

## GJLM317

### 3-TERMINAL 1.5A POSITIVE ADJUSTABLE VOLTAGE REGULATOR

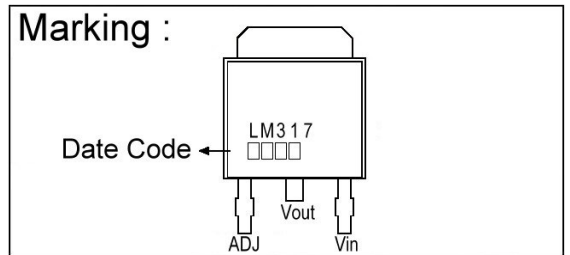
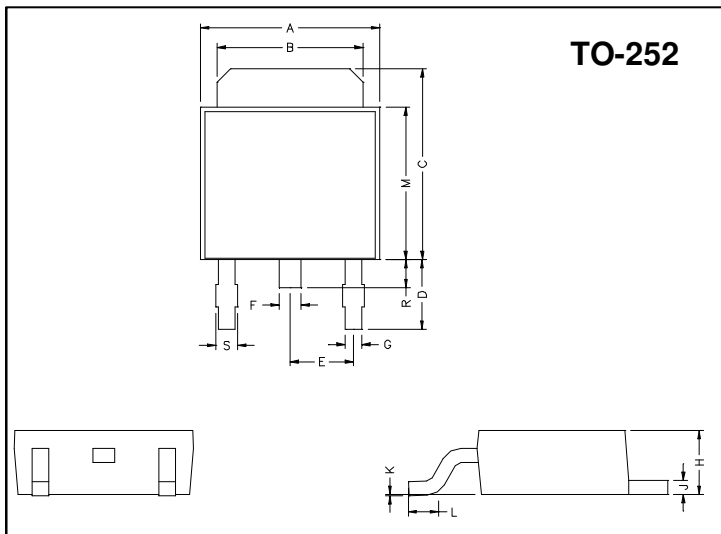
#### Description

The GJLM317 is an adjustable 3-terminal positive voltage regulator, designed to supply more than 1.5A of output current with voltage adjustable from 1.3 to 37V.

#### Features

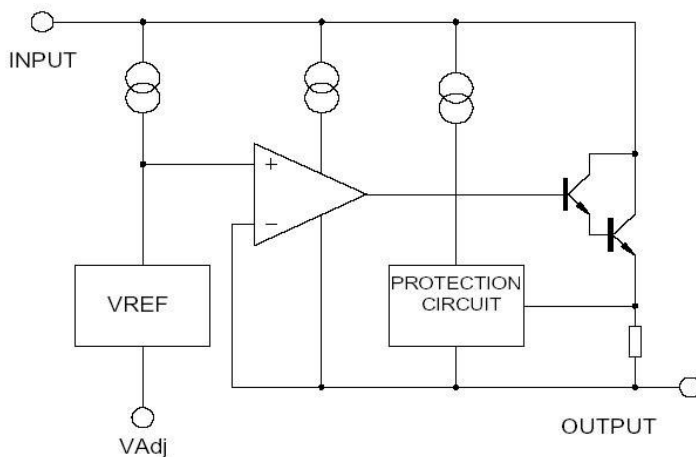
- Output current up to 1.5A.
- Output voltage adjustable from 1.3V to 37V.
- Internal short circuit protection.
- Internal over temperature protection.
- Safe-Area compensation for output transistor.

#### Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.40	6.80	G	0.50	0.70
B	5.20	5.50	H	2.20	2.40
C	6.80	7.20	J	0.45	0.55
D	2.40	3.00	K	0	0.15
E	2.30 REF.		L	0.90	1.50
F	0.70	0.90	M	5.40	5.80
S	0.60	0.90	R	0.80	1.20

#### Block Diagram



#### Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Ratings	Unit
Input-Output Voltage Difference	Vi-Vo	40	V
Load Temperature	Tlead	230	°C
Power Dissipation	PD	Internal limited	
Operating Temperature Range	Topr	0~+125	°C
Storage Temperature Range	Tstg	-65~+150	°C

