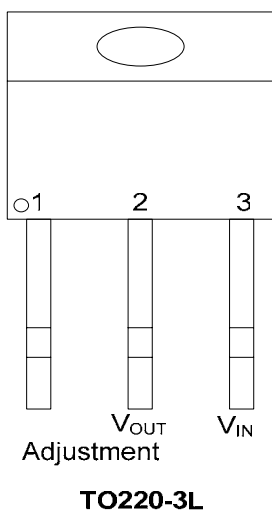
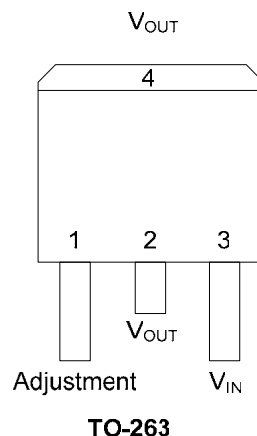


THREE-TERMINAL ADJUSTABLE OUTPUT POSITIVE VOLTAGE REGULATORS

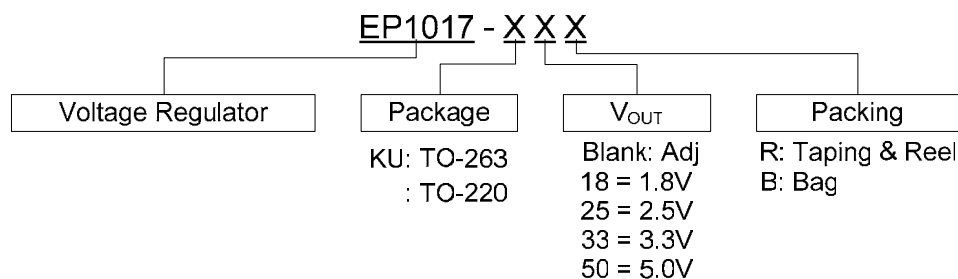
Description

The EP1017 are adjustable 3-terminal positive voltage regulators capable of supplying in excess of 1.5A over an output voltage range of 1.2 to 37V. These voltage regulators are exceptionally easy to use and require only two external resistors to set the output voltage. Further, they employ internal current limiting. Thermal shutdown and safe area compensation, making them essentially blow-out proof.

Pin Assignment



Ordering Information



Maximun Ratings

Rating	Symbol	Value	Unit
Input-Output Voltage Differential	V_I-V_O	40	Vdc
Power dissipation	P_D	Internally Limited	
Operating	T	-40 to +125	°C

Electrical Characteristics ($V_I-V_O=5.0V$; $I_O=0.5A$; $T_J=25^\circ C$)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
Reg_{line}	Line Regulation ¹	$3.0V \leq (V_I-V_O) \leq 40V$			0.04	%/V
Reg_{load}	Line Regulation ¹	$10mA \leq I_{out} \leq 1.5A$, $V_O \leq 5.0V, V_{IC} \geq 5.0V$			25 0.5	mV %V
T_R	Thermal Regulation	20ms Pulse			0.07	%W
I_{Adi}	Adjustment Pin Current				100	μA
V_{ref}	Reference Voltage	² $P_D \leq 20W$ $3.0V \leq V_I-V_O \leq 40V$ $10mA \leq I_O \leq 1.5A$			1.3	V
I_{LIMIT}	Minimum Load Current to Maintain Regulation	$V_I-V_O=40V$			10	mA
I_{Max}	Maximum Output Current	$P_D \leq 20W, V_I-V_O \leq 15V$ $V_I-V_O=40V$	1.5 0.15	2.2 0.4		A
θ_{th}	Thermal Resistance	junction to ambient		5.0		°C/W

NOTES:

1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.
2. Selected devices with tightened tolerance reference voltage available.

