



3-Terminal Positive Adjustable Regulator

LM317S

Features

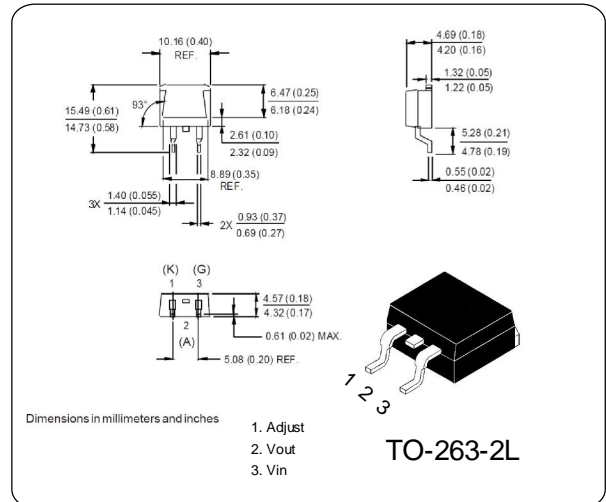
- ◆ Output Current In Excess of 1.0A
- ◆ Output Adjustable Between 1.2V and 37V
- ◆ Internal Thermal Overload Protection
- ◆ Internal Short Circuit Current Limiting
- ◆ Output Transistor Safe Operating Area Compensation
- ◆ TO-263 Package

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	TLEAD	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)	Rline	$T_A = +25^\circ C$ $3V \leq V_I - V_O \leq 40V$	-	0.01	0.04	% / V
		$3V \leq V_I - V_O \leq 40V$	-	0.02	0.07	
Load Regulation (Note1)	Rload	$T_A = +25^\circ C$, $10mA \leq I_o \leq I_{MAX}$ $V_o < 5V$ $V_o \geq 5V$	-	18 0.4	25 0.5	mV % / V_o
		$10mA \leq I_o \leq I_{MAX}$ $V_o < 5V$ $V_o \geq 5V$	-	40 0.8	70 1.5	
Adjustable Pin Current	I_{ADJ}	-	-	46	100	μA
Adjustable Pin Current Change	ΔI_{ADJ}	$3V \leq V_I - V_O \leq 40V$ $10mA \leq I_o \leq I_{MAX}$, $P_D \leq P_{MAX}$	-	2.0	5	μA
Reference Voltage	V_{REF}	$3V \leq V_{IN} - V_O \leq 40V$ $10mA \leq I_o \leq I_{MAX}$ $P_D \leq P_{MAX}$	1.20	1.25	1.30	V
Maximum Output Current	$I_{O(MAX)}$	$V_I - V_O \leq 15V$, $P_D \leq P_{MAX}$ $V_I - V_O \leq 40V$, $P_D \leq P_{MAX}$	1.0	2.0 0.3	-	A
Ripple Rejection	RR	$V_o = 10V$, $f = 120Hz$ without CADJ $C_{ADJ} = 10 \mu F$ (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.