

RoHS Compliant Product

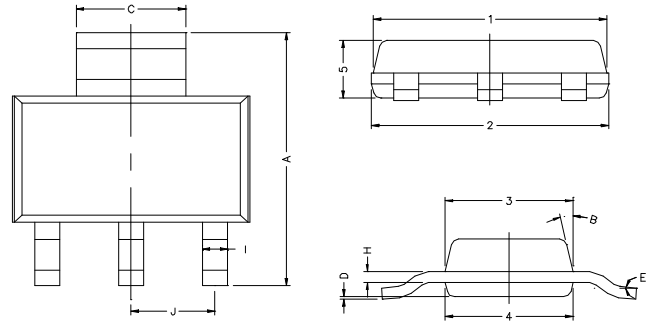
## SOT-223

### Description

The SLLM317 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.

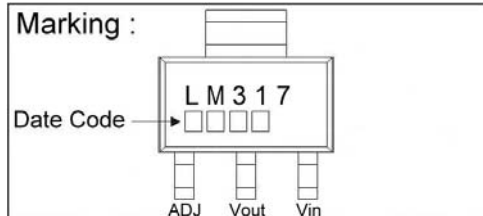
### Features

- \* Safe-Area Compensation For Output Transistor
- \* Internal Short Circuit Protection
- \* Internal Over Temperature Protection
- \* Output Current Up To 1.5A
- \* Output Voltage Adjustable From 1.3 to 37V

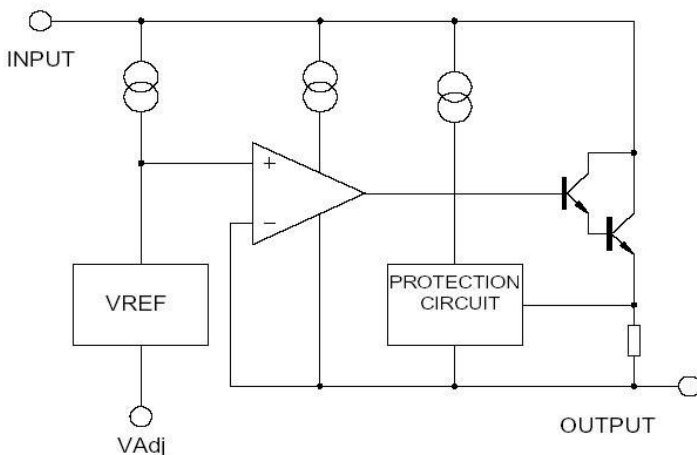


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.70	7.30	B	13 TYP.	
C	2.90	3.10	J	2.30 REF.	
D	0.02	0.10	1	6.30	6.70
E	0°	10°	2	6.30	6.70
I	0.60	0.80	3	3.30	3.70
H	0.25	0.35	4	3.30	3.70
			5	1.40	1.80

### Marking :



### Block Diagram



## Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Ratings	Unit
Input-Output Voltage Difference	V <sub>IN-VOUT</sub>	40	V
Load Temperature	T <sub>LEAD</sub>	230	°C
Power Dissipation	P <sub>D</sub>	2	W
Storage Temperature Range	T <sub>STG</sub>	-65~+150	°C
Operating Junction Temperature	T <sub>OPR</sub>	0~125	°C

