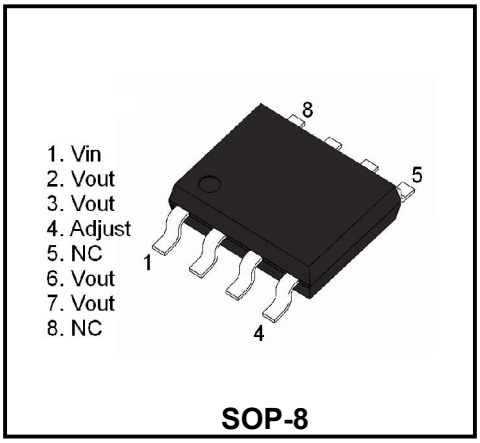
3-Terminal 100mA Positive Adjustable Regulator



SOP-8

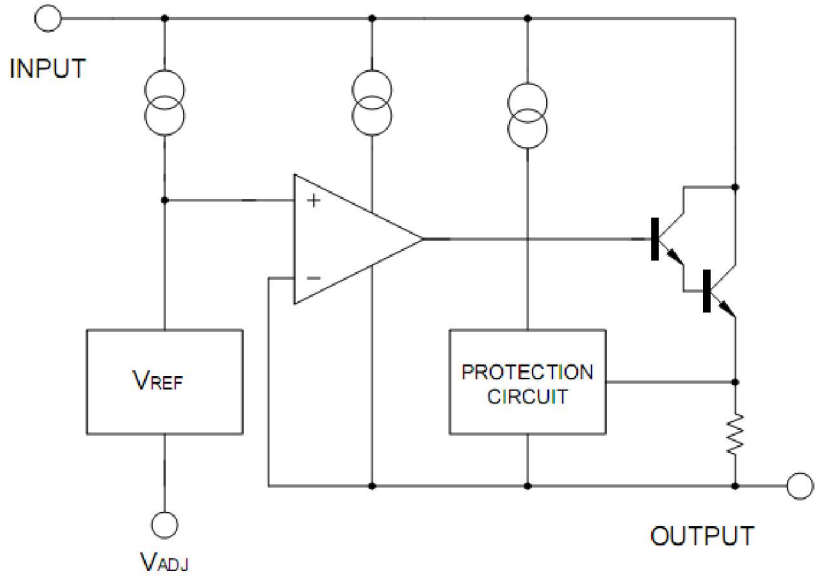
Description

The LM317S is a 3-terminal adjustable positive voltage regulator capable of supplying in excess of 100mA over an output voltage range of 1.25V to 37V. This voltage regulator is exceptionally easy to use and requires only two external resistors to set the output voltage.

Features

- Output Current in Excess of 100mA
- Output Adjustable Between 1.25V and 37V
- Internal Thermal Overload Protection
- Internal Short Circuit Current Limiting
- Output Transistor Safe Area Compensation
- Floating Operation For High Voltage Applications

Internal Block Diagram



Absolute Maximum Ratings（Ta=25℃）

Parameter	Symbol	Value	Unit
Input-Output Voltage Differential	V_I-V_O	40	V
Power Dissipation	P_D	Internally limited	mV
Junction Temperature	T_J	125	°C
Operating Junction Temperature Range	Topr	-40 ～+85	°C
Storage Temperature Range	Tstg	- 65 ～+150	°C

