



3-Terminal Positive Adjustable Regulator

LM317

Features

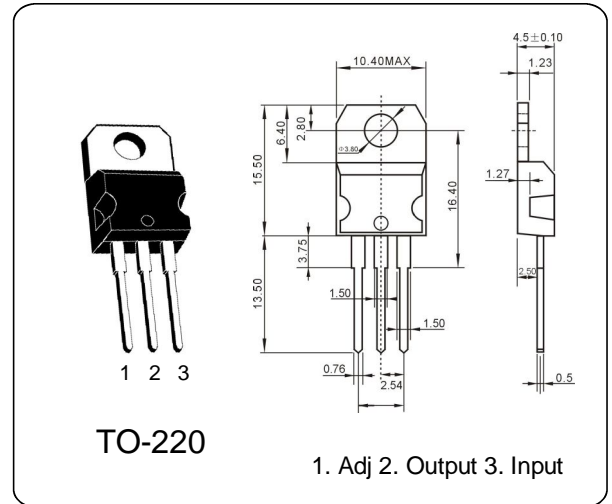
- Output Current In Excess of 1.5A
- Output Adjustable Between 1.2V and 37V
- Internal Thermal Overload Protection
- Internal Short Circuit Current Limiting
- Output Transistor Safe Operating Area Compensation
- TO-220 Package

Description

This monolithic integrated circuit is an adjustable 3-terminal positive voltage regulator designed to supply more than 1.5A of load current with an output voltage adjustable over a 1.2 to 37V. It employs internal current limiting, thermal shut-down and safe area compensation.

Absolute Maximum Ratings (Ta = 25 °C)

Parameter	Symbol	Typ	Unit
Input-Output Voltage Differential	$V_I - V_O$	40	V
Lead Temperature	T _{LEAD}	230	°C
Power Dissipation	P _D	Internally limited	W
Operating Junction Temperature Range	T _j	0~125	°C
Storage Temperature Range	T _{STG}	-65~150	°C
Temperature Coefficient of Output Voltage	V_O / T	0.02	%/°C



Electrical Characteristics (Ta = 25 °C)

($V_I - V_O = 5V$, $I_O = 0.5A$, $0^\circ C$ T_j +125°C, I_{MAX} = 1.5A, P_{D MAX} = 20W, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Line Regulation (Note1)	R _{line}	TA = +25°C 3V V _I - V _O 40V	-	0.01	0.04	% / V
		3V V _I - V _O 40V	-	0.02	0.07	
Load Regulation (Note1)	R _{load}	TA = +25°C, 10mA I _O I _{MAX} V _O < 5V V _O 5V	-	18 0.4	25 0.5	mV % / V _O
		10mA I _O I _{MAX} V _O < 5V V _O 5V	-	40 0.8	70 1.5	
Adjustable Pin Current	I _{ADJ}	-	-	46	100	A
Adjustable Pin Current Change	I _{ADJ}	3V V _I - V _O 40V 10mA I _O I _{MAX} P _D P _{MAX}	-	2.0	5	A
Reference Voltage	V _{REF}	3V V _{IN} - V _O 40V 10mA I _O I _{MAX} P _D P _{MAX}	1.20	1.25	1.30	V
Maximum Output Current	I _{O(MAX)}	V _I - V _O 15V, P _D P _{MAX} V _I - V _O 40V, P _D P _{MAX}	1.0	2.0 0.3	-	A
Ripple Rejection	RR	V _O = 10V, f = 120Hz without C _{ADJ} C _{ADJ} = 10 F (Note2)	66	60 75	-	dB

Note:

- Load and line regulation are specified at constant junction temperature. Change in V_D due to heating effects must be taken into account separately. Pulse testing with low duty is used. (P_{MAX} = 20W)
- C_{ADJ}, when used, is connected between the adjustment pin and ground.