

ADJUSTABLE VOLTAGE REGULATOR (POSITIVE)

LM317L

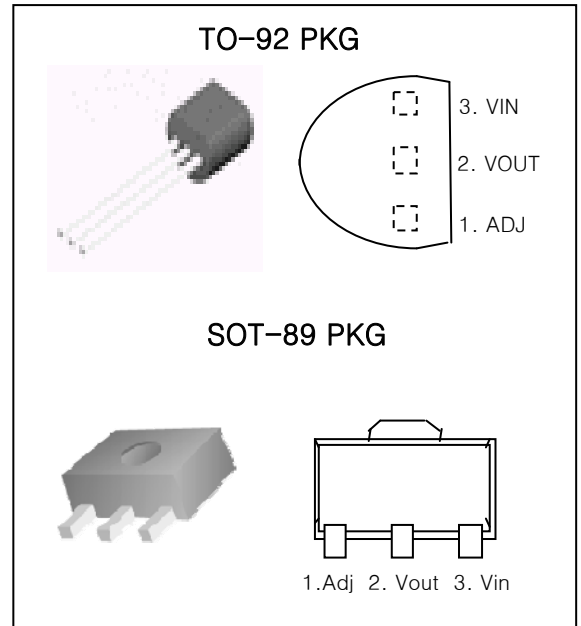
3-TERMINAL 100mA POSITIVE ADJUSTABLE REGULATOR

FEATURES

- Output current in Excess of 100mA
- Output 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
- Moisture Sensitivity Level 3

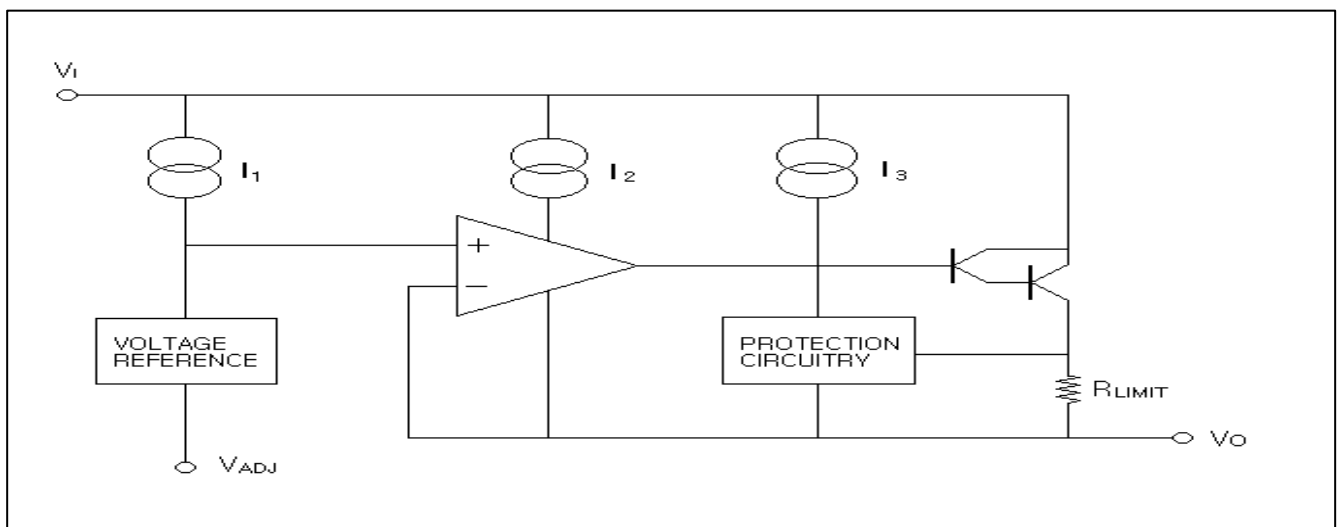
DISCRIPTION

This monolithic integrated circuit is an adjustable 3-terminal positive voltage regulator designed to supply more than 100mA 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.



