

G3ULM317

3-TERMINAL 1.5A POSITIVE ADJUSTABLE VOLTAGE REGULATOR

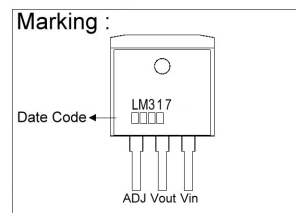
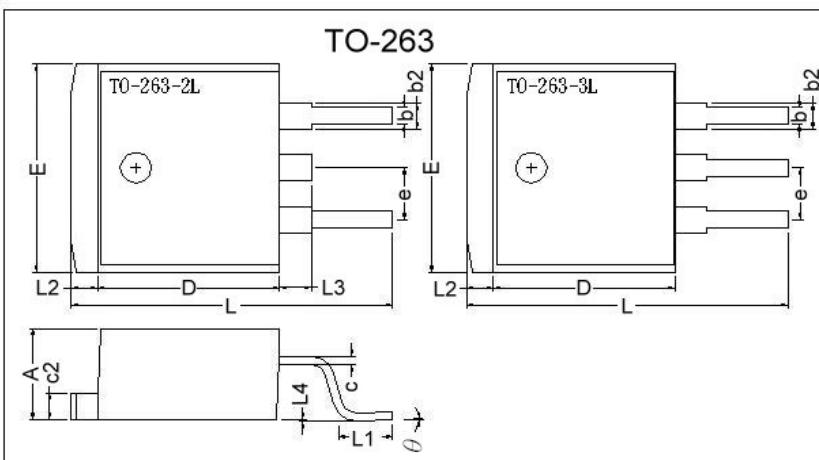
Description

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

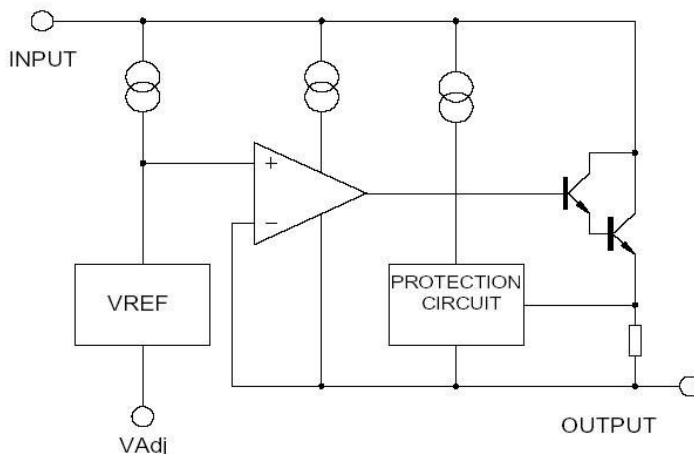
- Output current up to 1.5A.
- Output voltage adjustable from 1.3V to 37V.
- Internal short circuit protection.
- Internal over temperature protection.
- Safe-Area compensation for output transistor.

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

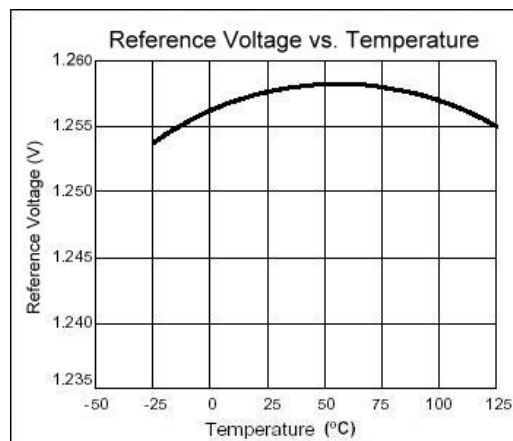
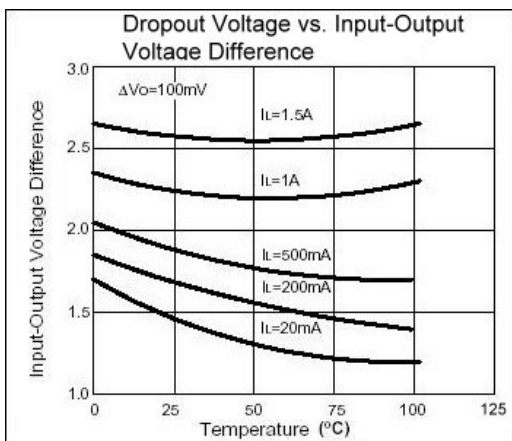
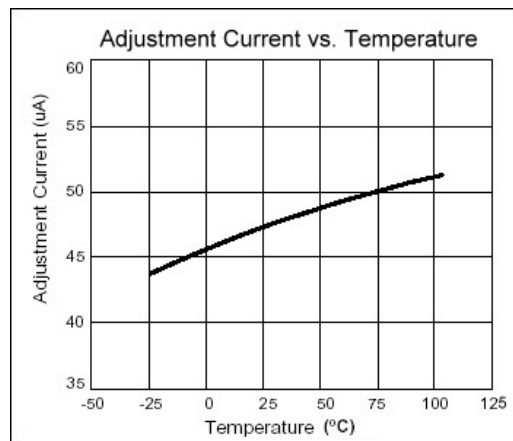
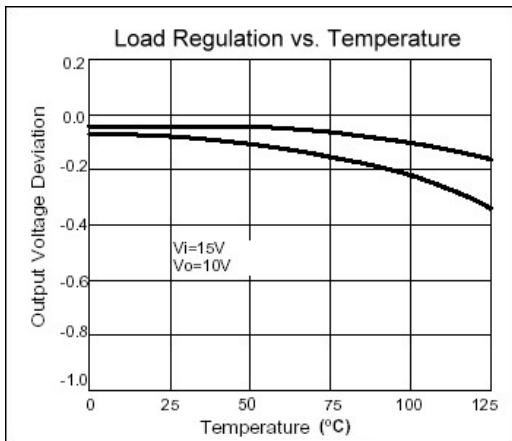
Parameter	Symbol	Ratings	Unit
Input-Output Voltage Difference	Vi-Vo	40	V
Load Temperature	Tlead	230	°C
Power Dissipation	PD	Internal limited	
Operating Temperature Range	Topr	0 ~ +125	°C
Storage Temperature Range	Tstg	-65 ~ +150	°C

