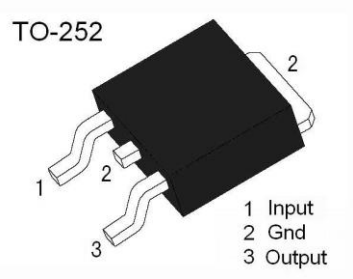
3-terminal 12V 1A positive voltage regulator

Description

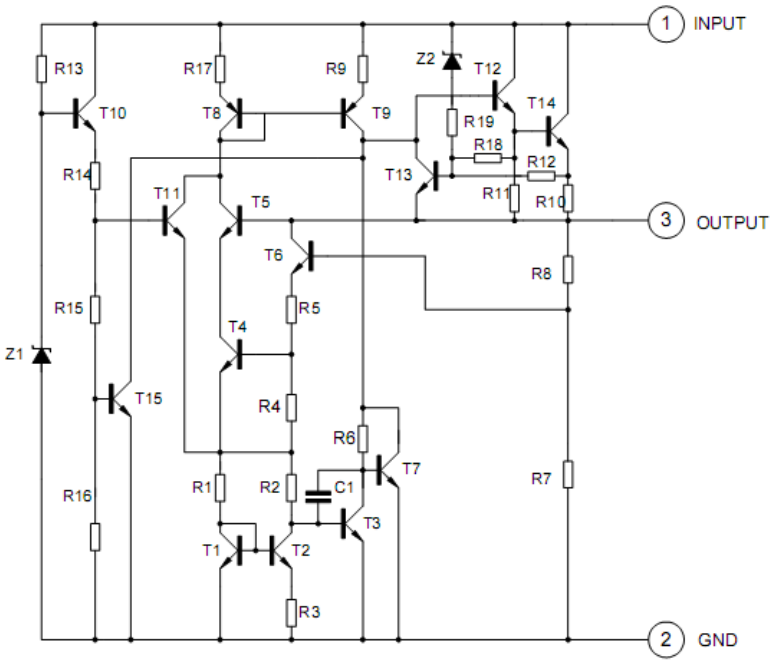
The 78M15 three-terminal positive regulators are available in the TO-252 package with several 9Vfixed output voltages making it useful in a wide range of applications.



Features

- Output Current up to 1A
- Output Voltages of 15V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating area (SOA)Protection

Equivalent Crcuit



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Input Voltage	V_{IN}	35	V
Out put Voltage	V_O	15	V
Thermal Resistance Junction-Cases	$R_{\theta JC}$	5	℃/W
Thermal Resistance Junction-Airs	$R_{\theta JA}$	92	℃/W
Operating Temperature Range	T_{OPR}	0 ~ + 125	℃
Storage Temperature Range	T_{STG}	-55 ~ + 150	℃

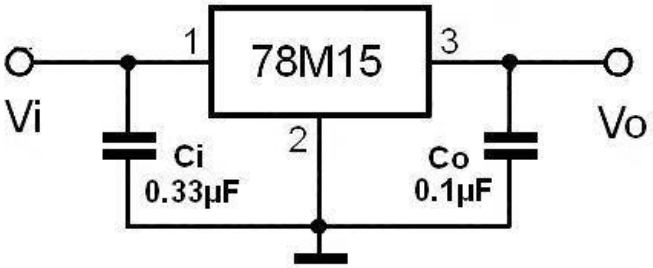
Electrical Characteristics

(V_I = 23V, I_O = 350mA,C_I = 0.33μF, C_O = 0.1μF, T_j= 0 to 125℃, unless otherwise specified)

