

# G3ULM317

## 3-TERMINAL 1.5A POSITIVE ADJUSTABLE VOLTAGE REGULATOR

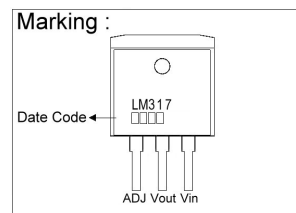
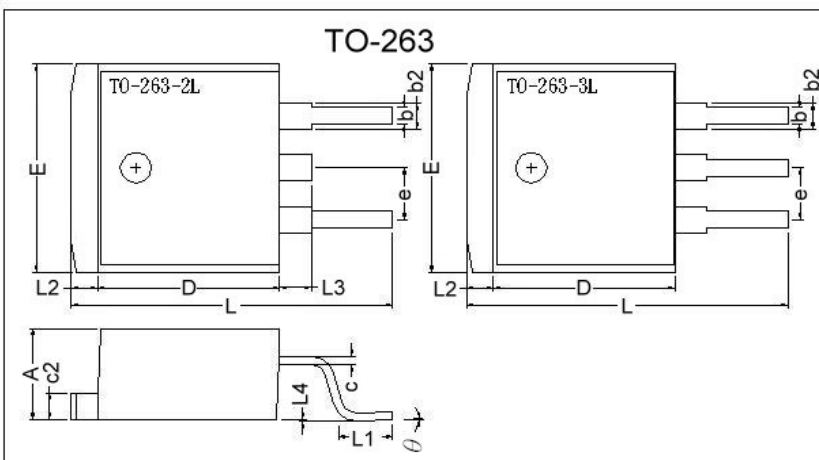
### Description

The G3ULM317 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

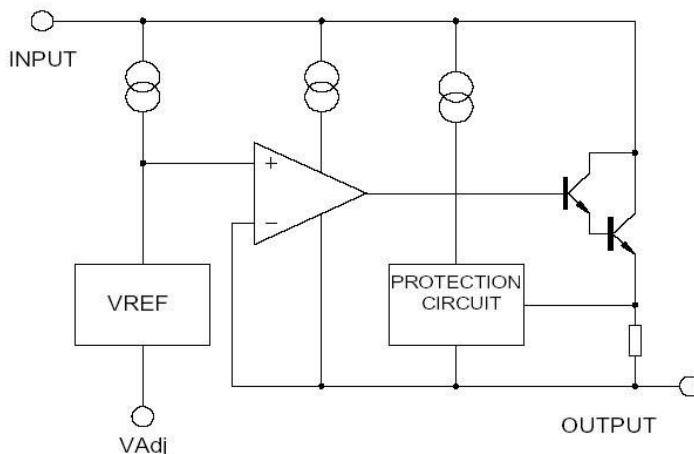
- Output current up to 1.5A.
- Output voltage adjustable from 1.3V to 37V.
- Internal short circuit protection.
- Internal over temperature protection.
- Safe-Area compensation for output transistor.

### Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.40	4.80	c2	1.25	1.45
b	0.76	1.00	b2	1.17	1.47
L4	0.00	0.30	D	8.6	9.0
c	0.36	0.5	e	2.54 REF.	
L3	1.50 REF.		L	14.6	15.8
L1	2.29	2.79	θ	0°	8°
E	9.80	10.4	L2	1.27 REF.	

