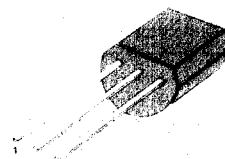


3-TERMINAL 0.1A POSITIVE ADJUSTABLE REGULATOR

The KA317L 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

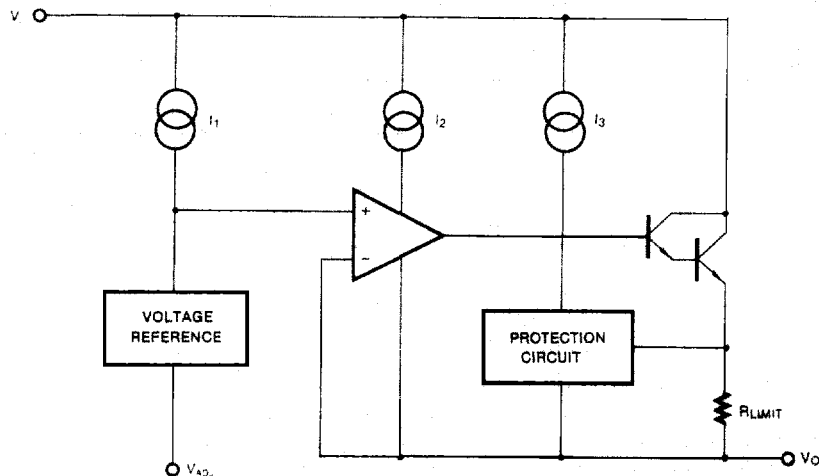
FEATURES

- 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
KA317LZ	TO-92	0 ~ 125°C

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Input-Output Voltage Differential	$V_i - V_o$	40	V
Power Dissipation	P_D	Internally Limited	
Operating Temperature Range	T_{OPR}	0 ~ + 125	°C
Storage Temperature	T_{STG}	-65 ~ + 150	°C

ELECTRICAL CHARACTERISTICS

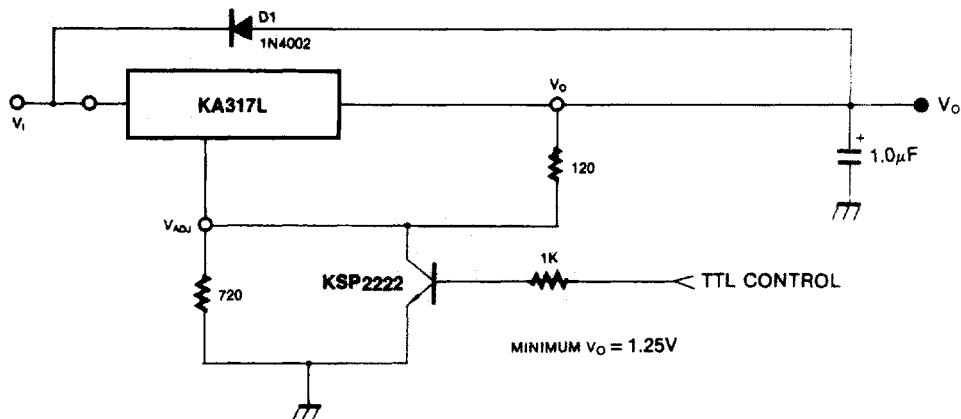
($V_i - V_o = 5V$, $I_o = 40mA$, $0^\circ C \leq T_j \leq 125^\circ C$, $P_{DMAX} = 625mW$, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
• Line Regulation	ΔV_o	$T_A = 25^\circ C$ $3V \leq V_i \leq V_o \leq 40V$		0.01	0.04	% / V
		$3V \leq V_i \leq V_o \leq 40V$		0.02	0.07	
		$T_A = 25^\circ C$ $10mA \leq I_o \leq 100mA$ $V_o \leq 5V$ $V_o \geq 5V$		5 0.1	25 0.5	
• Load Regulation	ΔV_o	$T_A = 25^\circ C$ $10mA \leq I_o \leq 100mA$ $V_o \leq 5V$ $V_o \geq 5V$		20 0.3	70 1.5	mV % / V_o
Adjustment Pin Current	I_{ADJ}			50	100	μA
Adjustment Pin Current Change	ΔI_{ADJ}	$3V \leq V_i - V_o \leq 40V$ $10mA \leq I_o \leq 100mA$ $P_D < P_{DMAX}$		0.2	5	μA
Reference Voltage	V_{REF}	$3V < V_i - V_o < 40V$ $10mA \leq I_o \leq 100mA$ $P_D \leq P_{DMAX}$	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
Maximum Output Current	$I_{O(MAX)}$	$V_i - V_o = 5V$ $P_D < P_{DMAX}$	100	200		mA
		$V_i - V_o = 40V$ $P_D < P_{DMAX}$, $T_A = 25^\circ C$	25	50		
RMS Noise, % of V_{OUT}	e_n	$T_A = 25^\circ C$ $10Hz < f < 10KHz$		0.003		% / V_o
Ripple Rejection	RR	$V_o = 10V$, $f = 120Hz$ without C_{ADJ} $C_{ADJ} = 10 \mu F$	66	65 80		dB
Long-Term Stability	ST	$T_j = 125^\circ C$, 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

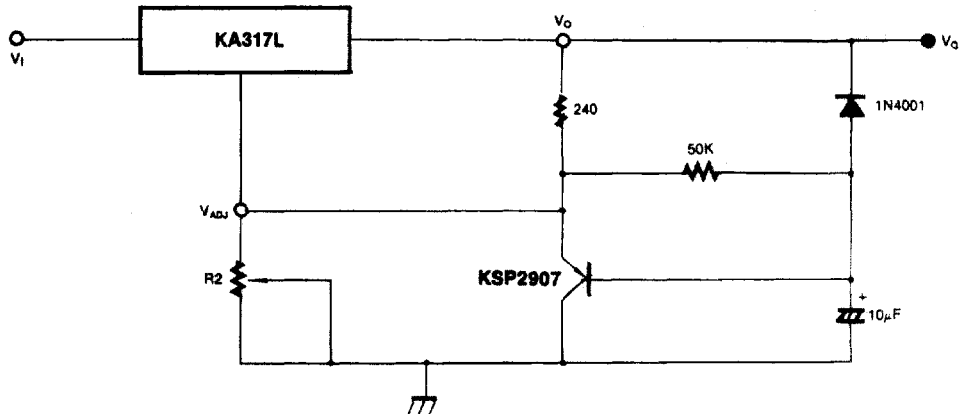
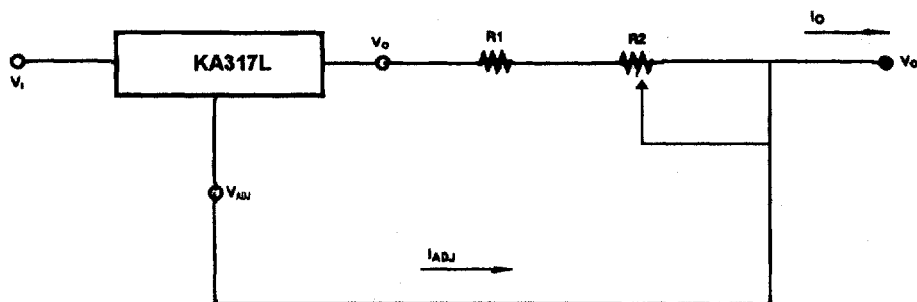


Fig. 3 Current Regulator



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

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

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