FAIRCHILD SEMICONDUCTOR®

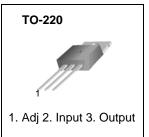
LM337 3-Terminal 1.5A Negative Adjustable Regulator

Features

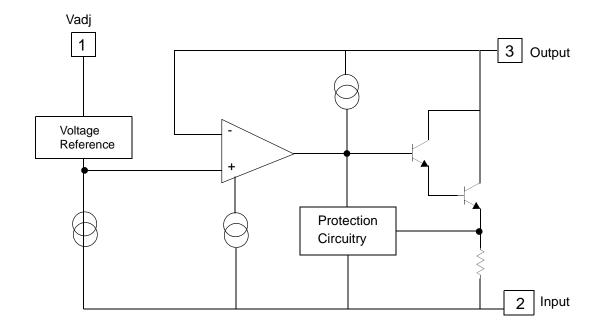
- Output Current in Excess of 1.5A
- Output Voltage Adjustable Between -1.2V and -37V
- Internal Thermal Overload Protection
- Internal Short Circuit Current Limiting
- Output Transistor Safe Area Compensation
- Floating Operation for High Voltage Applications
- Standard 3-Pin TO-220 Package

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 resistor to set the output voltage. Included on the chip are current limiting, thermal overload protection and safe area compensation.



Internal Block Diagram



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Input-Output Voltage Differential	VI - VO	40	V
Power Dissipation	PD	Internally limited	W
Operating Temperature Range	TOPR	0 ~ +125	°C
Storage Temperature Range	TSTG	-65 ~ +125	°C

Electrical Characteristics

(VI - VO = 5V, IO = 40mA, $0^{\circ}C \le T_J \le +125^{\circ}C$, PDMAX = 20W, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Тур.	Max.	Unit	
Line Regulation (Note1)	R _{line}	$\begin{array}{l} T_A = +25^\circ C \\ 3V \leq I \ V_I - V_O \ I \leq 40V \end{array}$	-	0.01	0.04	%/ V	
		$3V \le I VI - VO I \le 40V$	-	0.02	0.07		
Load Regulation (Note1)	Rload	$ \begin{array}{c c} T_{A} = +25^{\circ}C & & \\ 10mA \leq I_{O} \leq 0.5A & & \\ \end{array} $		50	mV		
		$10mA \le IO \le 1.5A$	-	15	150		
Adjustable Pin Current	IADJ	-	-	50	100	μA	
Adjustable Pin Current Change	ΔIADJ	$ \begin{array}{l} T_A = +25^{\circ}C \\ 10mA \leq I_O \leq 1.5A \\ 3V \leq I \; V_I - V_O \; I \leq 40V \end{array} $	-	2	5	μA	
Reference Voltage	Vref	T _A = +25°C	-1.213	-1.250	-1.287	V	
		$3V \le I VI - VO I \le 40V$ $10mA \le IO \le 1.5A$	-1.200	-1.250	-1.300		
Temperature Stability	STT	$0^{\circ}C \leq TJ \leq +125^{\circ}C$	-	0.6	-	%	
Minimum Load Current to Maintain Regulation	IL(MIN)	3V ≤I VI - VO I ≤ 40V	-	2.5	10	- mA	
		3V ≤I VI - VO I ≤ 10V	-	1.5	6		
RMS Noise, % of VOUT	eN	$T_A = +25^{\circ}C \ 10Hz \le f \le 10kHz$	-	0.003	-	%	
Ripple Rejection Ratio	RR	Vo = -10V, f = 120Hz	-	60	-	dB	
		CADJ = 10µF (Note2)	66	77	-	ub	
Long Term Stability	ST	TJ = 125°C ,1000Hours	-	0.3	1	%	
Thermal Resistance Junction to Case	R _θ JC	-	-	4	-	°C/W	

Note:

1. Load and line regulation are specified at constant junction temperature. Change in VO due to heating effects must be taken into account separately. Pulse testing with low duty is used.

2. CADJ, when used, is connected between the adjustment pin and ground.

Typical Application

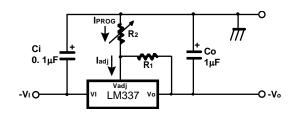


Figure 1. Programmable Regulator

 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.

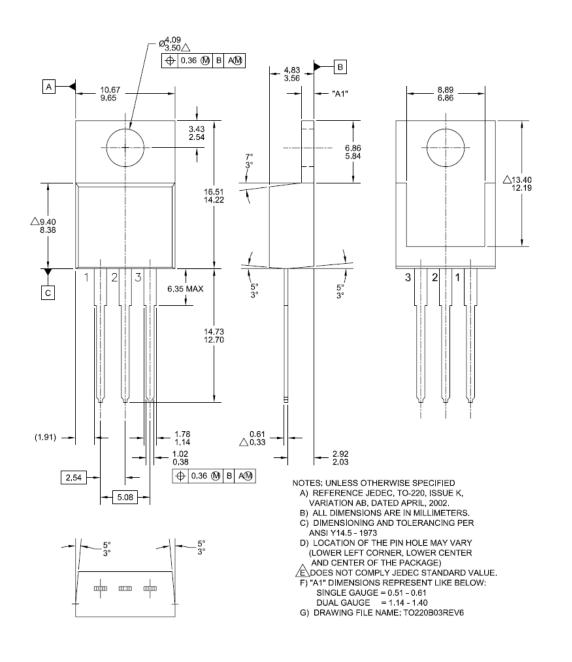
[•] V_{O} = -1.25V (1+R₂/R₁)

Mechanical Dimensions

Package

Dimensions in millimeters

TO-220 [SINGLE GAUGE]



Ordering Information

Product Number	Package	Operating Temperature
LM337T	TO-220	0°C to +125°C

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