GELM317

3-TERMINAL 1A POSITIVE ADJUSTABLE VOLTAGE REGULATOR

Description

The GELM317 is an adjustable 3-termial positive voltage regulator, designed to supply more than 1.5A of output current with voltage adjustable from 1.3 to 37V.

Features

*Output current up to 1.5A.

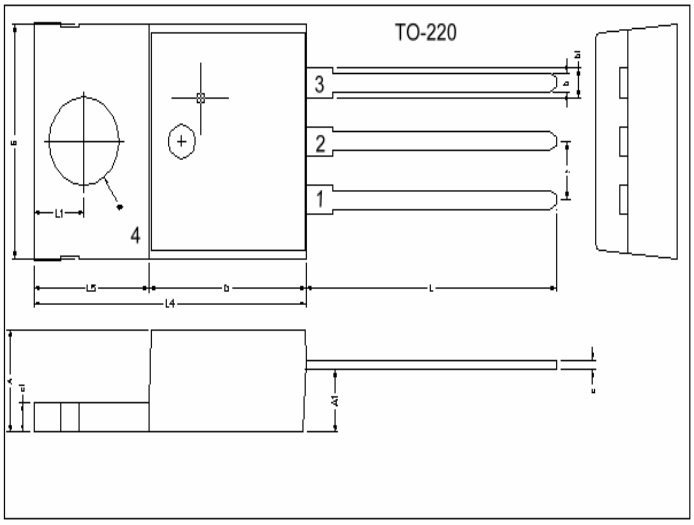
*Output voltage adjustable from 1.3V to 37V.

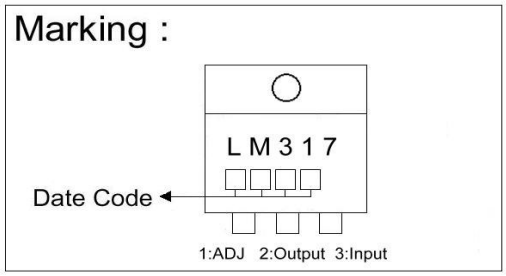
*Internal short circuit protection.

*Internal over temperature protection.

*Safe-Area compensation for output transistor.

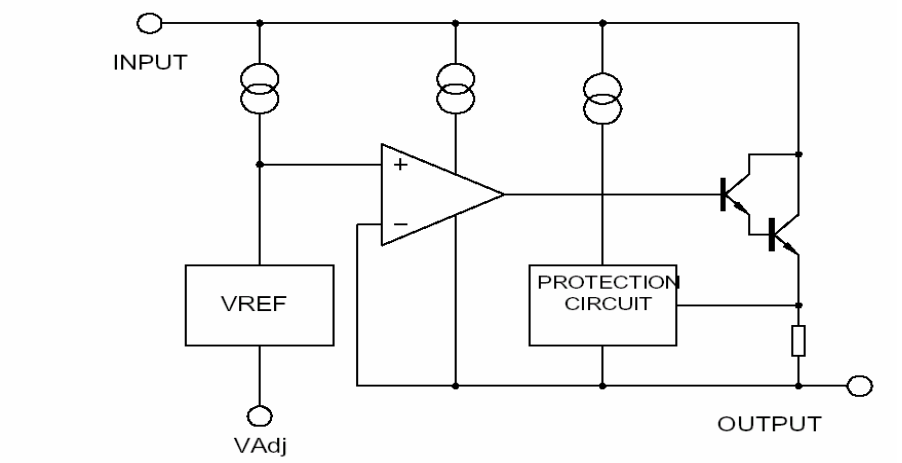
Package Dimensions





REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.40	4.80	c1	1.25	1.45
b	0.76	1.0	b1	1.17	1.47
c	0.36	0.50	L	13.25	14.25
D	8.60	9.00	e	2.54 REF.	
E	9.80	10.4	L1	2.60	2.89
L4	14.7	15.3	Ø	3.71	3.96
L5	6.20	6.60	A1	2.60	2.80

BLOCK DIAGRAM



Absolute Maximum Ratings at Ta = 25

Parameter	Symbol	Ratings	Unit
Input-Output Voltage Difference	Vi-Vo	40	V
Load Temperature	TLEAD	230	
Power Dissipation	P_D	Internal limited	
Operating Temperature Range	TOPR	0~125	
Storage Temperature Range	TSTG	-65 ~ 150	