ORDERING INFORMATION		
Device	Marking	Package
LM317L	LM317L	TO-92
LM317F	317	SOT-89

BLOCK DIAGRAM



TYPICAL APPLICATIONS

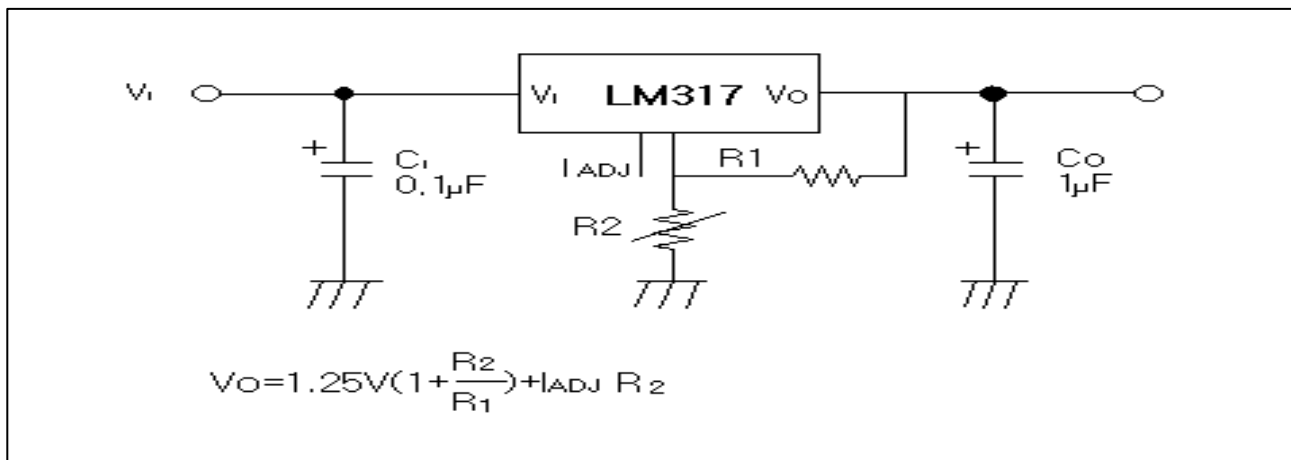


Fig.5 Programmable Regulator

C_i is required when regulator is located in appreciable distance from power supply filter. C_o is not needed for stability, however, it does improve transient response. Since I_{ADJ} is controlled to less than $100\mu A$, the error associated with this term is negligible in most applications.

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ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

Characteristic	Symbol	Value	Unit
Input-output Voltage Differential	V _I -V _O	40	V
Lead Temperature	T _{LEAD}	230	°C
Power Dissipation	P _D	Internally limited	—
Operating Temperature Range	T _{OPR}	0 ~ +125	°C
Storage Temperature Range	T _{STG}	-65 ~ +125	°C

ELECTRICAL CHARACTERISTICS

(V_I-V_O=5V, I_O=40mA, 0°C≤T_J≤125°C, I_{MAX}=100mA, unless otherwise specified)

Characteristic	Symbol	Test condition	Min.	Typ.	Max.	Unit	
Line Regulation	ΔV _O	T _A =0 ~ 125°C	3V≤V _I -V _O ≤40V		0.01	0.04	%/V
			3V≤V _I -V _O ≤40V		0.02	0.07	%/V
Load Regulation	ΔV _O	T _A =25°C, 10mA≤I _O ≤I _{MAX}			10	25	mV
		V _O ≤5V		0.1	0.5	%/V _O	
		10mA≤I _O ≤I _{MAX}			20	70	mV
		V _O ≥5V		0.3	1.5	%/V _O	
Adjustable Pin Current	I _{ADJ}			46	100	μA	
Adjustable Pin Current Cha	ΔI _{ADJ}	3V≤V _I -V _O ≤40V 10mA≤I _O ≤I _{MAX} P≤P _{MAX}		0.2	5	μA	
Reference Voltage	V _{REF}	3V≤V _I -V _O ≤40V 10mA≤I _O ≤I _{MAX} P _D ≤P _{MAX}	1.20	1.25	1.30	V	
Temperature Stability	ST _T			0.7		%/V _O	
Minimum Load Current to Maintain Regulation	L _(MIN)	V _I -V _O =40V		3.5	10	mA	
Maximum Output Current	I _{O(MAX)}	V _I -V _O ≤5V, P _D ≤P _{MAX}	100	200		mA	
		V _I -V _O ≤40V, P _D ≤P _{MAX} , T _A =25°C	156	400		mA	
RMS Noise, % of V _{OUT}	e _N	T _A =25°C, 10Hz≤f≤10KHz		0.003	0.01	%/V _O	
Ripple Rejection	RR	V _O =10V, f=120Hz without C _{ADJ}		60		dB	
		C _{ADJ} =10 μF	66	75			
Long-Term Stability, T _J =T _{HIGH}	ST	T _A =25°C, for end point measurements, 1000HR		0.3	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.

HTC