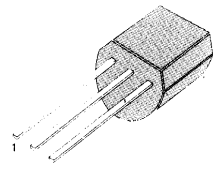
KA337L ADJUSTABLE VOLTAGE REGULATOR(NEGATIVE)

3-TERMINAL 0.1A NEGATIVE ADJUSTABLE REGULATOR

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

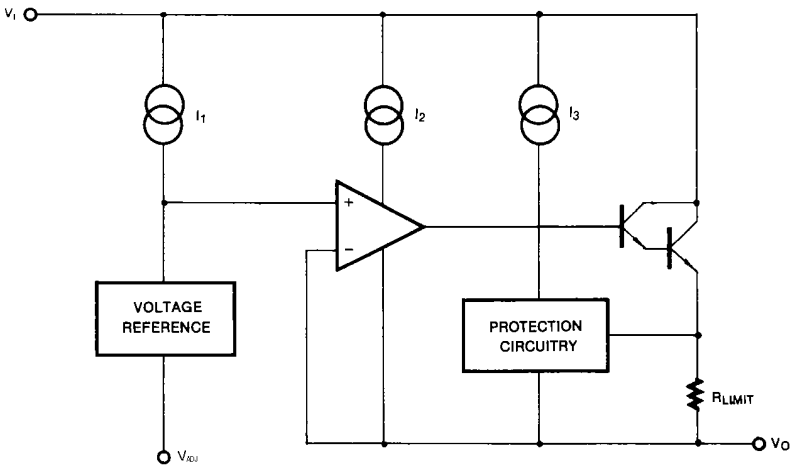
FEATURES

- 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

ORDERING INFORMATION

Device	Package	Operating Temperature
KA337LZ	TO-92	0 ~ + 125℃

BLOCK DIAGRAM



FAIRCHILD SEMICONDUCTOR™

ABSOLUTE MAXIMUM RATINGS

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

ELECTRICAL CHARACTERISTICS

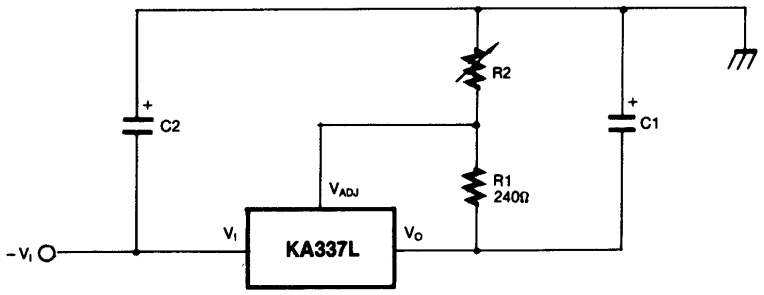
($V_I - V_O$ = 5V, I_O = 40mA, 0℃ < T_J < 125℃, P_{DMAX} = 625mW, I_{MAX}= 100mA, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
* Line Regulation	ΔV_O	T_A = 25℃ 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℃ 5mA ≤ I_O ≤ 0.1A		0.1	0.5	%
		5mA ≤ I_O ≤ 0.1A		0.3	1.5	
Adjustment Pin Current	I_{ADJ}			50	100	μA
Adjustment Pin Current Change	ΔI_{ADJ}	3V ≤ | $V_I - V_O$ | ≤ 40V 5mA ≤ I_O ≤ 0.1A		0.2	5	μA
Reference Voltage	V_{REF}	3V ≤ | $V_I - V_O$ | ≤ 40V 10mA ≤ I_O ≤ 0.1A, P_D ≤ 625mW	1.2	1.25	1.3	V
Temperature Stability	ST_T			0.65	1.5	%
Minimum Load Current to Maintain Regulation	$I_{L(MIN)}$	3V ≤ | $V_I - V_O$ | ≤ 15V | $V_I - V_O$ | ≤ 40V		2.2 3.5	3.5 5	mA
Current Limit	$I_{O(MAX)}$	3V ≤ | $V_I - V_O$ | ≤ 15V | $V_I - V_O$ | ≤ 40V	100 25	200 50	320 120	mA
Output Noise	en	T_A = 25℃, 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 = 125℃, 1000 hours		0.3	1	%

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

TYPICAL APPLICATIONS

1. 2V - 25V Adjustable Regulator

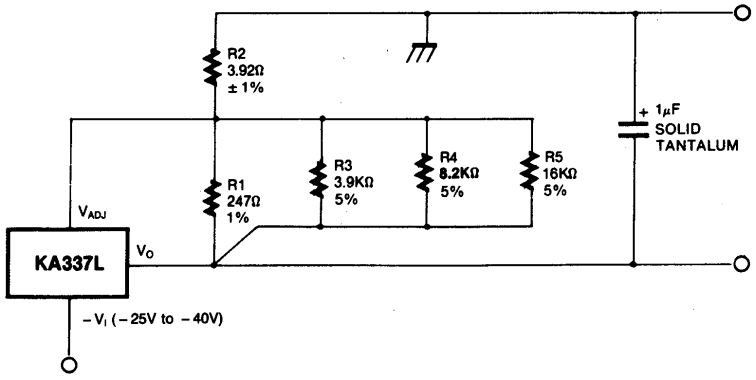


Full output current not available at high input/output voltages

$$- V_O = - 1.25V(1 + \frac{R2}{240\Omega})$$

* C1 = 1 μ F solid tantalum or 10 μ F aluminum electrolytic required for stability
* C2 = 1 μ F solid tantalum is required only if regulator is more than 4" from power supply filter capacitor

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.

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