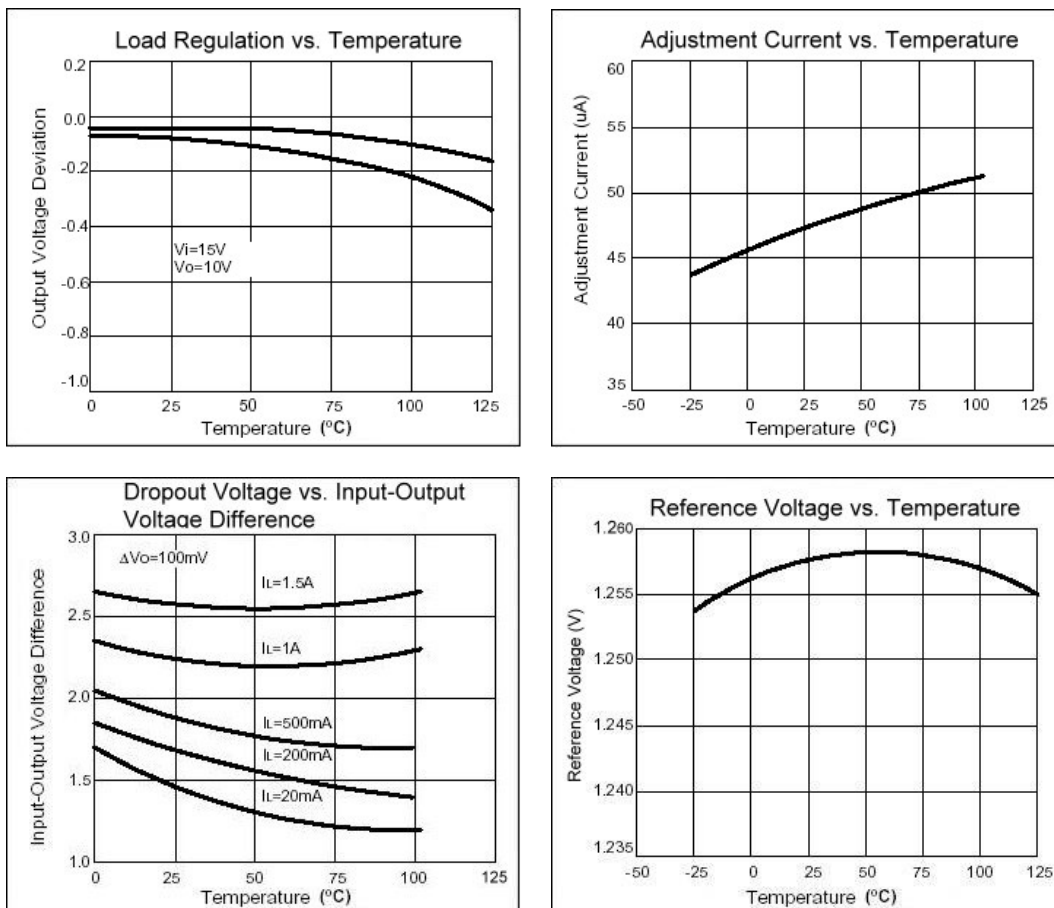
## Electrical Characteristics

(Vi-Vo=5V, 0°C < Tj < 125°C, Io=500mA, IMax= 1.5A, PMax=20W, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	TYP	Max	Unit	
Line Regulation	$\Delta V_o$	Ta=25°C, 3V ≤ Vi-Vo ≤ 40V	-	0.01	0.04	%/V	
		Ta=0~125°C, 3V ≤ Vi-Vo ≤ 40V	-	0.02	0.07	%/V	
Load Regulation	$\Delta V_o$	Ta=25°C	-	18	25	mV	
		10mA ≤ Io ≤ IMax	-	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	μA	
Adjustable Pin Current Change	$\Delta IADJ$	2.5V ≤ Vi-Vo ≤ 40V, 10mA ≤ Io ≤ IMax, PD ≤ PMax	-	2.0	5	μA	
Reference Voltage	VREF	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°C	0.15	0.4	-		
RMS Noise v.s. % of Vout	eN	Ta=25°C, 10Hz ≤ f ≤ 10KHz	-	0.003	0.01	%/Vo	
Ripple Rejection	RR	Vo=10V, f=120Hz	-	60	-	dB	
		Vo=10V, f=120Hz, Cadj=10μF	66	75	-		
Long-term Stability, Tj=Thigh	ST	Ta=25°C, 1000hr	-	0.3	1	%	
Junction to Case Thermal Resistance	Rθjc	-	-	5	-	°C/W	

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

## Characteristics Curve



## Application Circuit

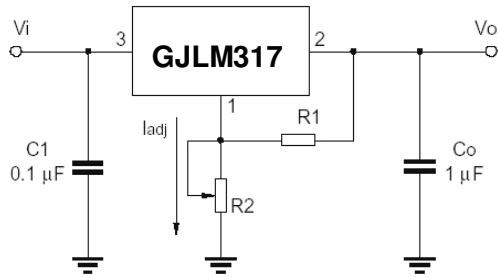


Fig.1 Programmable voltage regulator

$$V_o = 1.25V * (1 + R_2/R_1) + I_{adj} * R_2$$

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

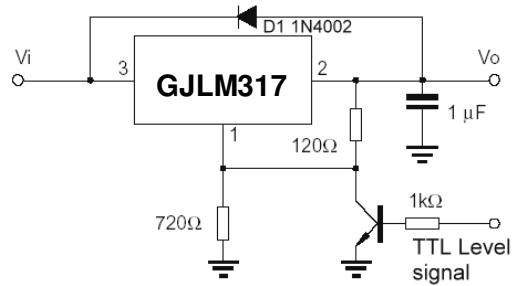


Fig.2 Regulator with On-off control

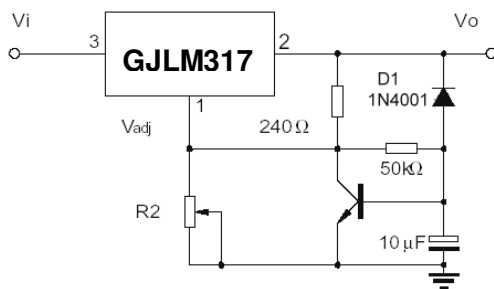


Fig.3 Soft start application

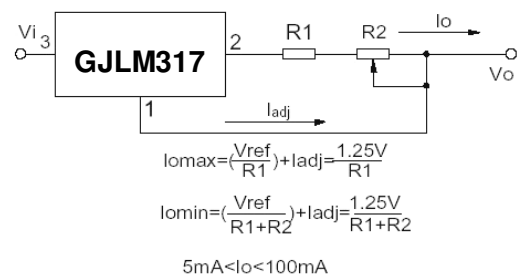


Fig.4 Constant current application

**Important Notice:**

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of GTM.
- GTM reserves the right to make changes to its products without notice.
- GTM semiconductor products are not warranted to be suitable for use in life-support Applications, or systems.
- GTM assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.

**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