Electrical Characteristics at Ta = 25

(VI-VO=5V,0 <Tj<125 ,IO=500mA,IMAX=1.5A,PMAX=20W,unless otherwise specified

PARAMETER	Symbol	Test Conditions			TYPE	Max.	UNIT
Line Regulation	ΔVO	Ta=25 ,3V<=VI-VO=40V			0.01	0.04	%V
		Ta=0-125 ,3v<=VI-VO<=40V			0.02	0.07	%V
Load Regulation	ΔVO	Ta=25	VO<=6V		18	25	mV
		10mA<=IO<=IMAX	VO>=5V		0.4	0.5	%/VO
		10mA<=IO<=IMAX	VO<=5V		40	70	mV
			VO>=6V		0.8	1.5	%VO
Adjustable Pin Current	IADJ				46	100	uA
Adjustable Pin Current Change	ΔIADJ	2.5V<=VI-VO<=40V ,10mA<=IO<=IMAX,PD<=PMAX			2.0	5	uA
Reference Voltage		3V<=VI-VO<=40V, 10mA<=IO<=IMAX,PD<=PMAX		1.20	1.25	1.30	V
Temperature Stability	STT				0.7		%/VO
Minimum Load Current for Regulation	IL(MIN)	VI-VO=40V			3.5	10	mA
Maximum Output Current	IO(MAX)	VI-VO<=15V,PD<=PMAX		1.5	2.2		A
		VI-VO<=15V,PD<=PMAX,Ta=25		0.15	0.4		
RMS Noise v.s.%of Vout	eN	TA=25 ,10HZ<=f<=10KHZ			0.003	0.01	%/VO
Ripple Rejection	RR	VO=10V,f=120HZ,			60		dB
		VO=10V,f=120HZ,CADJ=10uF		66	75		
Long-term Stability,TJ=THIGH	ST	TA=25 ,1000hr			0.3	1	%
Junction to Case Thermal Resistance	R θ JC				5		/W

*Note: Testing with low duty pulse should be used to avoid heating effect.

Characteristics Curve

Fig.1. Load Regulation vs temperature

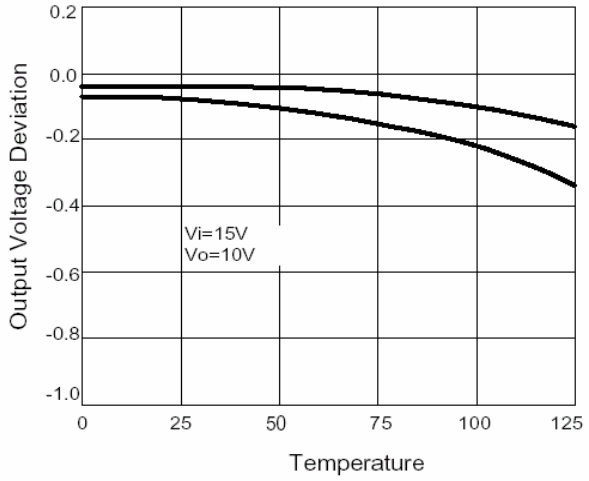


Fig.2 Adjustment Current vs Temperature

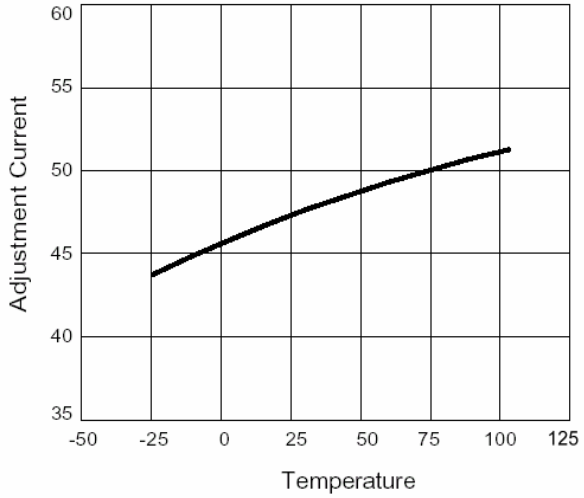


Fig.3. Dropout Voltage vs Input-Output Voltage Difference

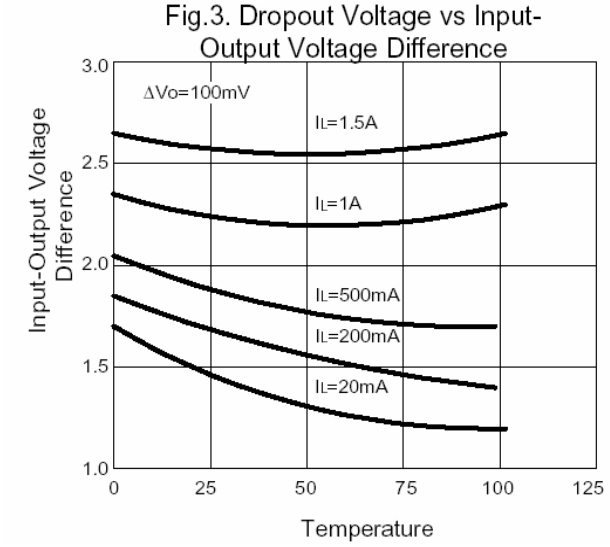
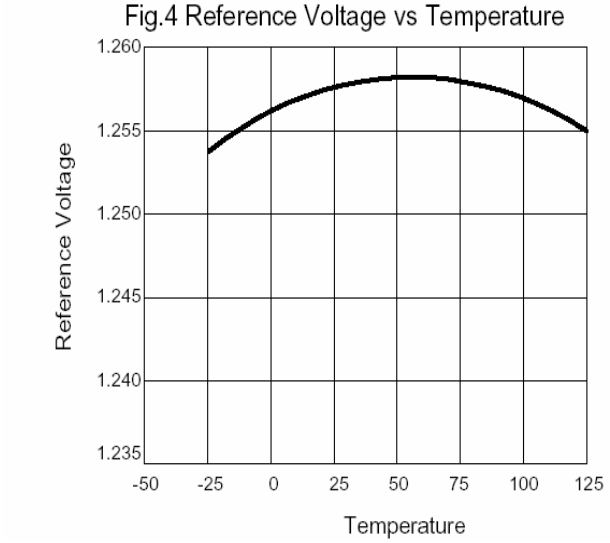


