



**浩畅半导体**  
www.szhaochang.cn

**78M12** Three-terminal positive voltage regulator

TO-251/TO-252-2L Plastic-Encapsulate Regulators

产  
品  
规  
格  
书

承  
认  
书

客户确认：

公司签章：

部门	工程部	品保部	采购部
签名			
日期			

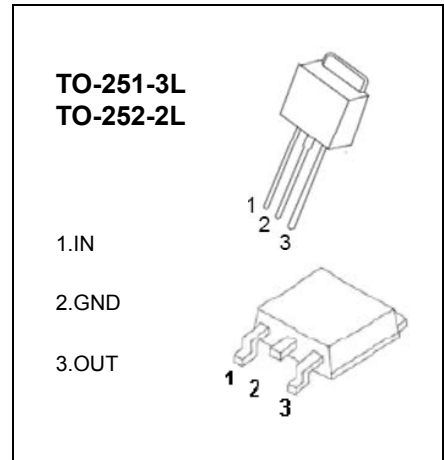


TO-251-3L/TO-252-2L Plastic-Encapsulate Regulators

**78M12** Three-terminal positive voltage regulator

**FEATURES**

- Maximum Output current  $I_{OM}$ : 0.5 A
- Output voltage  $V_O$ : 12V
- Continuous total dissipation
  - $P_D$ : 1.25 W ( $T_a = 25^\circ\text{C}$ )
  - 15 W ( $T_c = 25^\circ\text{C}$ )



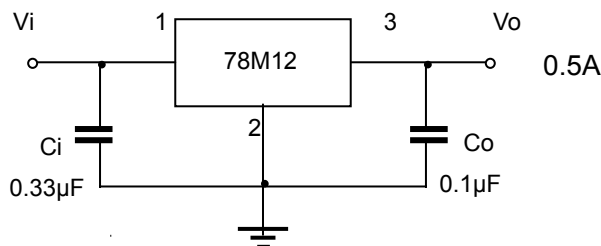
**ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)**

Parameter	Symbol	Value	Unit
Input Voltage	$V_i$	35	V
Operating Junction Temperature Range	$T_{OPR}$	0-+125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65-+150	$^\circ\text{C}$