Electrical Characteristics

(V_I - V_O = 5V, I_O = 40mA, 0°C ≤ Ta ≤ 25°C, unless otherwise specified)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
Line Regulation	$\Delta V_O/V_O$	3V ≤ V_I - V_O≤40V I_{LOAD} <20mA				0.04	%/V
Load Regulation	R_{load}	10mA ≤ I_O ≤100mA	V_O ≤ 5V			25	mV
			V_O ≥ 5V			0.5	% V_O
Adjustment Pin Current	I_{ADJ}					100	μA
Adjustment Pin Current Change	ΔI_{ADJ}	3V ≤ VI - V_O ≤ 40V 5mA ≤ I_O ≤ 100mA P_D < P_{DMAX}				5	μA
Reference Voltage	V_{REF}	3V < V_I - V_O <40V 10mA ≤ I_O ≤100mA P_D ≤ P_{DMAX}		1.2	1.25	1.3	V
Minimum Load Current to Regulation	$I_{L(MIN)}$	V_I - V_O = 40V				10	mA
Maximum output Current	$I_{O(MAX)}$	V_I - V_O ≤15V, P_D < P_{DMAX}			50		mA
RMS Noise, %of V_{OUT}	eN	10Hz < f <10KHz			0.003	0.1	%V_O
Ripple Rejection	RR	V_O= 10V, f = 120Hz	C_{ADJ}= 0		65		dB
			C_{ADJ}=10μF		80		

Note: C_{ADJ} is connected between Adjust pin and Ground.

Application Circuits

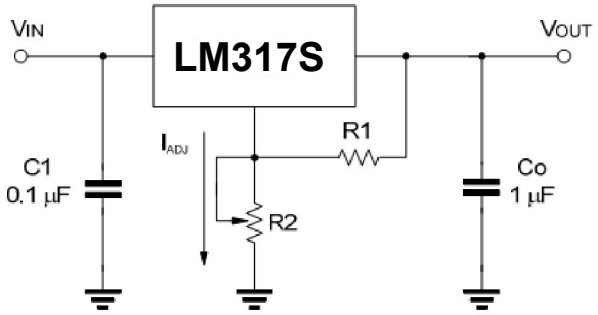


Figure.1 Programmable voltage regulator

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.