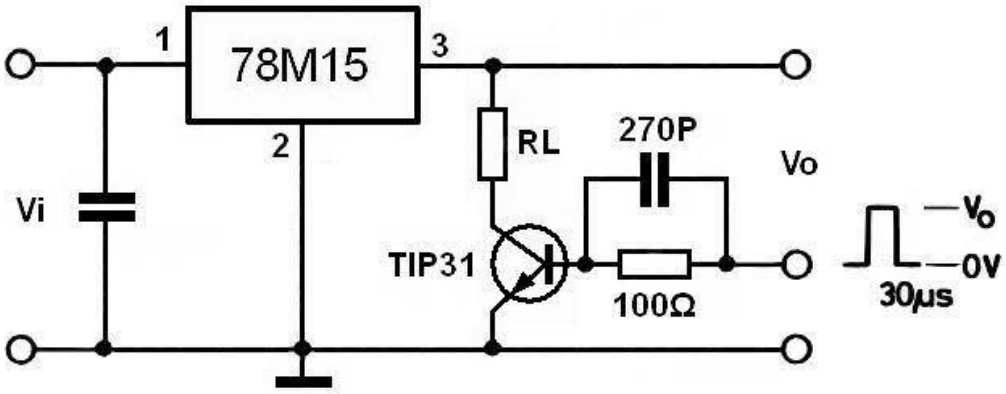
Parameter	Symbol	Conditions		Min	Typ	Max	Unit
Output Voltage	V_O	T_j = 25℃		14.4	15	15.6	V
		V_I = 17.5V ~ 30V I_O=5mA ~ 350mA		14.25	15	15.75	V
Line Regulation	ΔV_O	T_j = 25℃ I_O= 0.2A	V_I = 17.5V ~ 30V			120	mV
			V_I = 20V ~ 30V			60	
Load Regulation	ΔV_O	T_j = 25℃,	I_O= 5mA ~ 0.5A			300	mV
			I_O= 5mA ~ 0.2A			150	
Quiescent Current	I_Q	T_j = 25℃				6.0	mA
Quiescent Current Change	ΔI_Q	I_O=5mA ~ 0.35A				0.5	mA
		V_I = 17.5V ~ 30V				0.8	
Output Voltage Drift	$\Delta V / \Delta T$	I_O = 5mA			-1.0		mV/℃
Output Noise Voltage	V_N	$10H_Z \le f \le 100KH_Z$			100		$\mu V/V_O$
Ripple Rejection	RR	f = 120Hz, I_O = 300mA V_I = 18.5V ~ 28.5V		55	71		dB
Short Circuit Current	I_{SC}	T_j=25℃ , V_I= 35V			230		mA
Peak Out Current	I_{PK}	T_j=25℃			700		mA
Dropout Voltage	V_d	T_j=25℃, I_O=0.5A			2.0		V

Notes:
Load and line regulation are specified at constant, junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

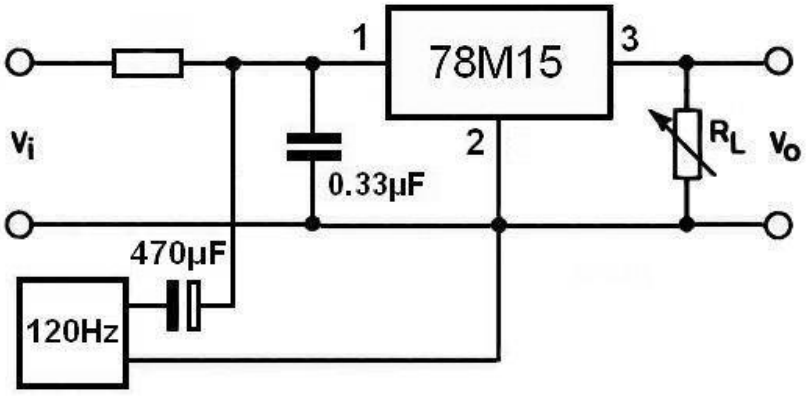
Test Circuits



DC Parameter

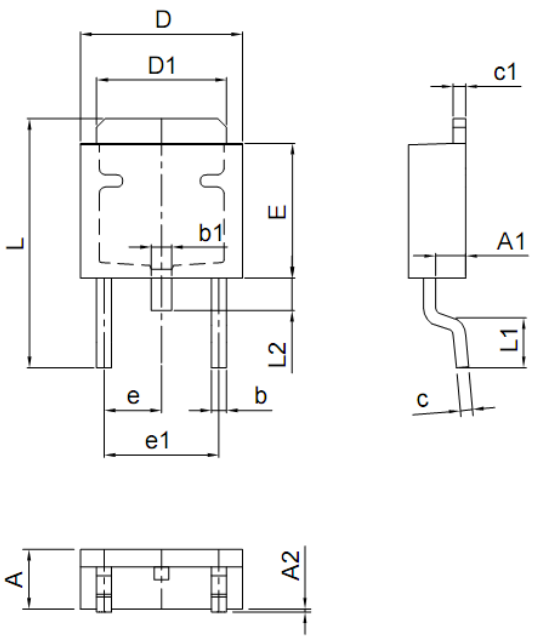


Load Regulation



Ripple Rejection

Package Dimensions



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.50	0.087	0.094
A1	1.00	1.40	0.039	0.055
A2	0.00	0.15	0.000	0.006
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
c1	0.40	0.60	0.016	0.024
D	6.20	6.70	0.244	0.264
D1	5.10	5.50	0.201	0.217
E	5.50	6.00	0.217	0.236
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	9.70	10.40	0.382	0.409
L1	1.40	1.70	0.055	0.063
L2	0.60	1.20	0.024	0.047