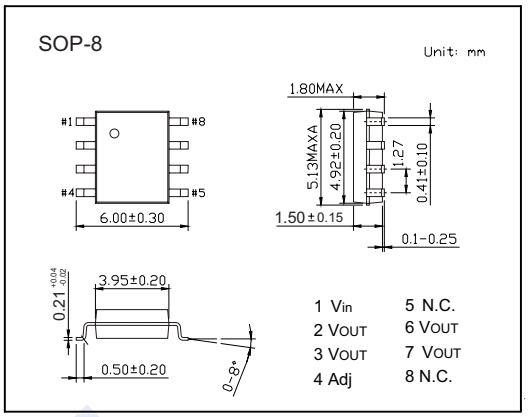
Linear Integrated Circuit

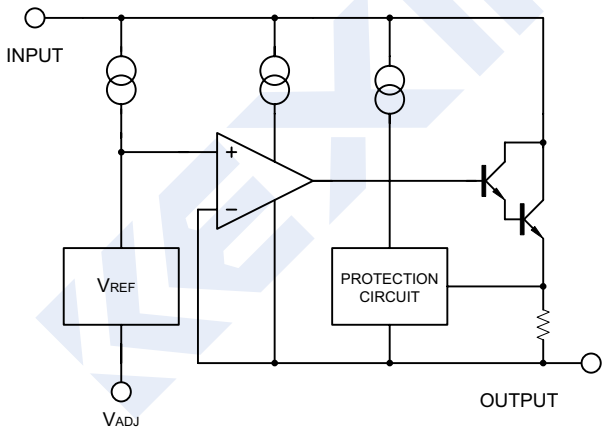
LM317DY



■ Features

- Output voltage adjustable from 1.3V ~ 37V
- Output current in excess of 1.5A
- Internal short circuit protection
- Internal over temperature protection
- Output transistor safe area compensation

■ Block Diagram



■ Absolute Maximum Ratings (T_A=25℃, unless otherwise specified))

Parameter	Symbol	Rating	Unit
Input Voltage	V_I	40	V
Maximum Output Current	I_O	1.5	A
Power Dissipation	P_D	Internal limited	
Thermal Resistance, Junction-to-Ambient	R_{thJA}	190	℃/W
Thermal Resistance, Junction-to-Case	R_{thJC}	45	
Operating Junction Temperature Range	Topr	-40 to 85	℃
Storage Temperature Range	Tstg	-45 to 150	

Note: Absolute maximum ratings are stress ratings only and functional device operation is not implied. The device could be damaged beyond Absolute maximum ratings.

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■ Electrical Characteristics (V_{IN}-V_{OUT}=5V, I_{OUT}=10mA, T_A=25℃, unless otherwise specified.)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reference Voltage	V_{REF}	3V≤V_{IN}-V_{OUT}≤40V, 10mA≤I_{OUT}≤1.5A	1.2		1.3	V
Line Regulation	△V_{OUT}/V_{OUT}	3V≤V_{IN}-V_{OUT}≤40V		0.02	0.07	%/V
Load Regulation	△V_{OUT}	10mA≤I_{OUT}≤1.5A		0.3	1.5	%
Adjustable Pin Current	I_{ADJ}			50	100	μA
Adjustable Pin Current Change	△I_{ADJ}	3V≤V_{IN}-V_{OUT}≤40V, 10mA≤I_{OUT}≤1.5A		0.2	5	
Themal Regulation		20 ms Pulse		0.04	0.07	%/W
Themal Stability		T_{MIN}≤T_J≤T_{MAX}		1		%

■ Marking

Marking	LM317 K*****

■ Application Circuits

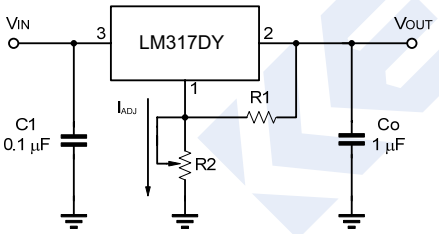


Fig.1 Programmable voltage regulator

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.

