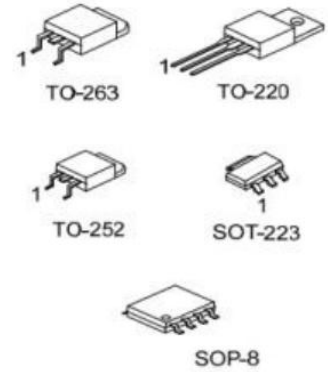


General Description

The XBLW LM317M is an adjustable 3-terminal positive voltage regulator, designed to supply 500mA of output current with voltage adjustable from 1.25V ~ 37V.

Features

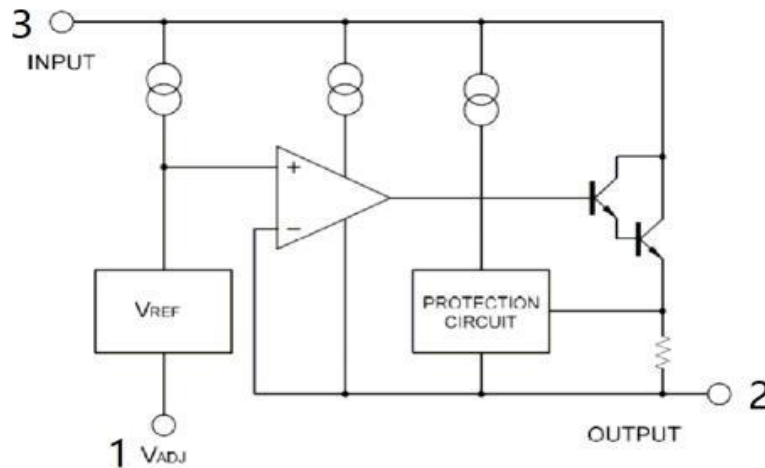
- Output Voltage Adjustable From 1.25V ~ 37V
- Output Current In Excess of 500mA
- Internal Thermal Overload Protection
- Internal Short Circuit Current Limiting
- Output Transistor Safe Area Compensation



Ordering Information

Product Model	Package Type	Marking	Packing	Packing Qty
XBLW LM317M	TO-220	LM317M	Tape	1000PCS/Box
XBLW LM317MCDTR	TO-263	LM317M	Tape	1000PCS/Reel
XBLW LM317MGDTR	TO-252	LM317M	Tape	2500PCS/Reel
XBLW LM317MTDTR	SOT-223	LM317M	Tape	2500PCS/Reel
XBLW LM317MSDTR	SOP-8	LM317M	Tape	2500PCS/Reel

Block Diagram



Absolute Maximum Ratings (Ta=25°C) *

Characteristic	Symbol	Prtings	Unit
Input - Output Voltage Difference	$V_{IN}-V_{OUTt}$	40	V
Power Dissipation	P_D	Internal limited	W
Junction Temperature	T_J	+150	°C
Operating Temperature	T_{OPR}	-40~+125	°C
Storage temperature	T_{STG}	-40~+150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

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Parameter	Symbol	Patings	Unit
Junction to Ambient	θ_{JA}	SOT223	165
		SOP8	175
		TO220/TO263	65
		TO252	112
Junction to Case	θ_{JC}	SOT223	24
		SOP8	27
		TO220/TO263	5.5
		TO252	13

Electrical Characteristics(VIN -VOUT= 5V , IOUT = 0.1A , Ta = 25 ° C , unless other wise specified .)

(VIN-VOUT=5V, IOUT=0.1A, TA=25°C, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Line Regulation	$\Delta V_{OUT}/V_{OUT}$	$3V \leq V_{IN}-V_{OUT} \leq 40V$		0.01	0.04	%/V
Load Regulation	ΔV_{OUT}	$10mA \leq I_{OUT} \leq 0.5A$	$V_{OUT} \leq 5V$	5	25	mV
			$V_{OUT} \geq 5V$	0.1	0.5	%
Adjustable Pin Current	I_{ADJ}			50	100	μA
Adjustable Pin Current Change	ΔI_{ADJ}	$3V \leq V_{IN}-V_{OUT} \leq 40V,$ $10mA \leq I_{OUT} \leq 0.5A, P_D < 7.5W$		0.2	5	μA
Reference Voltage	V_{REF}	$3V \leq V_{IN}-V_{OUT} \leq 40V,$ $10mA \leq I_{OUT} \leq 0.5A, P_D < 7.5W$	1.20	1.25	1.30	V
Temperature Stability		$T_{MIN} \leq T_J \leq T_{MAX}$		0.7		%/VOUT
Minimum Load Current for Regulation	$I_{L(MIN)}$	$V_{IN}-V_{OUT}=40V$		3.5	10	mA
Maximum Output Current	$I_{O(MAX)}$	$V_{IN}-V_{OUT}=40V, P_D \leq 7.5W$	0.1	0.2		A
RMS Noise vs. %of VOUT	eN	$10Hz \leq f \leq 10KHz$		0.003		%/VOUT
Ripple Rejection	RR	$V_{OUT}=10V, f=120Hz$	$C_{ADJ}=0$	65		dB
			$C_{ADJ}=10\mu F$	66	80	