Typical Performance Characteristics

Figure 5. Load Regulation

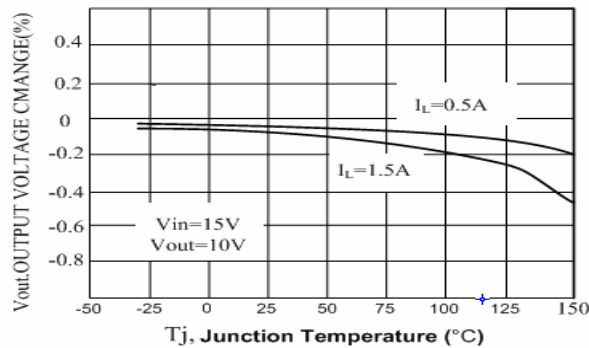


Figure 6. Current Limit

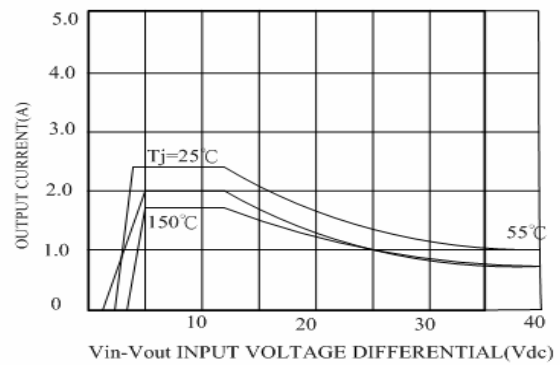


Figure 7. Adjustment Pin Current

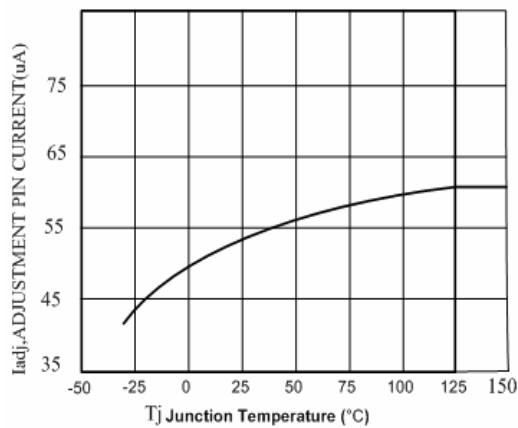


Figure 8. Dropout Voltage

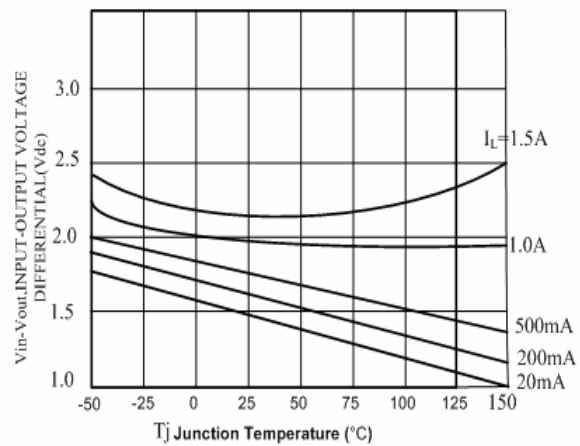


