

LM337

3-Terminal 1.5A Negative Adjustable Regulator

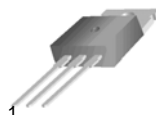
Features

- 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

Description

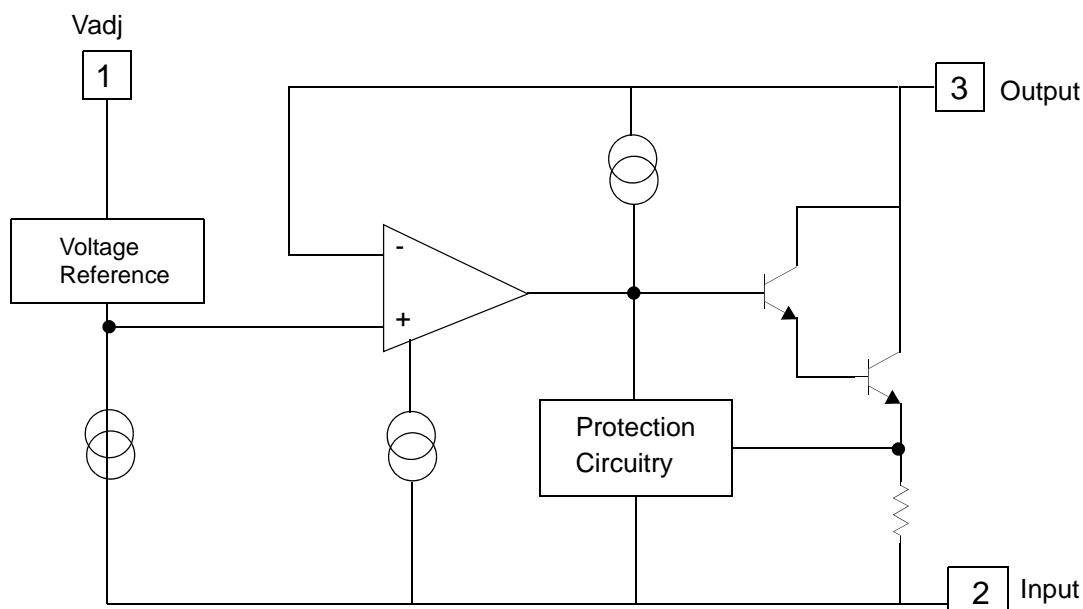
The LM337 is a 3-terminal negative adjustable regulator. It supplies in excess of 1.5A over an output voltage range of -1.2V to -37V. This regulator requires only two external resistors to set the output voltage. Included on the chip are current limiting, thermal overload protection and safe area compensation.

TO-220 (Single Gauge)



1. Adj 2. Input 3. Output

Internal Block Diagram



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	TOPR	0 ~ +125	°C
Storage Temperature Range	TSTG	-65 ~ +125	°C

Electrical Characteristics

($V_I - V_O = 5V$, $I_O = 40mA$, $0^\circ C \leq T_J \leq +125^\circ C$, $P_{D_{MAX}} = 20W$, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Line Regulation (Note1)	R_{line}	$T_A = +25^\circ C$ $3V \leq V_I - V_O \leq 40V$	-	0.01	0.04	% / V
		$3V \leq V_I - V_O \leq 40V$	-	0.02	0.07	
Load Regulation (Note1)	R_{load}	$T_A = +25^\circ C$ $10mA \leq I_O \leq 0.5A$	-	15	50	mV
		$10mA \leq I_O \leq 1.5A$	-	15	150	
Adjustable Pin Current	I_{ADJ}	-	-	50	100	μA
Adjustable Pin Current Change	ΔI_{ADJ}	$T_A = +25^\circ C$ $10mA \leq I_O \leq 1.5A$ $3V \leq V_I - V_O \leq 40V$	-	2	5	μA
Reference Voltage	V_{REF}	$T_A = +25^\circ C$	-1.213	-1.250	-1.287	V
		$3V \leq V_I - V_O \leq 40V$ $10mA \leq I_O \leq 1.5A$	-1.200	-1.250	-1.300	
Temperature Stability	ST_T	$0^\circ C \leq T_J \leq +125^\circ C$	-	0.6	-	%
Minimum Load Current to Maintain Regulation	$I_{L(MIN)}$	$3V \leq V_I - V_O \leq 40V$	-	2.5	10	mA
		$3V \leq V_I - V_O \leq 10V$	-	1.5	6	
RMS Noise, % of V_{OUT}	e_N	$T_A = +25^\circ C$ $10Hz \leq f \leq 10kHz$	-	0.003	-	%
Ripple Rejection Ratio	RR	$V_O = -10V$, $f = 120Hz$	-	60	-	dB
		$C_{ADJ} = 10\mu F$ (Note2)	66	77	-	
Long Term Stability	ST	$T_J = 125^\circ C$, 1000Hours	-	0.3	1	%
Thermal Resistance Junction to Case	$R_{\theta JC}$	-	-	4	-	$^\circ C/W$

Note:

1. 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.
2. C_{ADJ} , when used, is connected between the adjustment pin and ground.

Typical Application

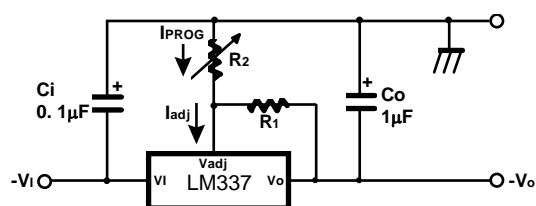


Figure 1. Programmable Regulator

- C_i is required if regulator is located more than 4 inches from power supply filter. A 1.0 μF solid tantalum or 10 μF aluminum electrolytic is recommended.
- C_o is necessary for stability. A 1.0 μF solid tantalum or 10 μF aluminum electrolytic is recommended.
- $V_o = -1.25\text{V} (1 + R_2/R_1)$

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Ordering Information

Product Number	Package	Operating Temperature
LM337T	TO-220 (Single Gauge)	0°C to +125°C

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