Note: CADJ is connected between Adjust pin and Ground

Application Circui

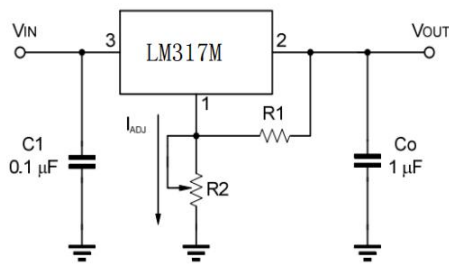


Fig.1 Programmable voltage regulator

$$V_{OUT} = 1.25V * (1 + R2/R1) + I_{ADJ} * R2$$

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

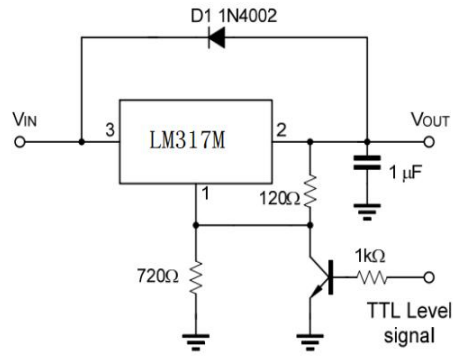


Fig.2 Regulator with On-off control

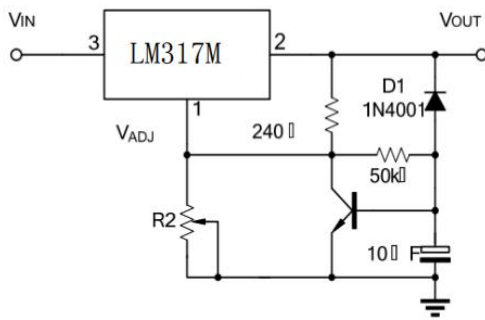
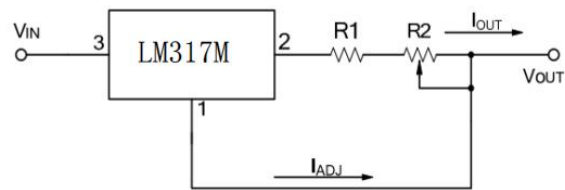


Fig.3 Soft Start Application

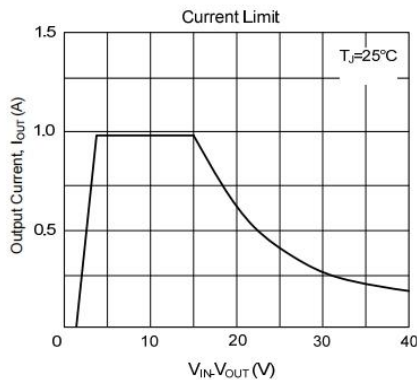
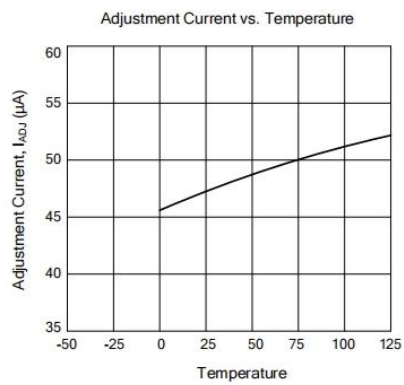
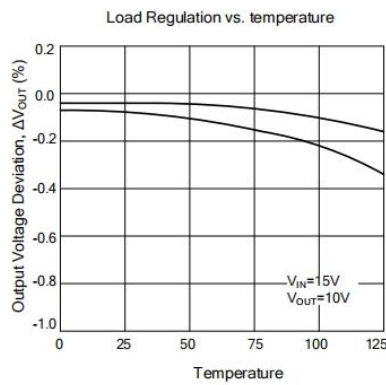


$$I_{O(MAX)} = \left(\frac{V_{REF}}{R1} \right) + I_{ADJ} = \frac{1.25V}{R1}$$

$$I_{O(MIN)} = \left(\frac{V_{REF}}{R1+R2} \right) + I_{ADJ} = \frac{1.25V}{R1+R2}$$

Fig.4 Constant Current Application

Characteristic Curve





Statement:

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