Figure 9. Temperature Stability

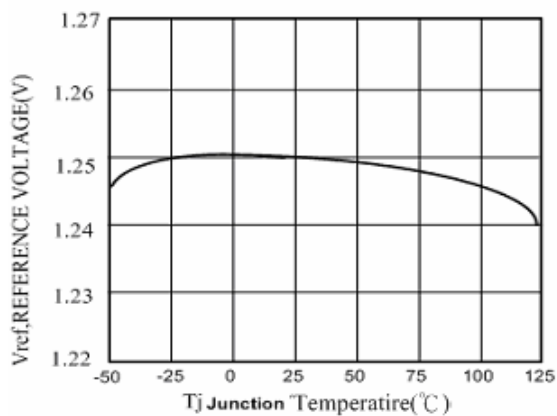


Figure 10. Minimum Operating Current

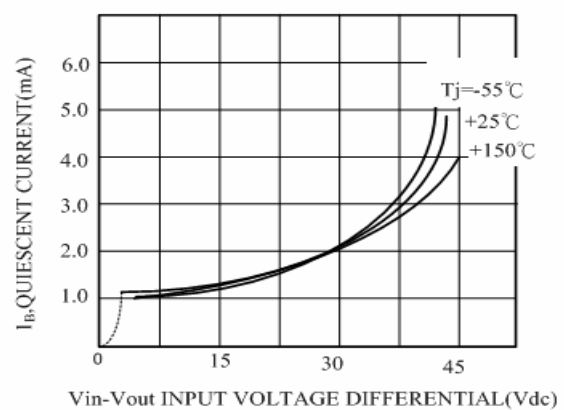


Figure 7. Ripple Rejection versus Output Voltage

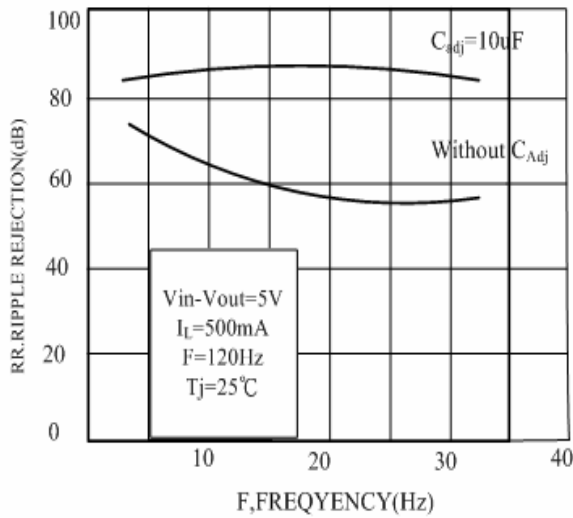


Figure 8. Ripple Rejection versus Output Current

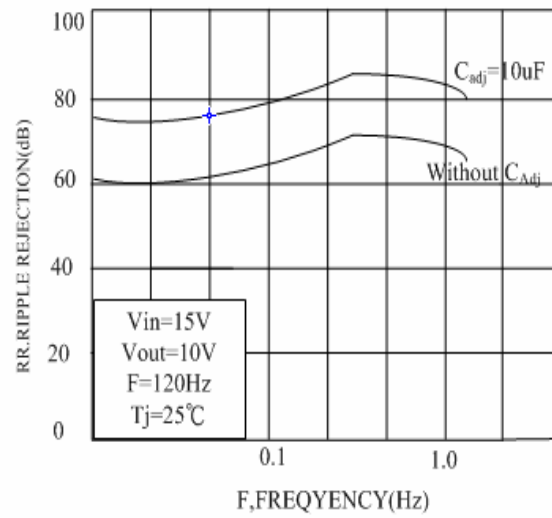