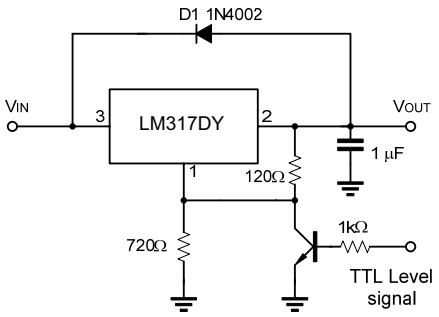


Fig.2 Regulator with On-off control

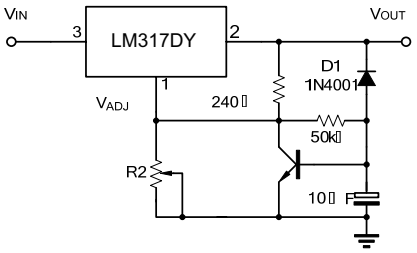
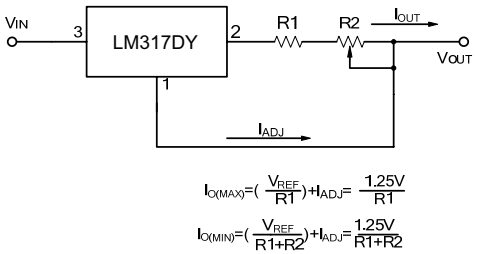


Fig.3 Soft Start Application



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

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

Fig.4 Constant Current Application

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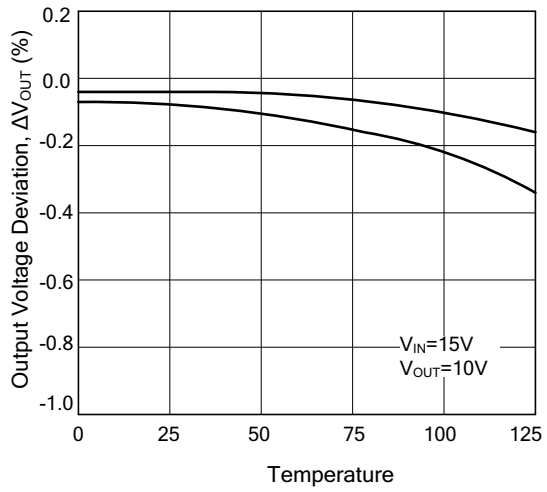
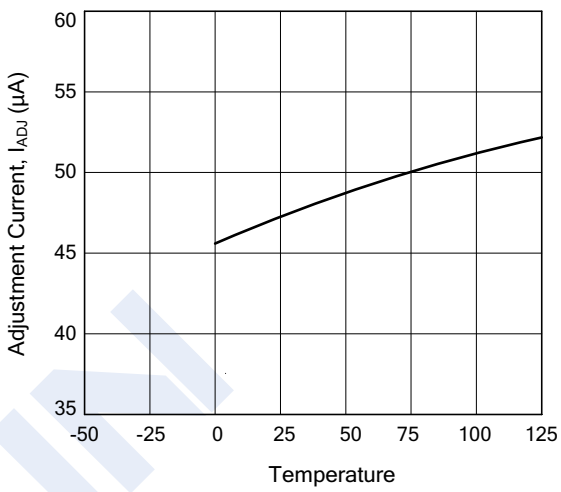
■ Typical Characterisitics

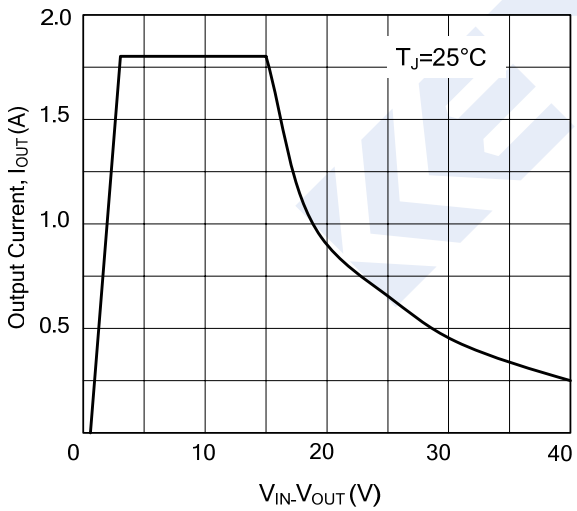
Load Regulation vs. temperature



Adjustment Current vs. Temperature



Current Limit



Minimum Operating Current