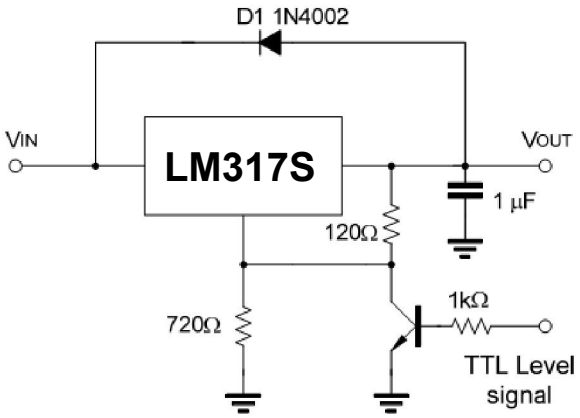


Figure.2 Regulator with On-off control

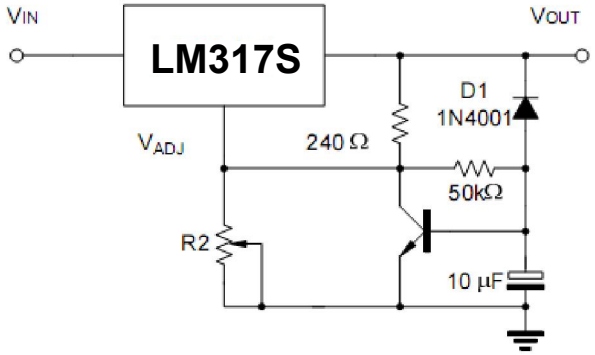


Figure.3 Soft Start Application

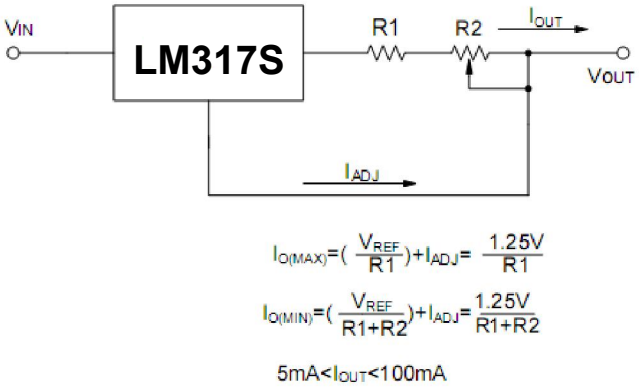


Figure.4 Constant Current Application

Typical Characteristics

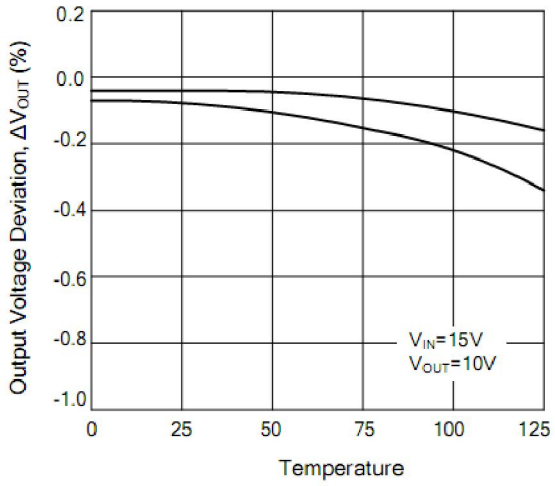


Figure 5. Load Regulation vs. temperature

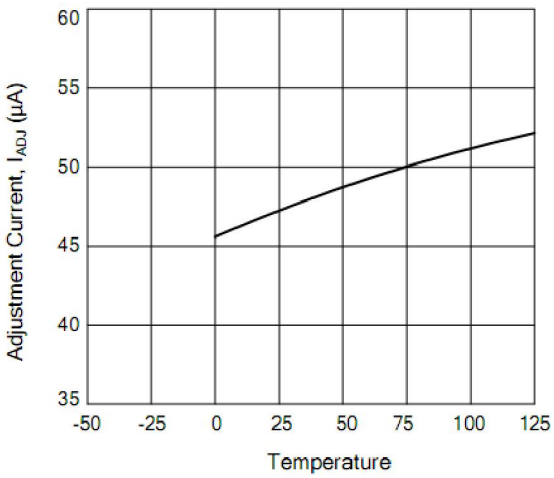


Figure 6. Adjustment Current vs. Temperature

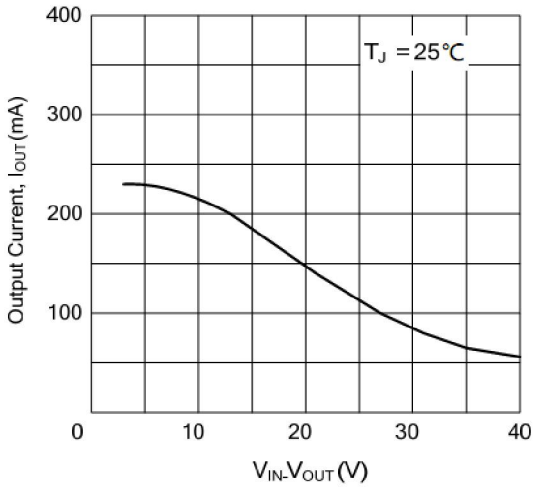


Figure7. Curremt Limit

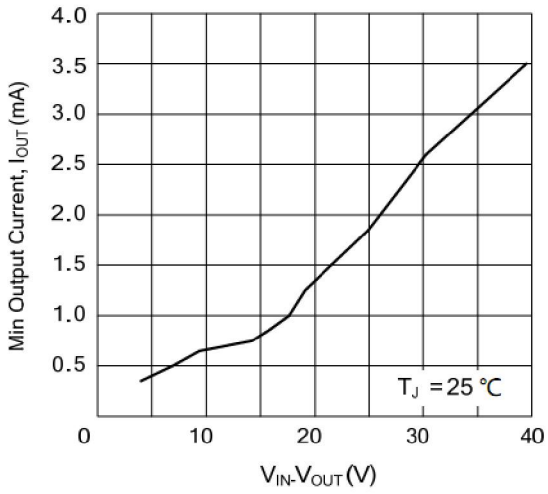
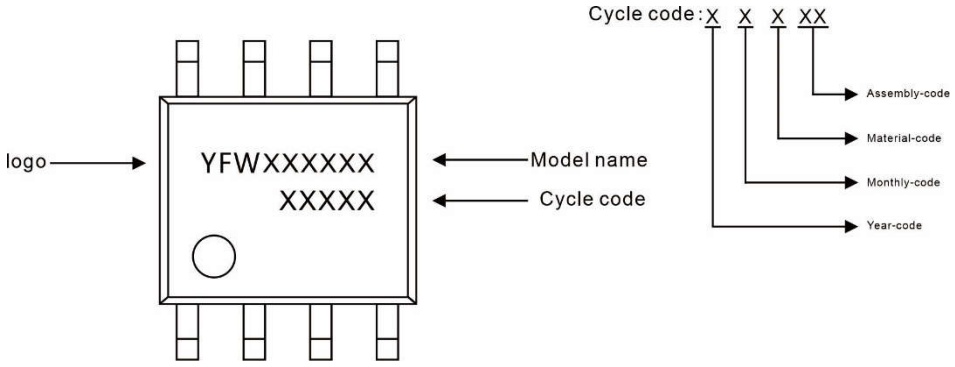


Figure 8. Minimum Operating Current

Marking Diagram

