

LM317

3-Terminal Positive Adjustable Regulator

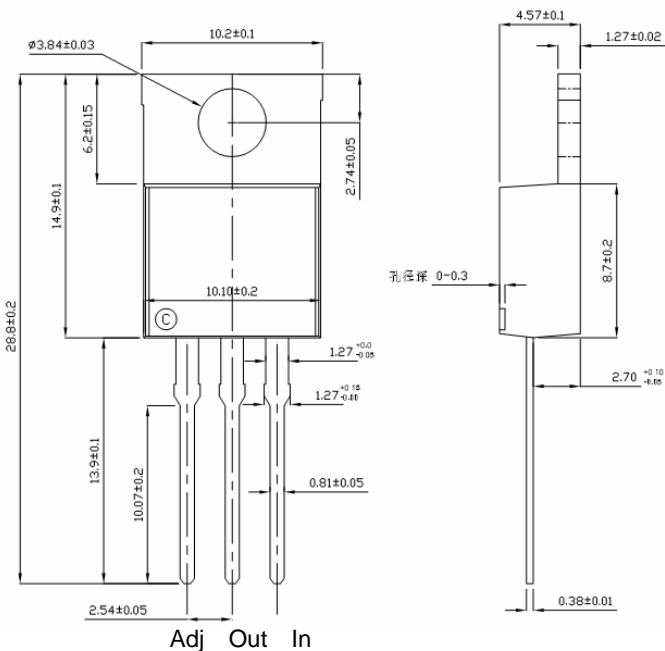
DRAWING

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-220AB Package

Mechanical Data

- * Case: TO-220AB
- * 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

Parameter	Symbol	Value	Units
Input-Output Voltage Differential	VI-VO	40	V
Lead Temperature	TLEAD	230	°C
Power Dissipation	PD	Internally Limited	W
Operating Junction Temperature Range	Tj	0~+125	°C
Storage Temperature Range	TSTG	-65~+125	°C
Temperature Coefficient of Output Voltage	ΔVo/ΔT	±0.02	%/°C

Electrical Characteristics

 (VI-VO=5V, I_o=0.5A, 0°C ≤ T_J ≤ +125°C, I_{MAX}=1.5A, P_DMAX=20W, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Line Regulation(Note1)	R _{line}	TA=+25°C 3V ≤ VI-VO ≤ 40V		0.01	0.04	% / V
		3V ≤ VI-VO ≤ 40V		0.02	0.07	% / V
Load Regulation(Note1)	R _{load}	TA=+25°C, 10mA ≤ IO ≤ I _{MAX} VO < 5V VO ≥ 5V		18 0.4	25 0.5	mV%/V O
		10mA ≤ IO ≤ I _{MAX} VO < 5V VO ≥ 5V		40 0.8	70 1.5	mV%/V O
Adjustable Pin Current	I _{ADJ}			46	100	uA
Adjustable Pin Current change	ΔI _{ADJ}	3V ≤ VI-VO ≤ 40V 10mA ≤ IO ≤ I _{MAX} PD ≤ P _{MAX}		2	5	uA
Reference Voltage	V _{REF}	3V ≤ V _{MIN} -VO ≤ 40V 10mA ≤ IO ≤ I _{MAX} PD ≤ P _{MAX}	1.2	1.25	1.3	V
Temperature Stability	STT			0.7		% / VO
Minimum Load Current to Maintain Regulation	I _L (MIN)	VI-VO=40V		3.5	12	Ma
Maximum Output Current	I _O (MAX)	VI-VO ≤ 15V, PD ≤ P _{MAX}	1.5	2.2		
		VI-VO ≤ 40V, PD ≤ P _{MAX} TA=25°C	0.15	0.4		A
RMS Noise ,% of V _{out}	e _n	TA=+25°C, 10HZ ≤ f ≤ 10KHZ		0.00 3	0.01	% / VO
Ripple Rejection	RR	VO=10V, f=120HZ without CADJ CADJ=10uF(Note2)	66	60 75		DB
Long-Term Stability ,T _J =THIGH	ST	TA=+25°C for end point measurements, 1000HR		0.3	1	%
Thermal Resistance Junction to Case	R _{JC}			5		°C / W

Note:

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

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Typical Performance Characteristics

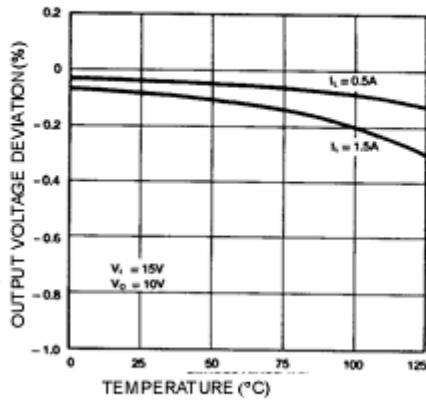


Figure 1. Load Regulation

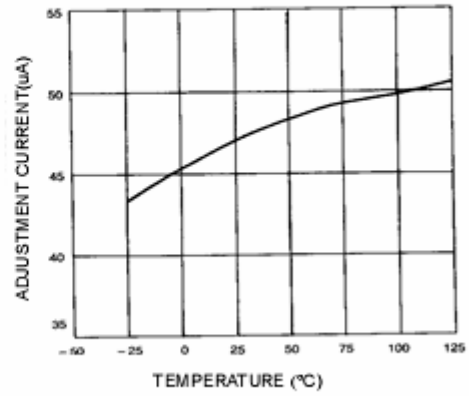


Figure 2. Adjustment Current

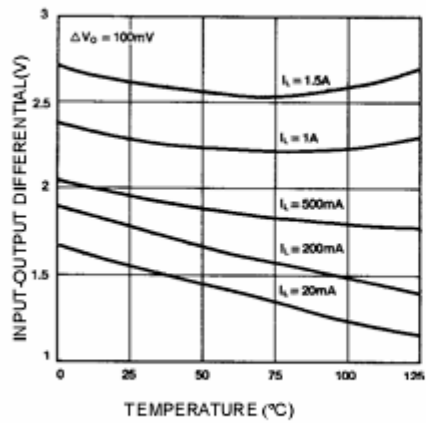


Figure 3. Dropout Voltage

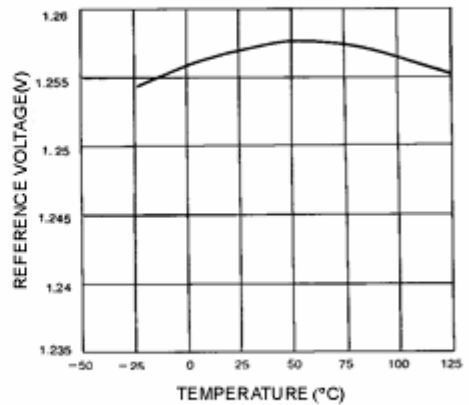


Figure 4. Reference Voltage