KA337L

Adjustable Voltage Regulator(Negative)

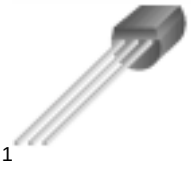
Features

- Output current In excess of 0.1A
- Output voltage 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
- Standard 3-pin TO-92 package

Description

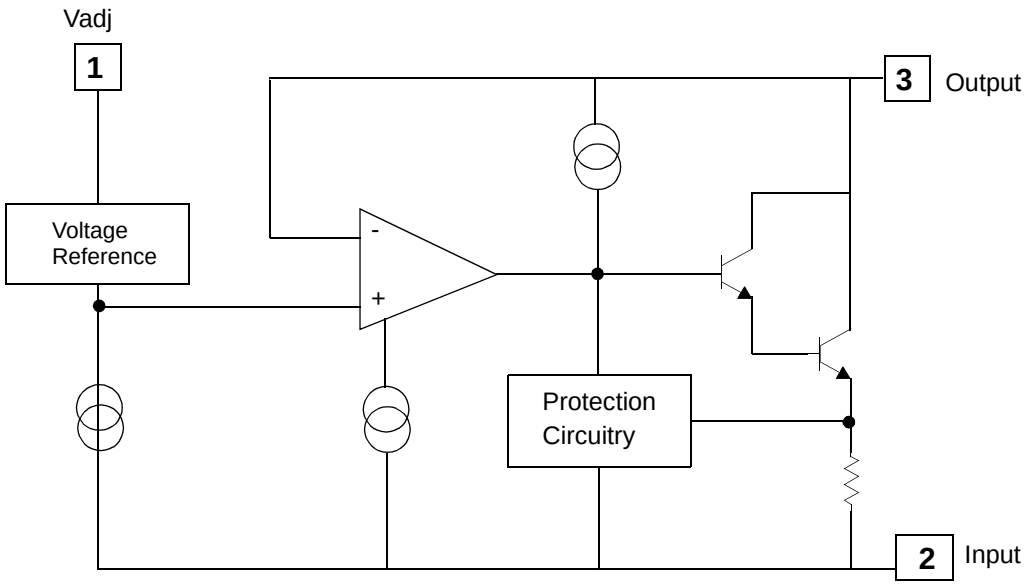
The KA337L is a 3-terminal negative adjustable regulator. It supply in excess of - 0.1A over an output voltage range of -1.2V to - 37V. This regulator requires only two external resistor to set the output voltage. Included on the chip are current limiting, thermal overload protection and safe area compensation.

TO-92



1. Adj 2. Output 3. Input

Internal Block Diagram



Rev. 5.0

Absolute Maximum Ratings

Parameter	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, I_{MAX}= 100mA, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
*Line Regulation	ΔV_O	T_A =+25°C 3V ≤ l V_I - V_O l ≤40V	-	0.01	0.04	%/ V
		3V ≤ l V_I - V_O l ≤ 40V	-	0.02	0.07	
*Load Regulation	ΔV_O	T_A = +25°C 5mA ≤ I_O ≤0.1A	-	0.1	0.5	% / V_O
		5mA ≤ I_O ≤ 0.1A	-	0.3	1.5	
Adjustment Pin Current	I_{ADJ}	-	-	50	100	µA
Adjustment Pin Current Change	ΔI_{ADJ}	3V ≤ l V_I - V_O l ≤ 40V 5mA ≤ I_O ≤ 0.1A	-	0.2	5	µA
Reference Voltage	V_{REF}	3V ≤ l V_I - V_O l ≤ 40V 10mA ≤ I_O ≤0.1A, P_D ≤ 625mW	1.2	1.25	1.3	V
Temperature Stability	ST_T	0°C ≤ T_j ≤+125°C	-	0.65	1.5	%
Minimum Load Current to Maintain Regulation	$I_{L(MIN)}$	3V ≤ l V_I - V_O l ≤ 15V l V_I - V_O l ≤ 40V	-	2.2 3.5	3.5 5	mA
Current Limit	$I_{O(MAX)}$	3V ≤ l V_I - V_O l ≤15V l V_I - V_O l ≤ 40V	100 25	200 50	320 120	mA
Output Noise	en	T_A =+ 25°C, 10Hz ≤ f ≤10KHz	-	0.003	0.01	%
Ripple Rejection Ratio	RR	V_O = -10V, f = 120Hz	-	65	-	dB
		C_{ADJ} = 10µF	66	80	-	
Long -Term Stability	ST	T_J = +25°C, 1000 hours	-	0.3	1	%

Note:

1.Regulation is measured at constant junction temperature, using pulse testing with a low duty cycle.

