

# SOT-89 Plastic-Encapsulate Voltage Regulators

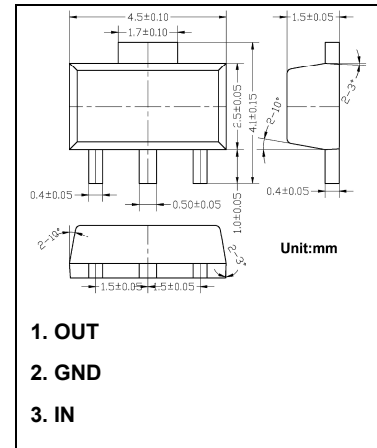
## 78L12

Three-terminal positive voltage regulator

### Features:

- Maximum Output current  $I_o$ : 0.1A
- Output voltage  $V_o$ : 12V
- Continuous total dissipation  
 $P_D$ : 0.6W ( $T_a = 25^\circ\text{C}$ )

Marking: 78L12



### Absolute Maximum Ratings (Operating temperature range applies unless otherwise specified)

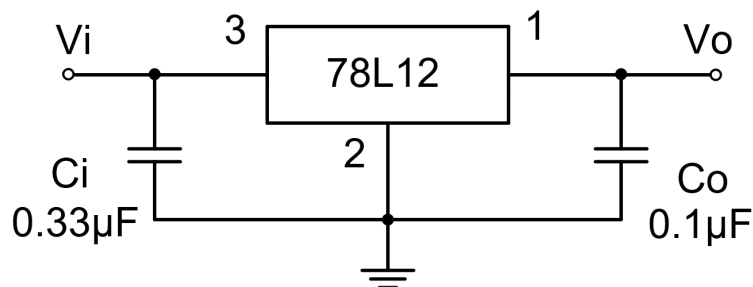
Symbol	Parameter	Value	Unit
$V_i$	Input Voltage	30	V
$T_{OPR}$	Operating Junction Temperature Range	-25 to +150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to +150	$^\circ\text{C}$

### Electrical Characteristics at Specified Virtual Junction Temperature

( $V_i=19\text{V}$ ,  $I_o=40\text{mA}$ ,  $C_i=0.33\mu\text{F}$ ,  $C_o=0.1\mu\text{F}$ , unless otherwise specified)

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit	
$V_o$	Output Voltage	$25^\circ\text{C}$	11.5	12	12.5	V	
		0-125 $^\circ\text{C}$	$14\text{V} \leq V_i \leq 27\text{V}$ , $I_o=1\text{mA}-40\text{mA}$	11.4	12	12.6	V
			$I_o=1\text{mA}-70\text{mA}$	11.4	12	12.6	V
$\Delta V_o$	Load Regulation	$I_o=1\text{mA}-100\text{mA}$ , $25^\circ\text{C}$		22	100	mV	
		$I_o=1\text{mA}-40\text{mA}$ , $25^\circ\text{C}$		13	50	mV	
$\Delta V_o$	Line Regulation	$14\text{V} \leq V_i \leq 27\text{V}$ , $25^\circ\text{C}$		55	250	mV	
		$16\text{V} \leq V_i \leq 27\text{V}$ , $25^\circ\text{C}$		49	200	mV	
$I_q$	Quiescent Current	$25^\circ\text{C}$		4.3	6.5	mA	
$\Delta I_q$	Quiescent Current Change	$16\text{V} \leq V_i \leq 27\text{V}$ , 0-125 $^\circ\text{C}$			1.5	mA	
		$1\text{mA} \leq I_o \leq 40\text{mA}$ , 0-125 $^\circ\text{C}$			0.1	mA	
$V_N$	Output Noise Voltage	$f = 10\text{Hz to } 100\text{KHz}$ , $25^\circ\text{C}$		70		$\mu\text{V}$	
$RR$	Ripple Rejection	$f = 120\text{Hz}$ , $15\text{V} \leq V_i \leq 25\text{V}$ , 0-125 $^\circ\text{C}$	37	42		dB	
$V_d$	Dropout Voltage	$25^\circ\text{C}$		1.7		V	

