



3-Terminal Positive Adjustable Regulator

LM317S

Features

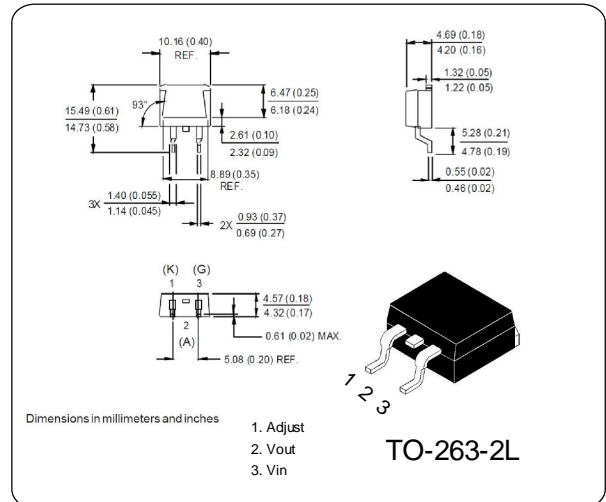
- ◆ Output Current In Excess of 1.0A
- ◆ Output Adjustable Between 1.2V and 37V
- ◆ Internal Thermal Overload Protection
- ◆ Internal Short Circuit Current Limiting
- ◆ Output Transistor Safe Operating Area Compensation
- ◆ TO-263 Package

Description

This monolithic integrated circuit is an adjustable 3-terminal positive voltage regulator designed to supply more than 1.0A 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	$\Delta V_o / \Delta T$	± 0.02	%/°C



Electrical Characteristics (Ta = 25 °C)

($V_I - V_O = 5V$, $I_o = 0.5A$, $0^\circ C \leq T_j \leq +125^\circ C$, $I_{MAX} = 1.5A$, $P_{DMAX} = 15W$, 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	μ A
Adjustable Pin Current Change	Δ I _{ADJ}	3V ≤ V _I - V _O ≤ 40V 10mA ≤ I _o ≤ I _{MAX} P _D ≤ P _{MAX}	-	2.0	5	μ 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 CADJ C _{ADJ} = 10 μ F (Note2)	66	60 75	-	dB

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. (P_{MAX} = 15W)
2. C_{ADJ}, when used, is connected between the adjustment pin and ground.