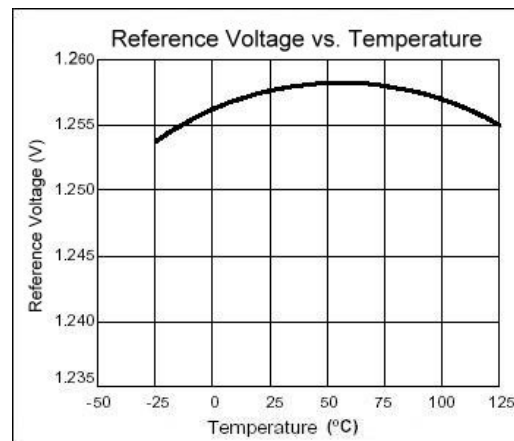
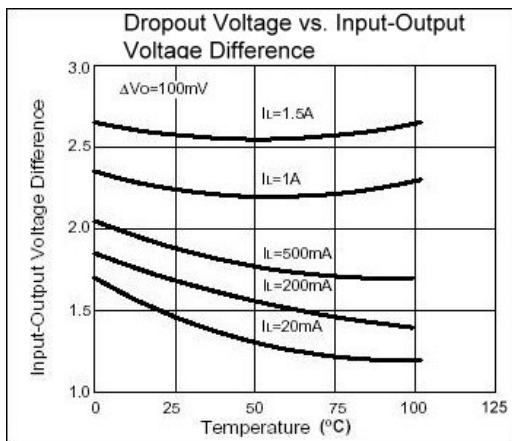
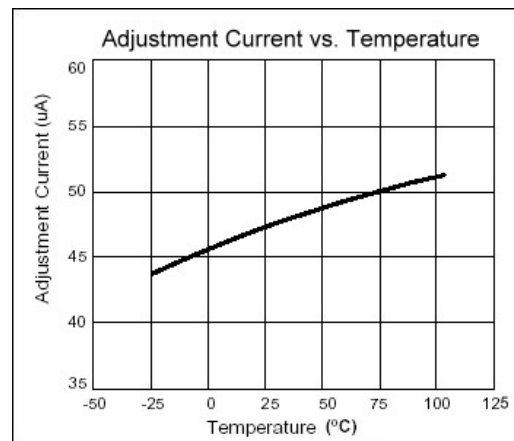
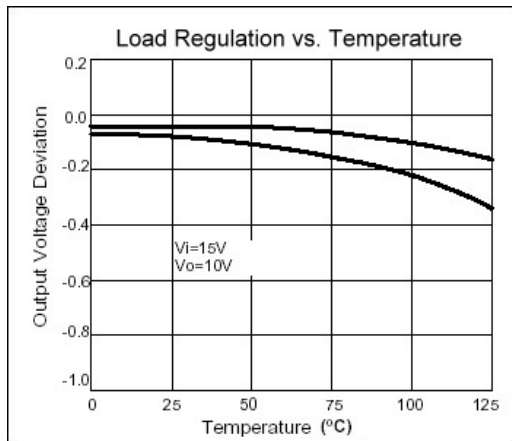
## Electrical Characteristics

(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	ΔVo	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	ΔVo	Ta=25°C	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	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	-	-	15	-	°C/W	

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

## Characteristics Curve



## Application Circuit

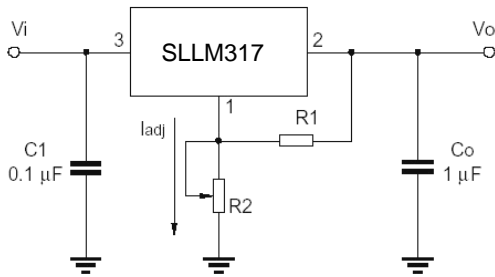


Fig. 1 Programmable voltage regulator

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

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

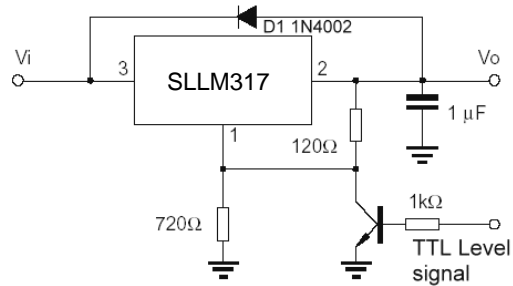


Fig. 2 Regulator with On-off control

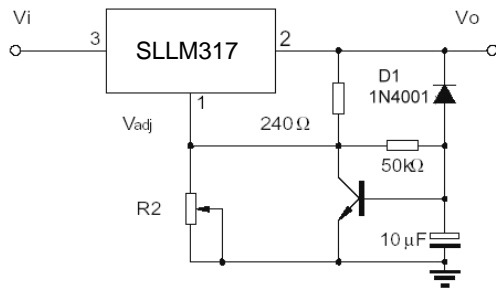


Fig. 3 Soft start application

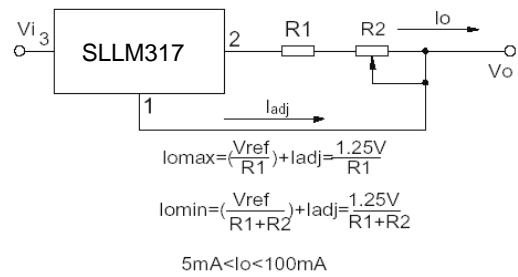


Fig. 4 Constant current application

$$I_{o\max} = \left( \frac{V_{ref}}{R_1} \right) + I_{adj} = \frac{1.25V}{R_1}$$

$$I_{o\min} = \left( \frac{V_{ref}}{R_1 + R_2} \right) + I_{adj} = \frac{1.25V}{R_1 + R_2}$$

$$5\text{mA} < I_o < 100\text{mA}$$