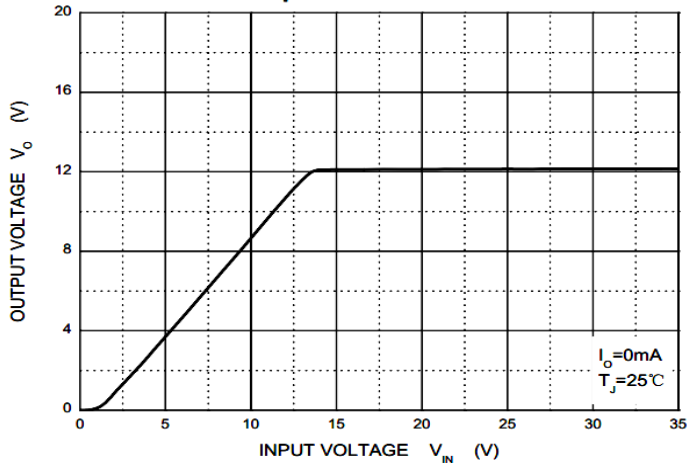
### Typical Application



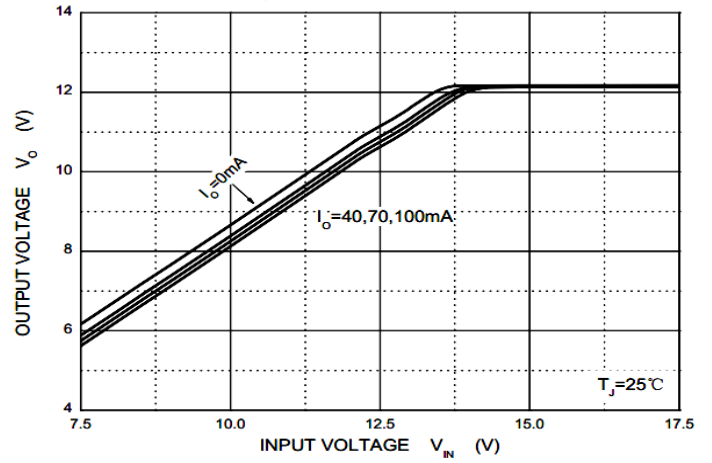
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as Possible to the regulators.

# Typical Characteristics

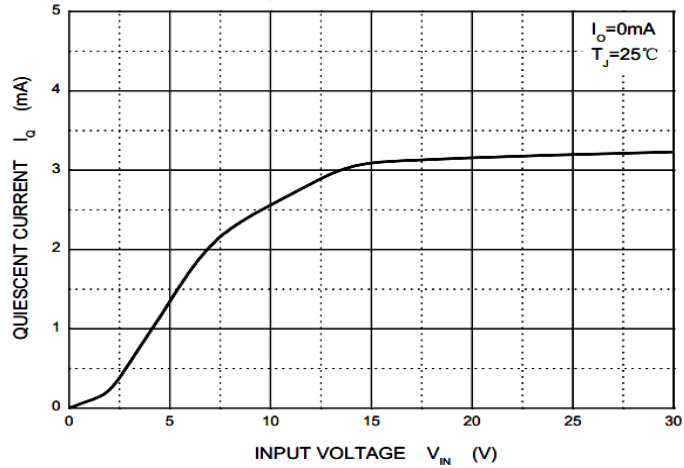
## Output Characteristics



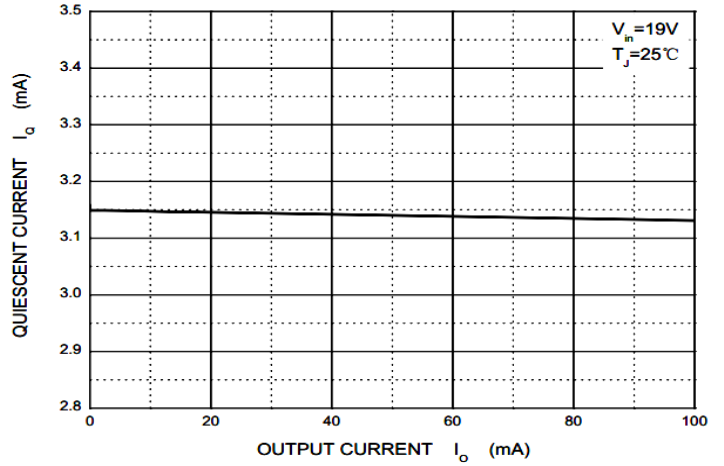
## Dropout Characteristics



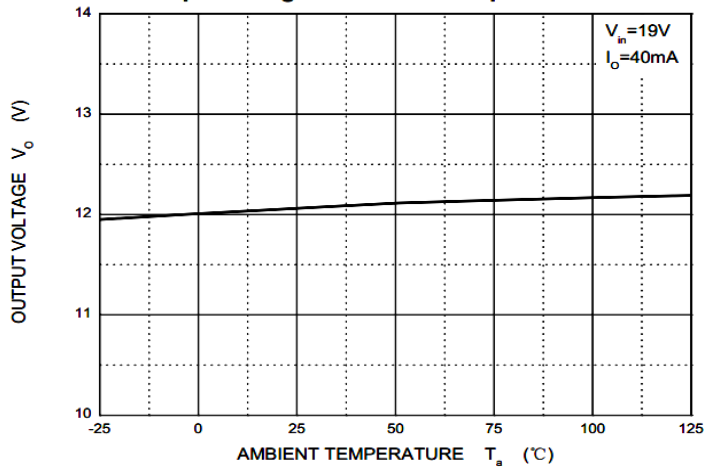
## Quiescent Current



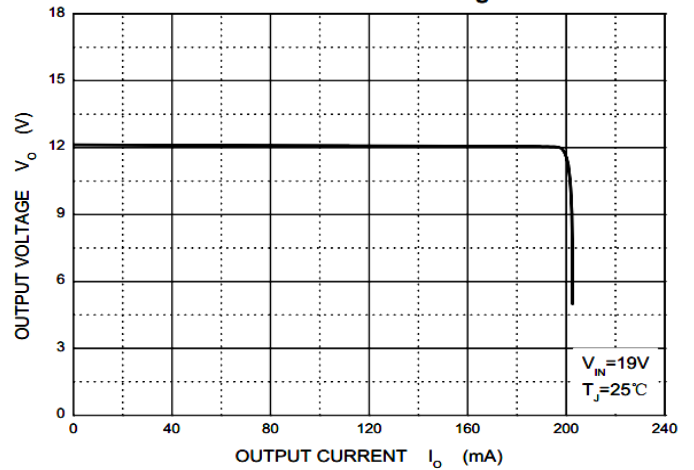
## Quiescent Current vs Output Current



## Output Voltage vs Ambient Temperature



## Current Cut-off Grid Voltage



## Power Derating Curve