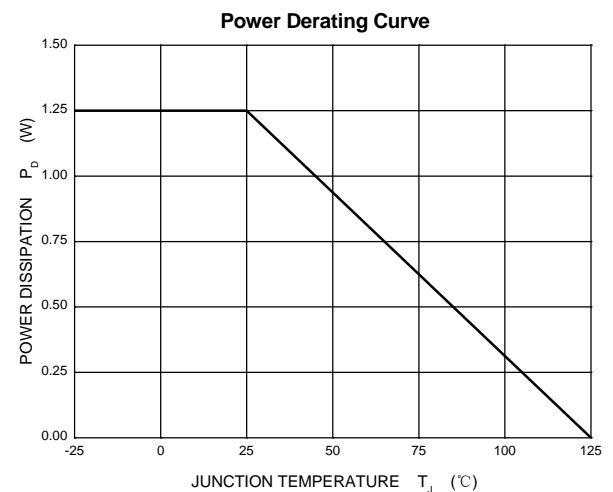
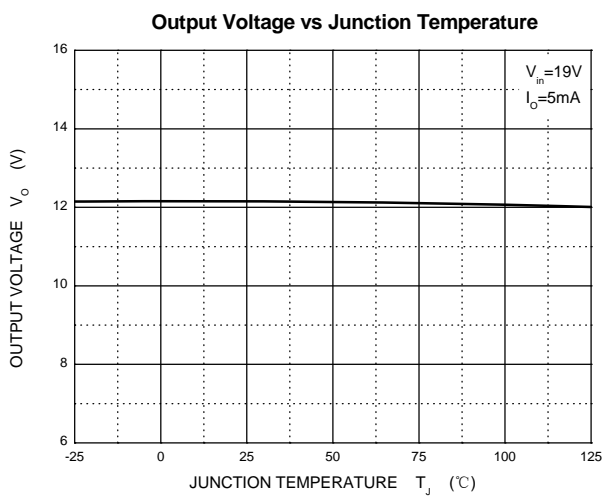
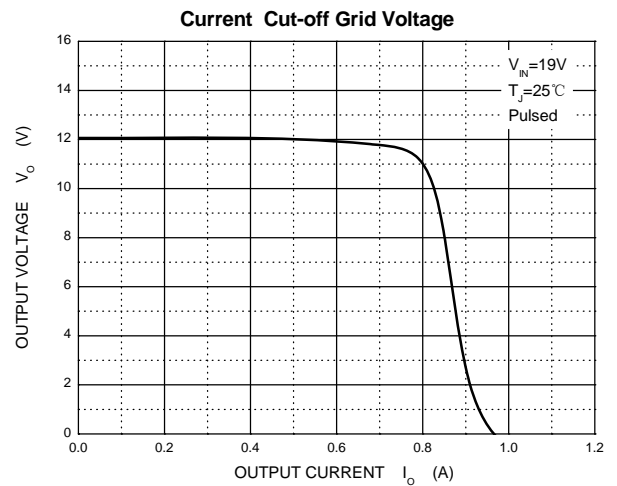
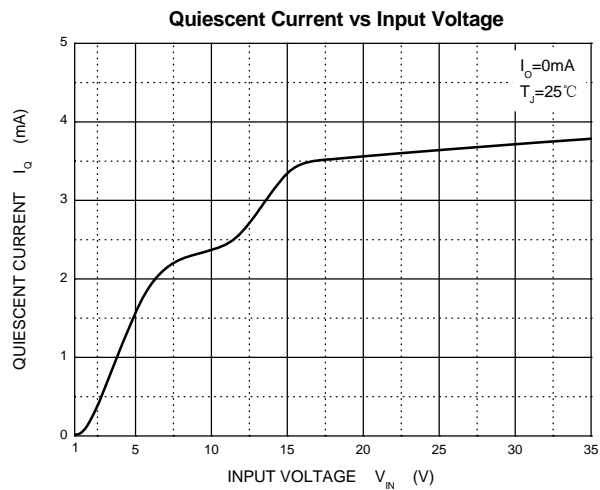
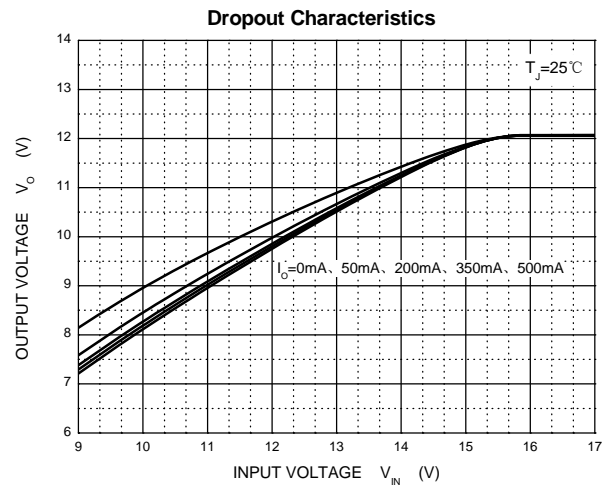
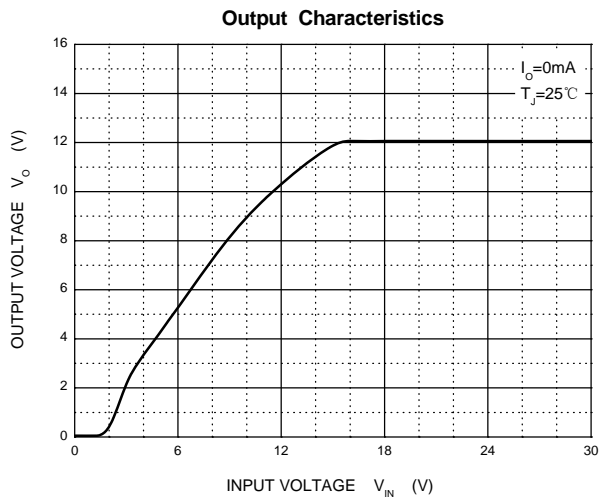
**ELECTRICAL CHARACTERISTICS ( $V_i=19\text{V}, I_o=350\text{mA}, C_i=0.33\mu\text{F}, C_o=0.1\mu\text{F}$ , unless otherwise specified )**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit	
Output Voltage	$V_o$		25 $^\circ\text{C}$	11.5	12	12.5	V
		$14.5\text{V} \leq V_i \leq 27\text{V}, I_o=5\text{mA}-350\text{mA}$ $P_o \leq 1.25\text{W}$	0-125 $^\circ\text{C}$	11.4	12	12.6	V
Load Regulation	$\Delta V_o$	$I_o=5\text{mA}-500\text{mA}$	25 $^\circ\text{C}$		25	240	mV
		$I_o=5\text{mA}-200\text{mA}$	25 $^\circ\text{C}$		10	120	mV
Line Regulation	$\Delta V_o$	$14.5\text{V} \leq V_i \leq 30\text{V}, I_o=200\text{mA}$	25 $^\circ\text{C}$		10	100	mV
		$16\text{V} \leq V_i \leq 30\text{V}, I_o=200\text{mA}$	25 $^\circ\text{C}$		3	50	mV
Quiescent Current	$I_q$		25 $^\circ\text{C}$		4.6	6	mA
Quiescent Current Change	$\Delta I_q$	$14.5\text{V} \leq V_i \leq 30\text{V}, I_o=200\text{mA}$	0-125 $^\circ\text{C}$			0.8	mA
	$\Delta I_q$	$5\text{mA} \leq I_o \leq 350\text{mA}$	0-125 $^\circ\text{C}$			0.5	mA
Output Noise Voltage	$V_N$	$10\text{Hz} \leq f \leq 100\text{KHz}$	25 $^\circ\text{C}$		75		$\mu\text{V}$
Ripple Rejection	RR	$15 \leq V_i \leq 25\text{V}, f=120\text{Hz}, I_o=300\text{mA}$	0-125 $^\circ\text{C}$	55	80		dB
Dropout Voltage	$V_d$	$I_o=350\text{mA}$	25 $^\circ\text{C}$		2		V
Short Circuit Current	$I_{sc}$	$V_i=19\text{V}$	25 $^\circ\text{C}$		240		mA
Peak Current	$I_{pk}$		25 $^\circ\text{C}$		0.7		A