Figure9. Ripple Rejection versus Frequency

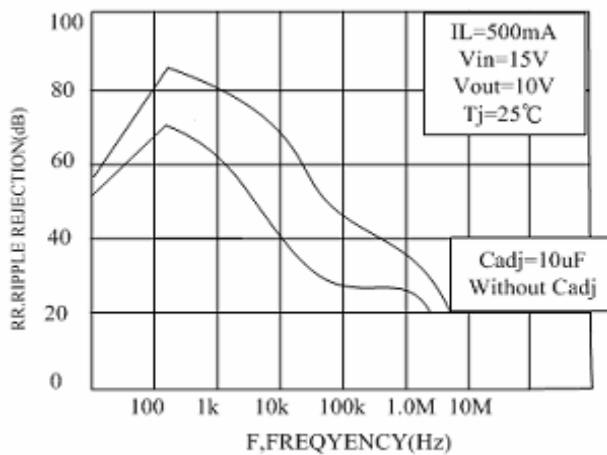


Figure10. Output Impedance

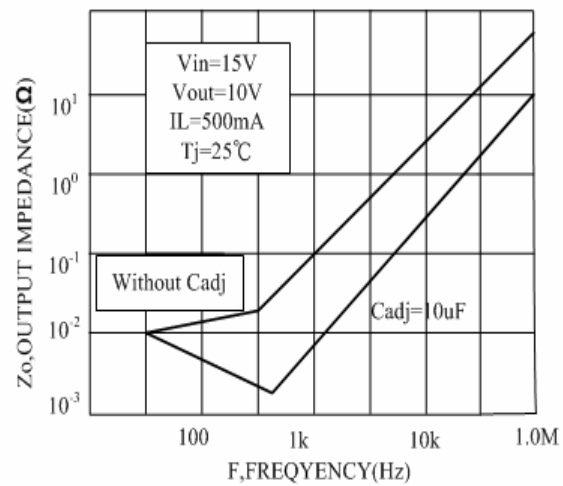


Figure11. Line Transient Response

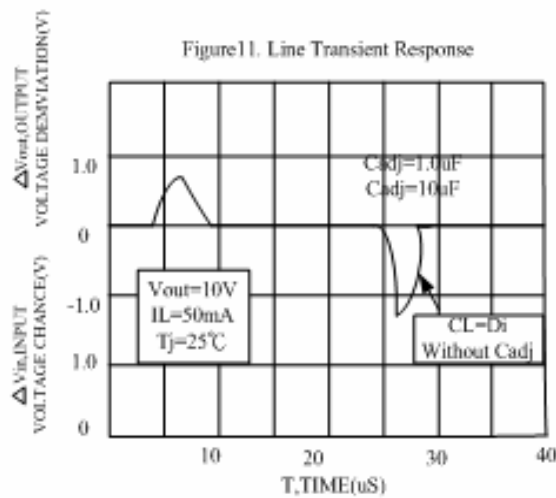
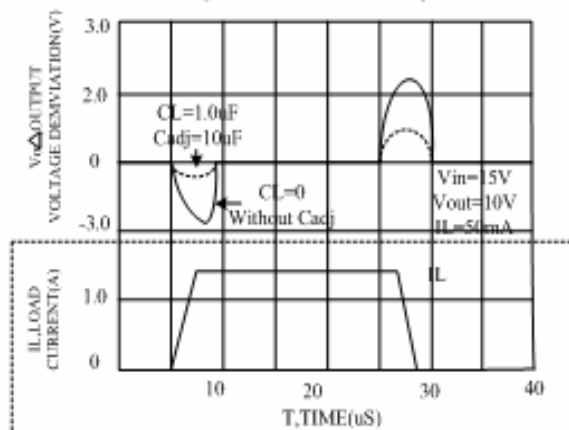
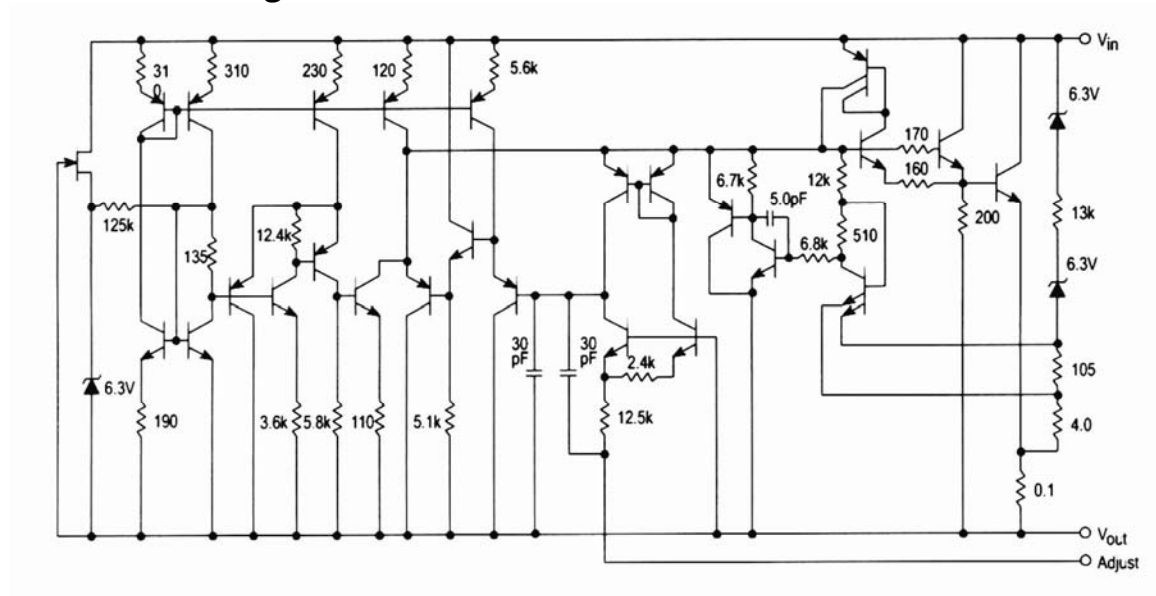