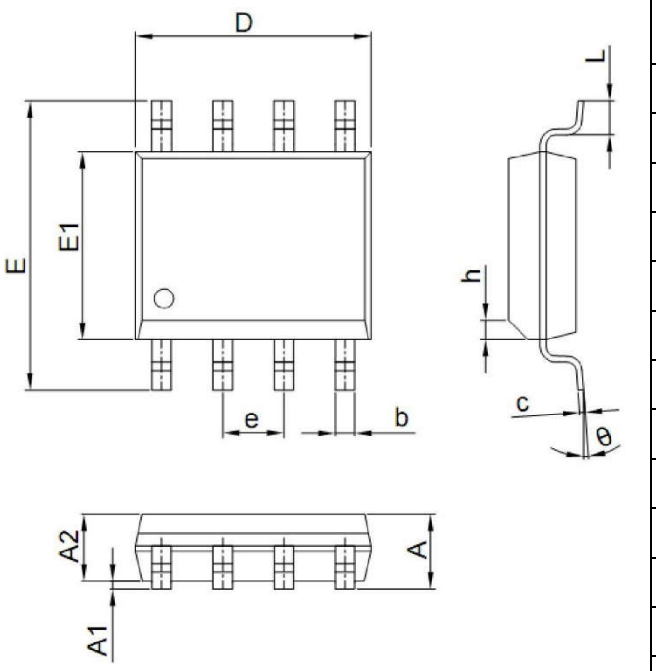


Ordering information

Package	Packing Description	Packing Quantity
SOP-8	Tape/Reel,13"reel	3000PCS/Reel 30000PCS/Carton

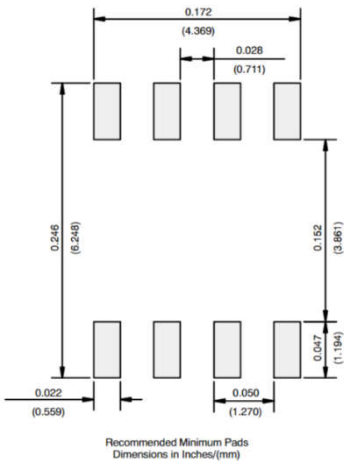
Package Dimensions

SOP-8



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
A2	1.35	1.50	0.053	0.059
b	0.35	0.55	0.014	0.022
c	0.15	0.25	0.006	0.010
D	4.80	5.00	0.189	0.197
D1	3.10	3.50	0.122	0.138
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
E2	2.20	2.60	0.087	0.102
e	1.27 (BSC)		0.050 (BSC)	
L	0.40	1.27	0.016	0.050
θ	0°	8°	0°	8°

The recommended mounting pad size



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