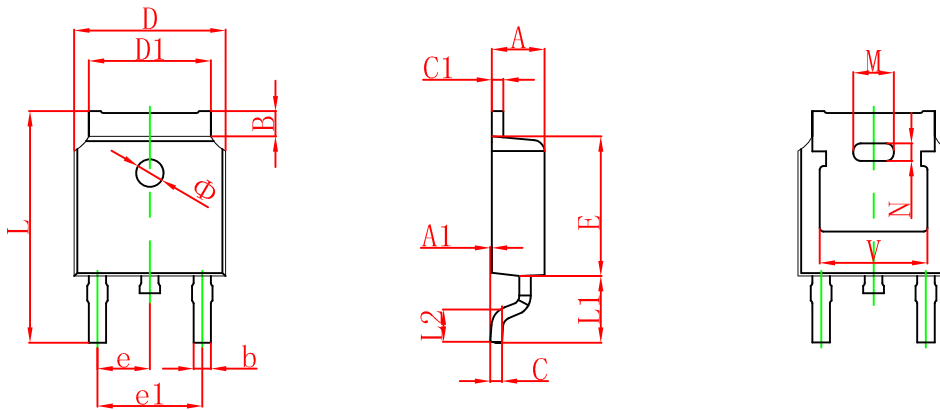
**TYPICAL APPLICATION**



# Typical Characteristics

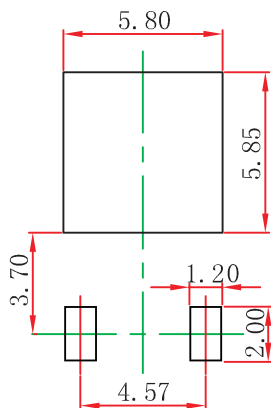


## TO-252(4R)-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.380	0.087	0.094
A1	0.000	0.100	0.000	0.004
B	0.800	1.400	0.031	0.055
b	0.710	0.810	0.028	0.032
c	0.460	0.560	0.018	0.022
c1	0.460	0.560	0.018	0.022
D	6.500	6.700	0.256	0.264
D1	5.130	5.460	0.202	0.215
E	6.000	6.200	0.236	0.244
e	2.286 TYP.		0.090 TYP.	
e1	4.327	4.727	0.170	0.186
M	1.778REF.		0.070REF.	
N	0.762REF.		0.018REF.	
L	9.800	10.400	0.386	0.409
L1	2.9REF.		0.114REF.	
L2	1.400	1.700	0.055	0.067
V	4.830 REF.		0.190 REF.	
Φ	1.100	1.300	0.043	0.051

## TO-252(4R)-2L Suggested Pad Layout



### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$  mm.
3. The pad layout is for reference purposes only.