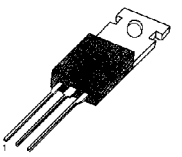
LM337 (KA337) ADJUSTABLE VOLTAGE REGULATOR (NEGATIVE)

3-TERMINAL 1.5A NEGATIVE ADJUSTABLE REGULATOR

The LM337 is a 3-terminal negative adjustable regulator. It supply in excess of 1.5A 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-220



1:Adj 2:Intput 3:Output

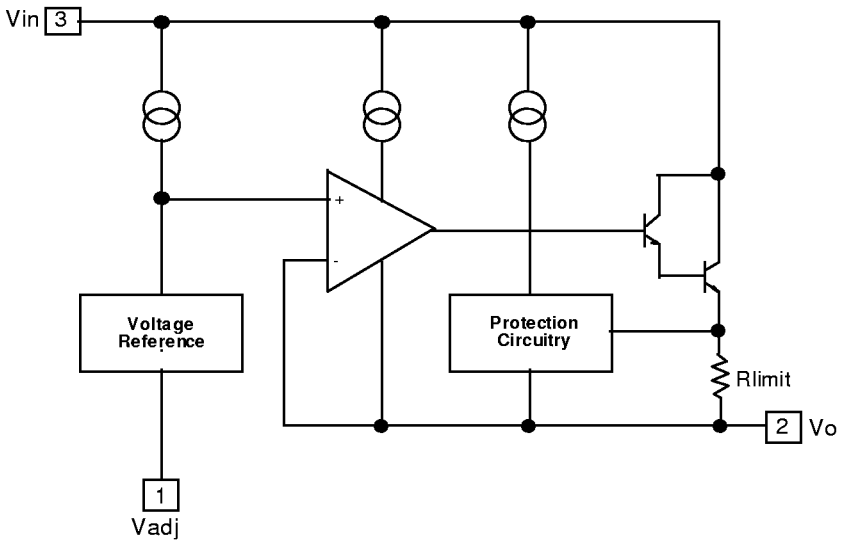
FEATURES

- Output current In excess of 1.5A
- 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-220 package

ORDERING INFORMATION

Device	Package	Operating Temperature
LM337T	TO-220	0 ~ + 125°C

BLOCK DIAGRAM



FAIRCHILD SEMICONDUCTOR™

Rev. B

LM337 (KA337) ADJUSTABLE VOLTAGE REGULATOR (NEGATIVE)

ABSOLUTE 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

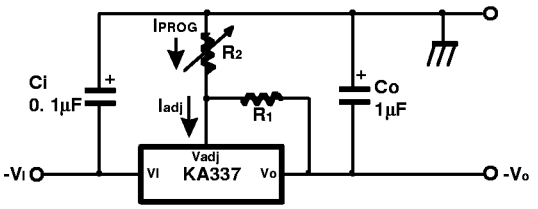
($V_I - V_O$ = 5V, I_O = 40mA, 0°C ≤ T_J ≤ +125°C, P_{DMAX} = 20W, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Line Regulation	V_O	T_A = +25°C - 40V ≤ V_O - V_I ≤ -3V		0.01	0.04	%/ V
		- 40V ≤ V_O - V_I ≤ -3V		0.02	0.07	
Load Regulation	V_O	T_A = +25°C 10mA ≤ I_O ≤0.5A		15	50	mV
		10mA ≤ I_O ≤1.5A		15	150	
Adjustable Pin Current	I_{ADJ}			50	100	µA
Adjustable Pin Current	ΔI_{ADJ}	T_A =+ 25°C 10mA ≤ I_O ≤1.5A - 40V ≤ V_O - V_I ≤ -3V		2	5	µA
Reference Voltage	V_{REF}	T_A =+ 25°C	-1.213	-1.250	-1.287	V
		- 40V ≤ V_O - V_I ≤ -3V 10mA ≤ I_O ≤ 1.5A	-1.200	-1.250	-1.300	
Temperature Stability	ST_T			0.6		%
Minimum Load Current to Maintain Rejection		- 40V ≤ V_O - V_I ≤ -3V		2.5	10	mA
		- 10V ≤ V_O - V_I ≤ -3V		1.5	6	
Output Noise	en	T_A =+25°C 10Hz ≤ f ≤10KHz		3 ×V_{OUT}		V/10^6
Ripple Rejection Ratio		V_O = -10V, f = 120Hz		60		dB
		C_{ADJ} = 10µF	66	77		
Long Term Stability	ST	T_J = 125°C ,1000Hours		0.3	1	%
Thermal Resistance Junction to Case	R_{EJC}			4		°C/ W

.
* 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 is used

TYPICAL APPLICATIONS

Fig. 1 Programmable Regulator



* Ci is required if regulator is located more then 4 inches from power supply filter.

A 1.0μF solid tantalum or 10μF aluminum electrolytic is recommended.

Co is necessary for stability. A 1.0μF solid tantalum or 10μF aluminum electrolytic is recommended.

$$V_O = -1.25V\ (1 + R_2 / R_1)$$

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