Figure12. Load Transient Response



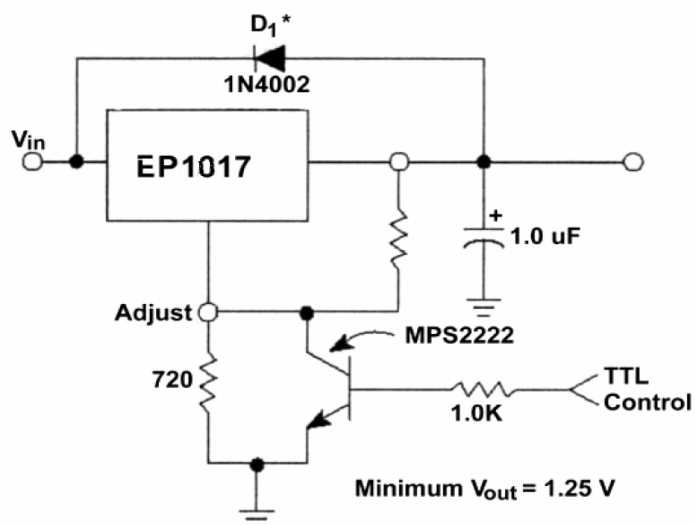
Schematic Diagram



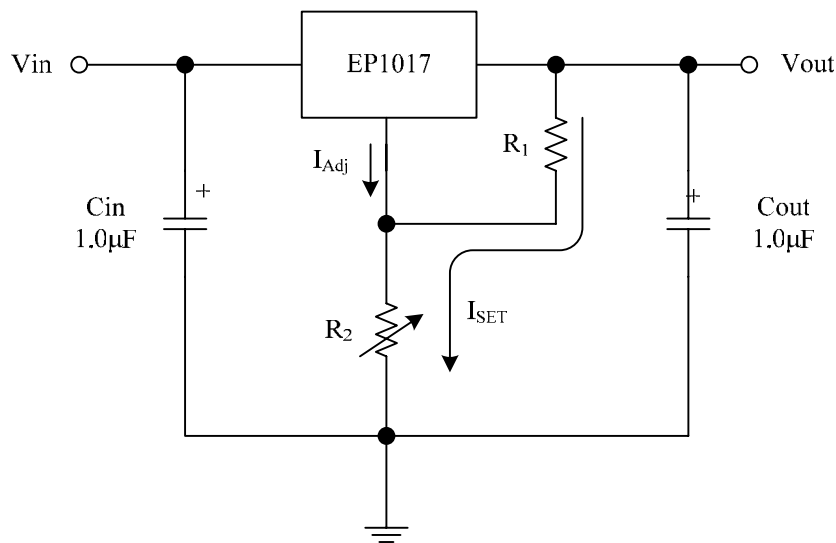
EP1017 contains 29 active transistors

Typical Application

5.0V Electronic Shutdown Regulator



Standard Application



* C_{in} is required if regulator is located an appreciable distance from power supply filter.

* C_{out} is not needed for stability, however, it does improve transient response.

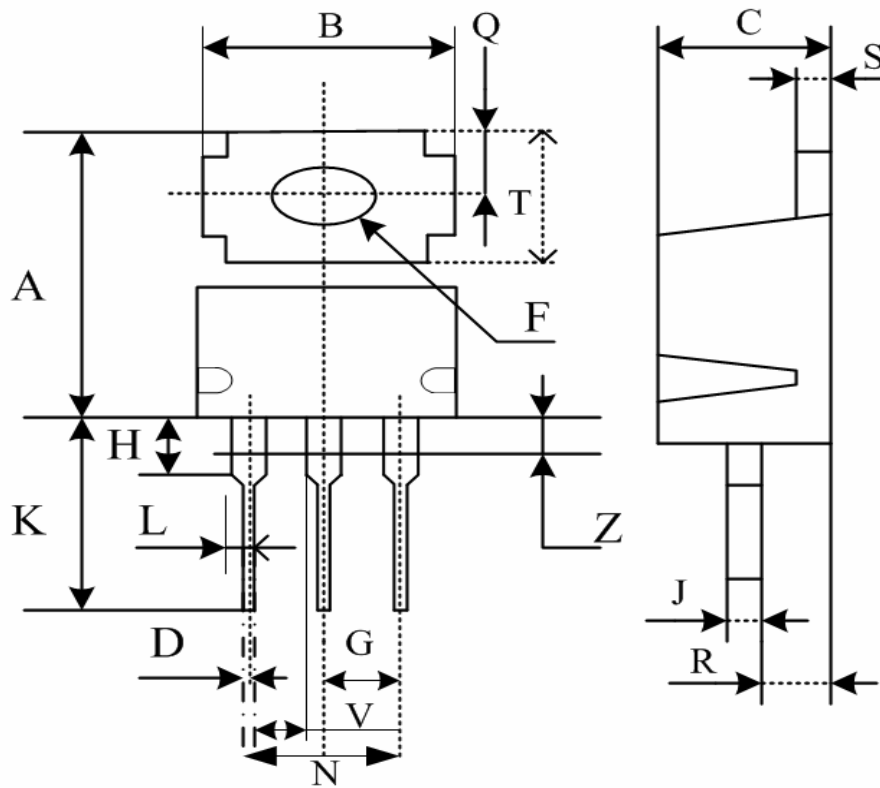
$$V_{out} = 1.25(1 + R_2/R_1) + I_{Adj}R_2$$