Typical Application

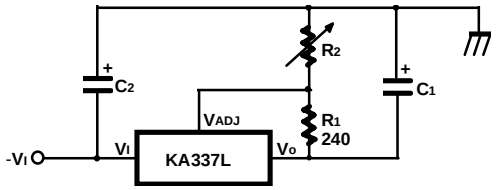


Figure 1. 2V - 25V Adjustable Regulator

Full output current not available at high input/output voltages
V_O = - 1.25V(1 + R2/ 240 Ω)

- C1 = 1μF solid tantalum or 10μF aluminum electrolytic required for stability
- C2 = 1μF solid tantalum is required only if regulator is more than 4” from power supply filter capacitor

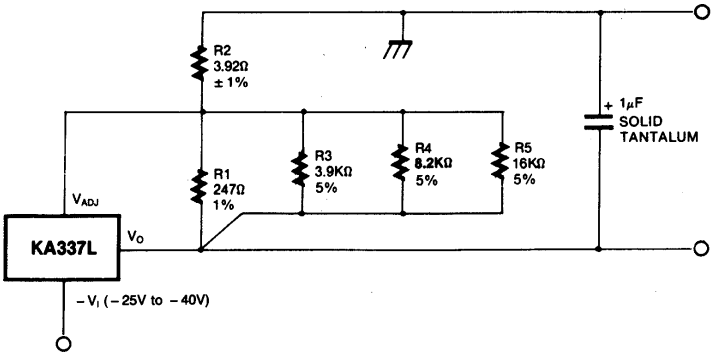


Figure 2. Regulator with Trimmable Output Voltage

Trim Procedure:

- If V_O is -23.08V or bigger, cut out R3 (if smaller, don't cut it out).
- Then if V_O is - 22.47V or bigger, cut out R4 (if smaller, don't).
- Then if V_O is - 22.16V or bigger, cut out R5 (if smaller, don't).

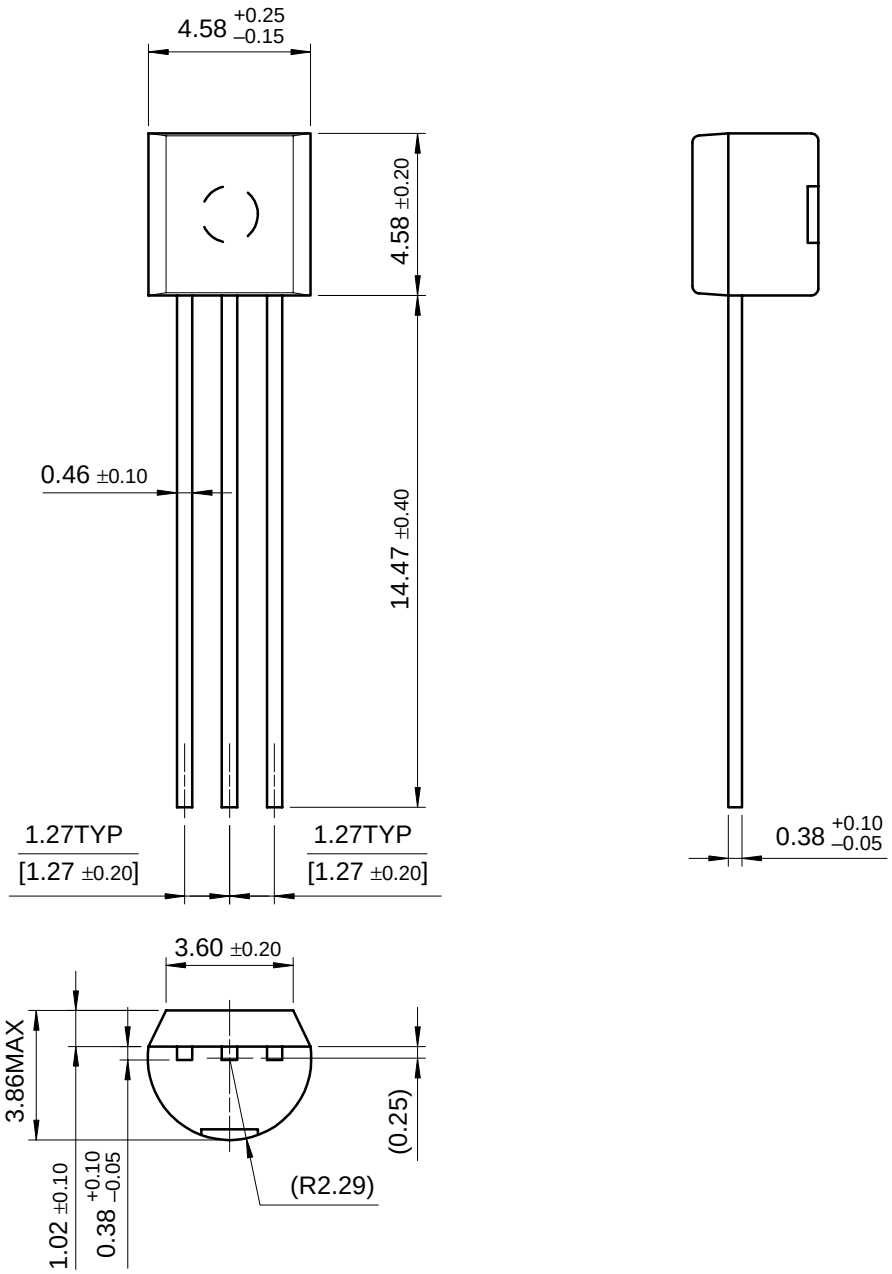
This will trim the output to well within 1% of - 22.00 V_{DC}, without any of the expense or trouble of a trim pot.
Of course, this technique can be used at any output voltage level.

Mechanical Dimensions

Package

Dimensions in millimeters

TO-92



Ordering Information

Product Number	Package	Operating Temperature
KA337LZ	TO-92	0°C to + 125°C

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