### Block Diagram



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

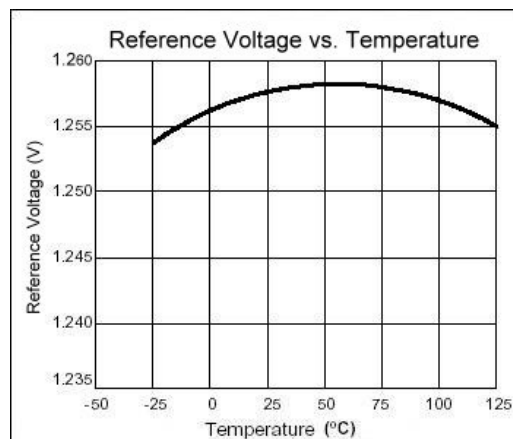
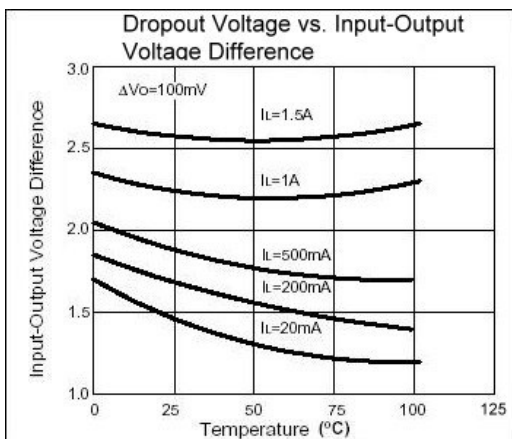
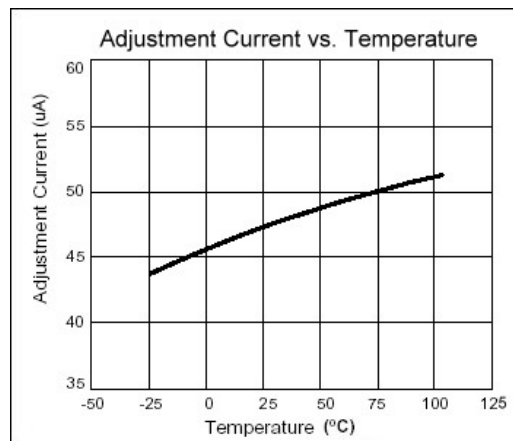
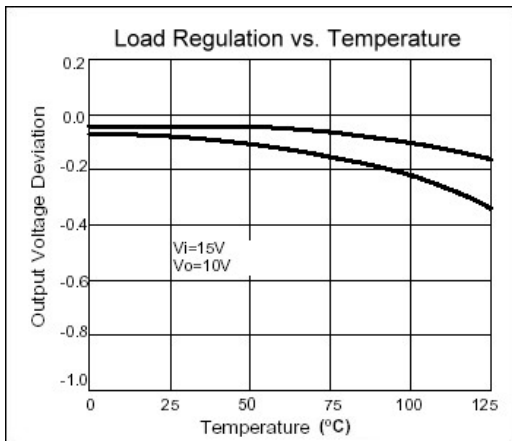
Parameter	Symbol	Ratings	Unit
Input-Output Voltage Difference	$V_i - V_o$	40	V
Load Temperature	$T_{lead}$	230	°C
Power Dissipation	PD	Internal limited	
Operating Temperature Range	$T_{opr}$	0 ~ +125	°C
Storage Temperature Range	$T_{stg}$	-65 ~ +150	°C

## 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	ΔIADJ	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	1.225	1.25	1.275	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

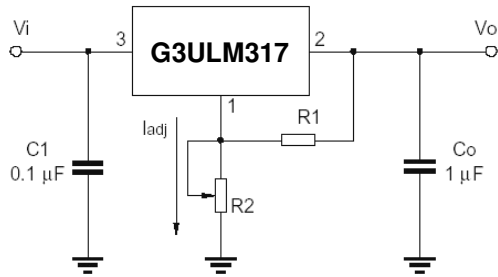


Fig.1 Programmable voltage regulator

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

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

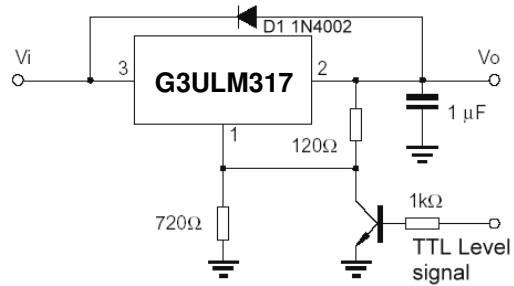


Fig.2 Regulator with On-off control

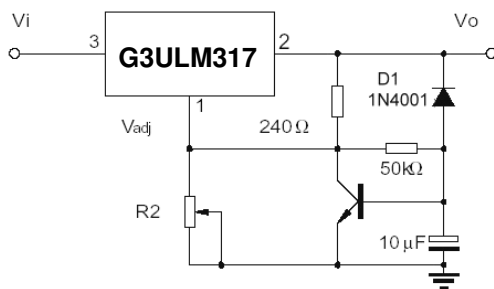


Fig.3 Soft start application

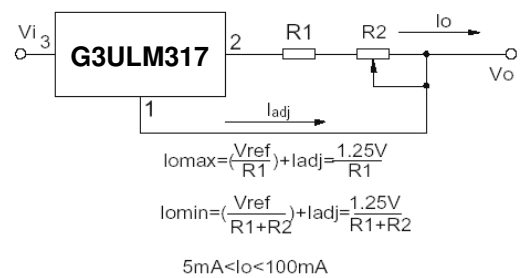


Fig.4 Constant current application

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