Since I_{Adj} is controlled to less than 100 μA , the error associated with this term is negligible in most applications.

* Pulse testing required. 1% Duty Cycle is suggested.

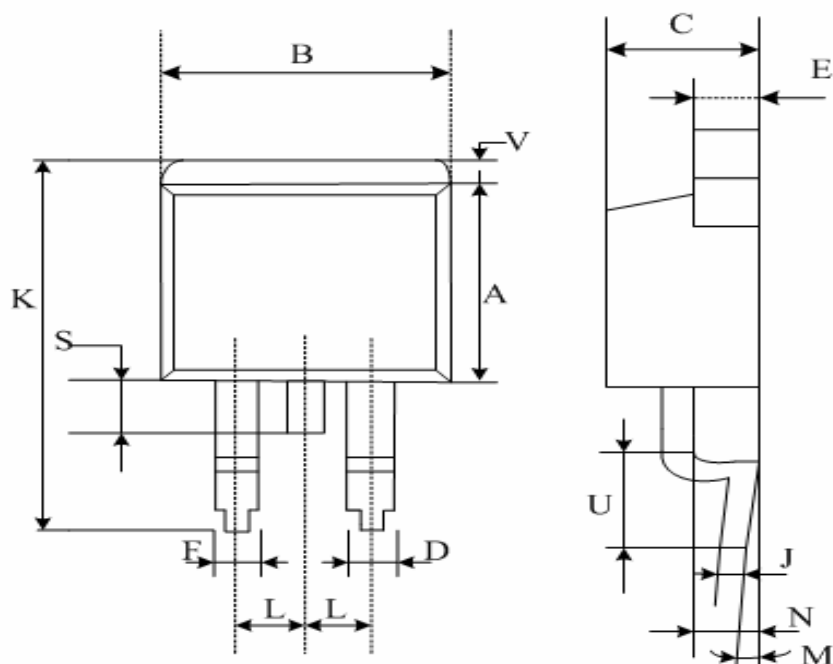
To calculate R_2 : $V_{out} = I_{SET}R_2 + 1.250V$; Assume $I_{SET} = 5.25mA$

Package Description



DIM	MILLIMETERS	
	MIN	MAX
A	14.97	16.24
B	9.66	10.28
C	4.07	4.82
D	0.64	0.88
F	3.61	3.73
G	2.42	2.66
H	2.80	3.93
J	0.48	0.67
K	12.70	14.27
L	1.20	1.63
N	4.83	5.33
Q	2.54	3.04
R	2.04	2.78
S	1.05	1.39
T	6.36	6.86
V	1.00	-
Z	-	2.04

Package Description (Continued)



DIM	MILLIMETERS	
	MIN	MAX
A	8.64	9.65
B	9.65	10.29
C	4.06	4.83
D	0.51	0.99
E	1.14	1.40
F	1.14	1.40
J	0.46	0.74
K	14.61	15.88
L	2.54	
M	0°	8°
N	2.03	2.79
S	1.27	1.78
U	2.29	2.79
V	1.02	1.40