Fig.4 Reference Voltage vs Temperature



Application Circuit

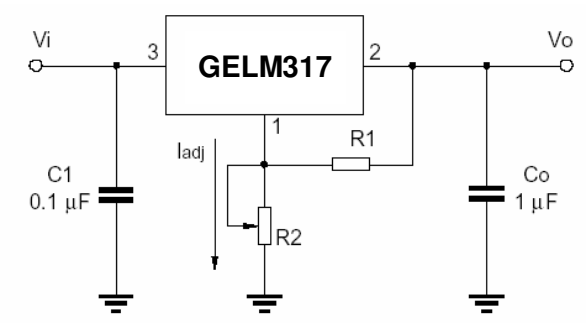


Fig.5 Programmable voltage regulator

Vo=1.25V*(1+R2/R1)+Iadj*R2

C1 is required when regulator is located an appreciated distance from power supply. Co is needed to improve transient response.

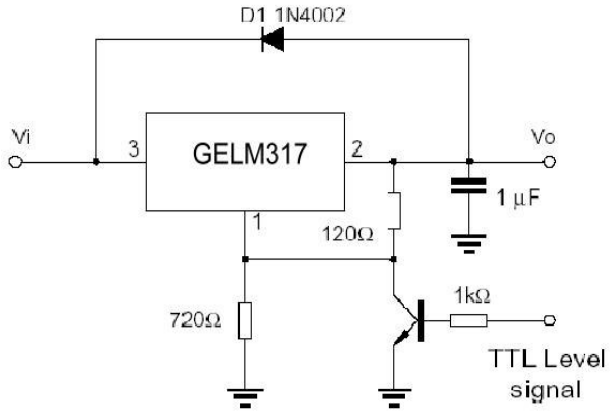


Fig.6 Regulator with On-off control

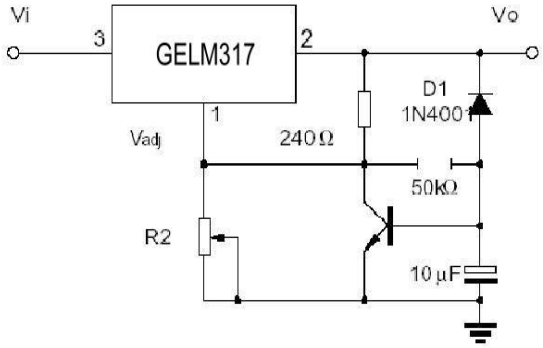


Fig.7 Soft start application

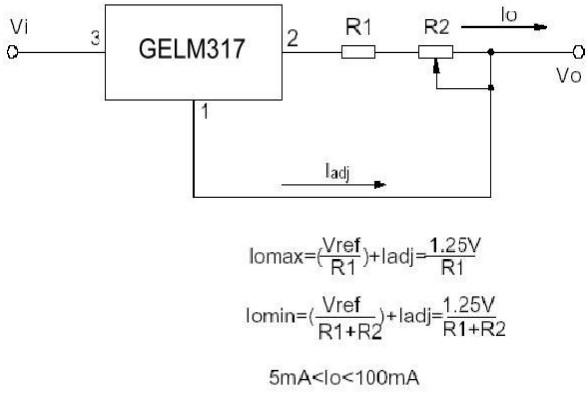


Fig.8 Constant current application

Head Office And Factory:
- **Taiwan**: No. 17-1 Tatung Rd. Fu Kou Hsin-Chu Industrial Park, Hsin-Chu, Taiwan, R. O. C.
  TEL : 886-3-597-7061 FAX : 886-3-597-9220, 597-0785
- **China**: (201203) No.255, Jang-Jiang Tsai-Lueng RD. , Pu-Dung-Hsin District, Shang-Hai City, China
  TEL : 86-21-5895-7671 ~ 4 FAX : 86-21-38950165