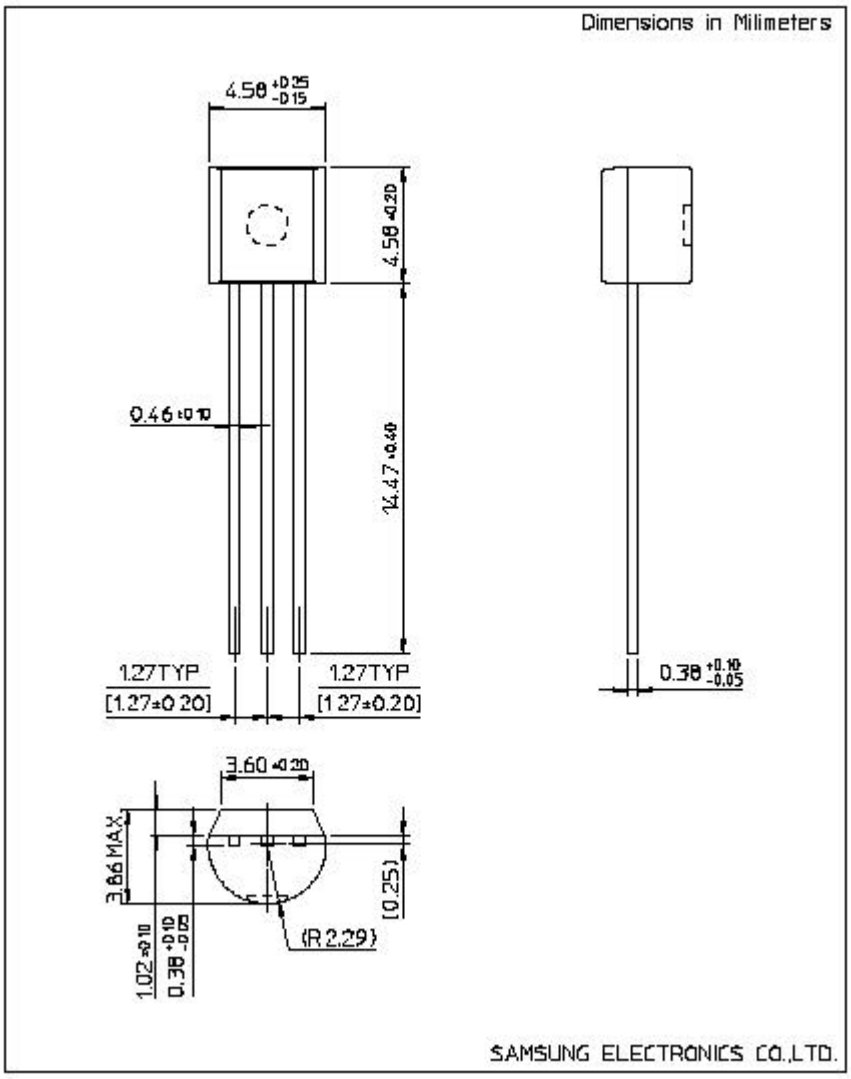
PACKAGE DIMENSION

TO-92


Dimensions in Milimeters
4.58 +0.25 -0.15
4.58 ±0.20
0.46 ±0.10
14.47 ±0.40
1.27TYP
[1.27±0.20]
1.27TYP
[1.27±0.20]
0.38 +0.10 -0.05
3.60 ±0.20
3.86 MAX
[0.25]
(R2.29)
1.02 ±0.10
0.38 +0.10 -0.05
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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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