Electrical Characteristics ($V_i - V_o = 5V$, $0^\circ C < T_j < 125^\circ C$, $I_o = 500mA$, $I_{Max} = 1.5A$, $P_{Max} = 20W$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	TYP	Max	Unit	
Line Regulation	ΔV_o	$T_a = 25^\circ C$, $3V \leq V_i - V_o \leq 40V$	-	0.01	0.04	%/V	
		$T_a = 0 \sim 125^\circ C$, $3V \leq V_i - V_o \leq 40V$	-	0.02	0.07	%/V	
Load Regulation	ΔV_o	$T_a = 25^\circ C$	-	18	25	mV	
		$10mA \leq I_o \leq I_{Max}$	-	0.4	0.5	%/V _o	
		$10mA \leq I_o \leq I_{Max}$	$V_o \leq 5V$	-	40	70	mV
			$V_o \geq 6V$	-	0.8	1.5	%/V _o
Adjustable Pin Current	IADJ		-	46	100	μA	
Adjustable Pin Current Change	$\Delta IADJ$	$2.5V \leq V_i - V_o \leq 40V$, $10mA \leq I_o \leq I_{Max}$, $PD \leq P_{Max}$	-	2.0	5	μA	
Reference Voltage	VREF	$3V \leq V_i - V_o \leq 40V$, $10mA \leq I_o \leq I_{Max}$, $PD \leq P_{Max}$	1.225	1.25	1.275	V	
Temperature Stability	STT		-	0.7	-	%/V _o	
Minimum Load Current for Regulation	$I_L(\text{Min})$	$V_i - V_o = 40V$	-	3.5	10	mA	
Maximum Output Current	$I_o(\text{Max})$	$V_i - V_o \leq 15V$, $PD \leq P_{Max}$	1.5	2.2	-	A	
		$V_i - V_o \leq 15V$, $PD \leq P_{Max}$, $T_a = 25^\circ C$	0.15	0.4	-		
RMS Noise v.s. % of V _{out}	eN	$T_a = 25^\circ C$, $10Hz \leq f \leq 10KHz$	-	0.003	0.01	%/V _o	
Ripple Rejection	RR	$V_o = 10V$, $f = 120Hz$	-	60	-	dB	
		$V_o = 10V$, $f = 120Hz$, $C_{adj} = 10\mu F$	66	75	-		
Long-term Stability, $T_j = \text{Thigh}$	ST	$T_a = 25^\circ C$, 1000hr	-	0.3	1	%	
Junction to Case Thermal Resistance	$R_{\theta jc}$	-	-	5	-	$^\circ C/W$	

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

Characteristics Curve



Application Circuit

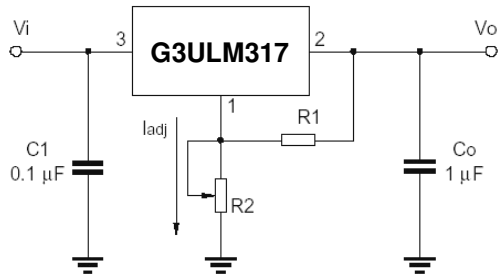


Fig.1 Programmable voltage regulator

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

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

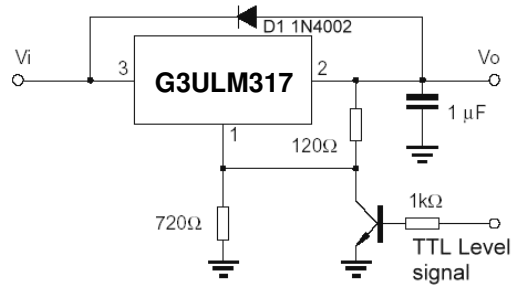


Fig.2 Regulator with On-off control

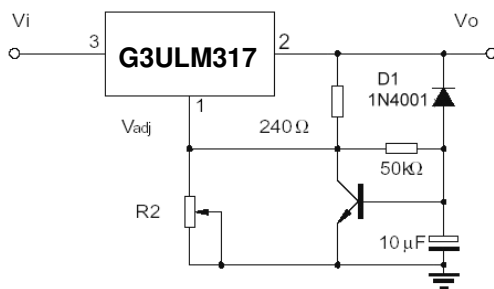


Fig.3 Soft start application

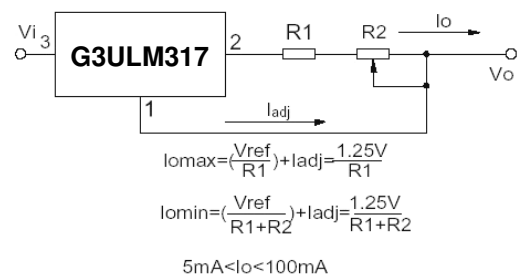


Fig.4 Constant current application

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