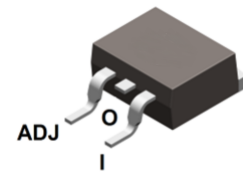
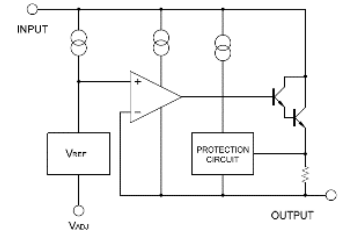




Features

- 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
- RoHS compliant with Halogen-free



TO-263

Mechanical Data

- Case: TO-263
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
LM317B	TO-263	50 pcs / Tube & 800 pcs / Tape & Reel	LM317

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Input - Output Differential Voltage	V _{IN} - V _{OUT}	40	V

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T _A = 25°C)	P _D	1.54	W
Thermal Resistance Junction-to-Air	R _{θJA}	65	°C/W
Thermal Resistance Junction-to-Case	R _{θJC}	5	°C/W
Operating Virtual Junction Temperature	T _J	-55 ~ +150	°C
Operating Temperature Range	T _{OPR}	-40 ~ +125	°C
Storage Temperature Range	T _{STG}	-65 ~ +150	°C



Electrical Characteristics ($V_{IN}-V_{OUT} = 5V$, $I_{OUT} = 10mA$ @ $T_A = 25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Line Regulation	$\Delta V_{OUT}/V_{OUT}$	$3V \leq V_{IN}-V_{OUT} \leq 40V$	-	-	0.04	%/V
Load Regulation	ΔV_{OUT}	$10mA \leq I_{OUT} \leq 1A$, $V_{OUT} \leq 5V$	-	-	25	mV
		$10mA \leq I_{OUT} \leq 1A$, $V_{OUT} \geq 5V$	-	-	0.5	%
Adjustable Pin Current	I_{ADJ}		-	-	100	μA
Adjustable Pin Current Change	ΔI_{ADJ}	$3V \leq V_{IN}-V_{OUT} \leq 40V$ $10mA \leq I_{OUT} \leq 1A$, $P_D \leq 20W$	-	-	5	μA
Reference Voltage	V_{REF}	$3V \leq V_{IN}-V_{OUT} \leq 40V$ $10mA \leq I_{OUT} \leq 1A$, $P_D \leq 20W$	1.20	1.25	1.30	V
Temperature Stability		$T_{MIN} \leq T_J \leq T_{MAX}$	-	0.7	-	%/V _{OUT}
Minimum Load Current for Regulation	$I_{L(MIN)}$	$V_{IN}-V_{OUT} = 40V$	-	-	10	mA
Maximum Output Current	$I_{O(MAX)}$	$V_{IN}-V_{OUT} = 40V$, $P_D \leq 20W$	0.2	-	-	A

Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

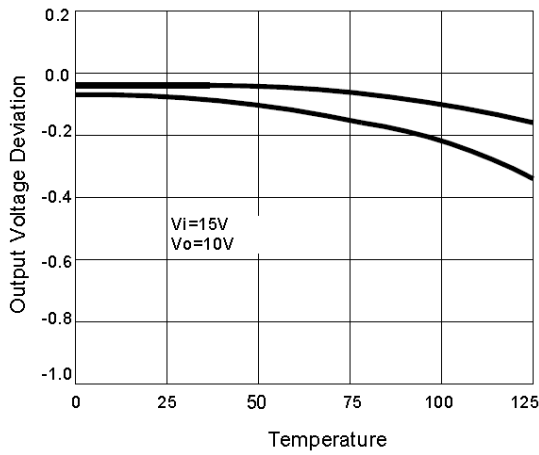


Fig 1 Load Regulation vs Temperature

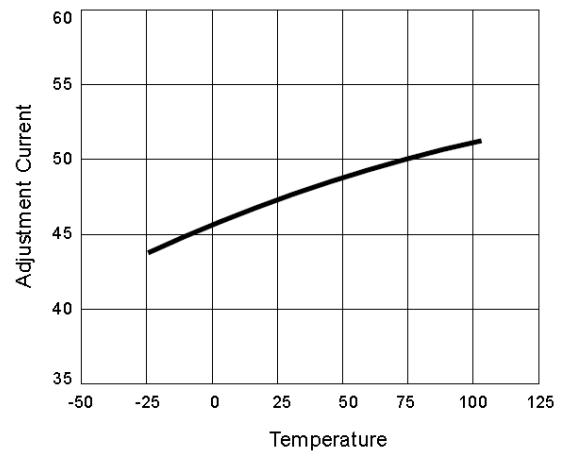


Fig 2 Adjustment Current vs Temperature

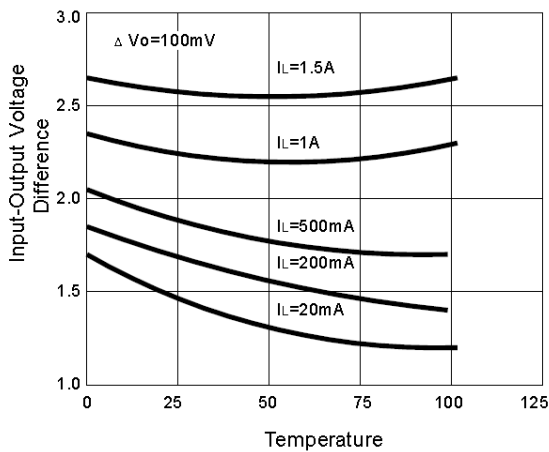


Fig 3 Dropout Voltage vs Input-Output Voltage Difference

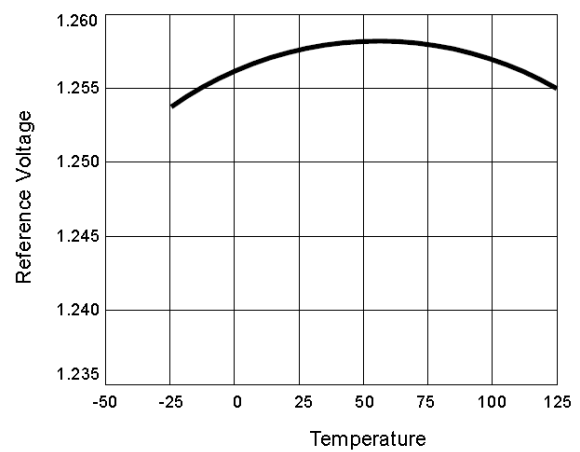
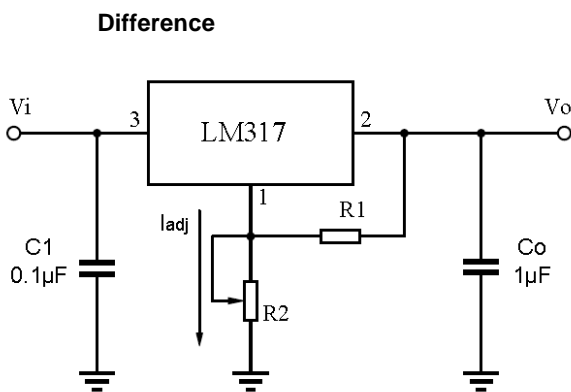


Fig 4 Reference Voltage vs Temperature



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

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

Fig 5 Programmable voltage regulator

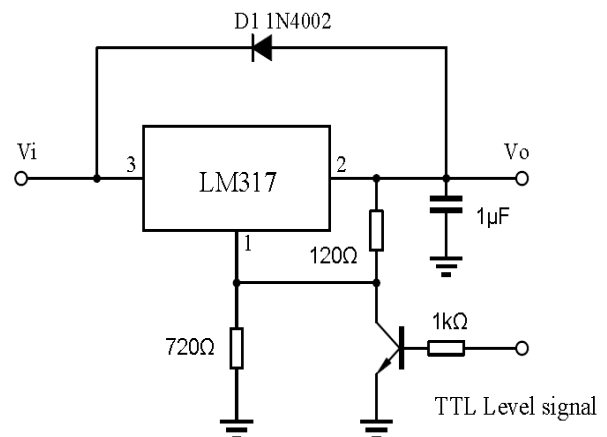


Fig 6 Regulator with On-off control

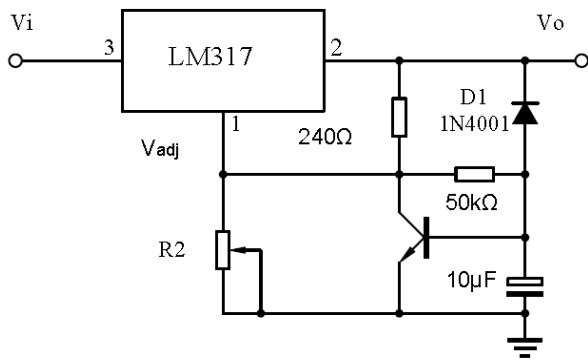
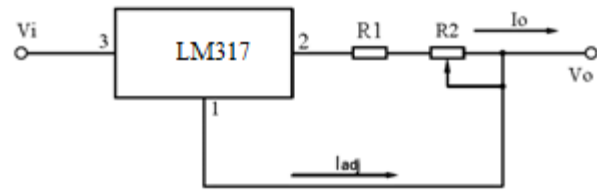


Fig 7 Soft start application



$$I_{\text{omax}} = \left(\frac{V_{\text{ref}}}{R1} \right) + I_{\text{adj}} = \frac{1.25V}{R1}$$

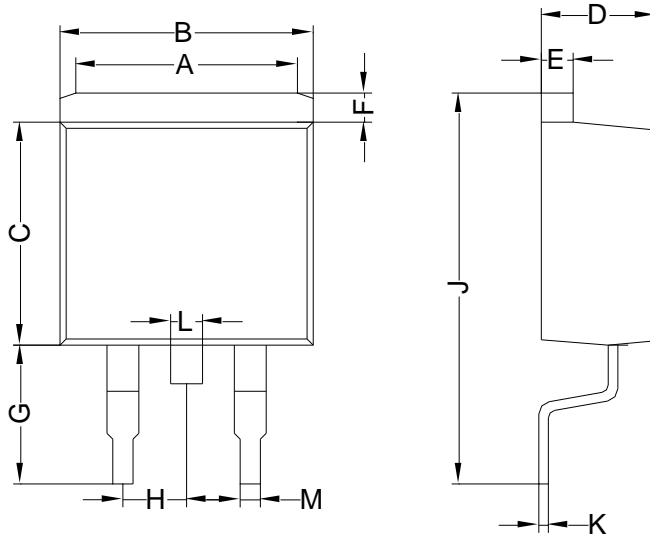
$$I_{\text{omin}} = \left(\frac{V_{\text{ref}}}{R1+R2} \right) + I_{\text{adj}} = \frac{1.25V}{R1+R2}$$

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

Fig 8 Constant current application



Package Outline Dimensions (Unit: mm)



TO-263		
Dimension	Min.	Max.
A	6.00	8.00
B	9.90	10.30
C	8.50	9.10
D	4.37	4.77
E	1.07	1.47
F	1.07	1.47
G	5.34	5.74
H	2.44	2.64
J	15.30	15.90
K	0.28	0.48
L	1.17	1.37
M	0.71	0.91

Mounting Pad Layout (Unit: mm)

TO-263

