

# SOT-89 Plastic-Encapsulate Voltage Regulators

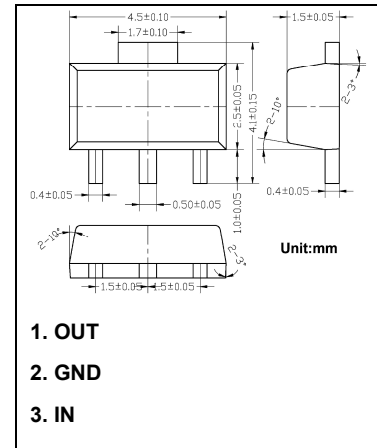
## 78L12

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 ( $T_a = 25^\circ C$ )

**Marking:** 78L12



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

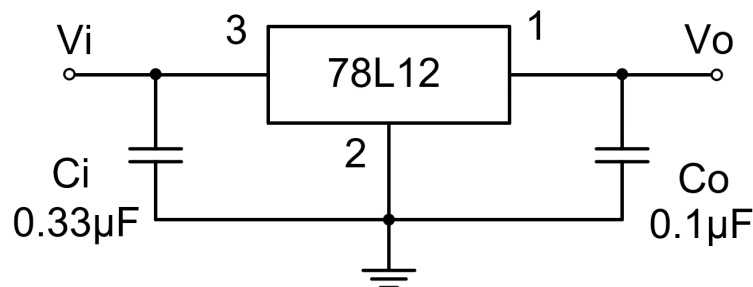
Symbol	Parameter	Value	Unit
$V_i$	Input Voltage	30	V
$T_{OPR}$	Operating Junction Temperature Range	-40 to +125	$^\circ C$
$T_{STG}$	Storage Temperature Range	-55 to +150	$^\circ C$

### Electrical Characteristics at Specified Virtual Junction Temperature

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

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

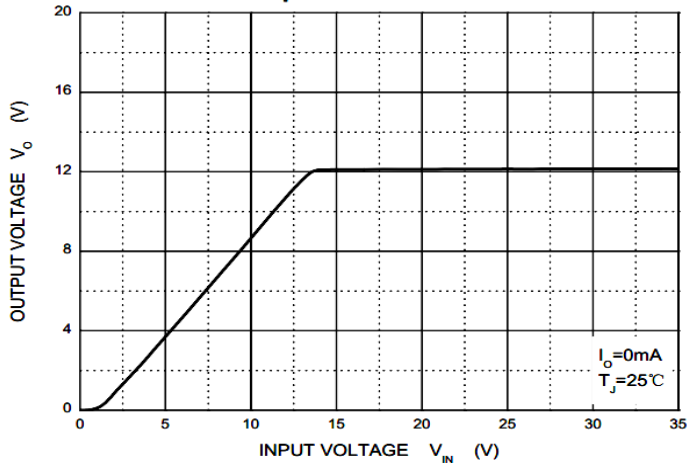
### Typical Application



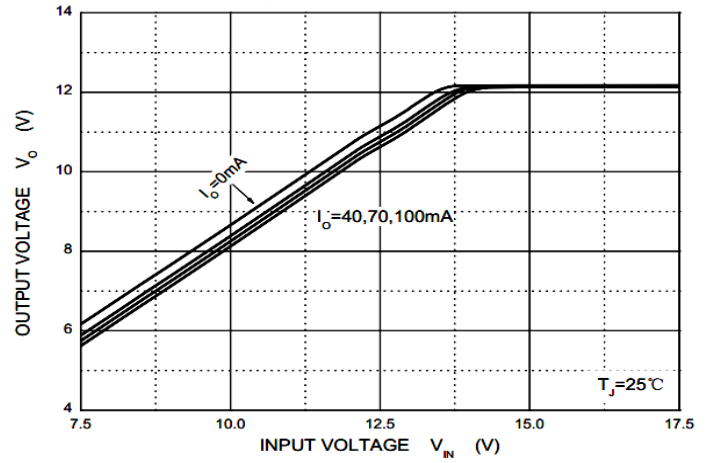
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as Possible to the regulators.

# Typical Characteristics

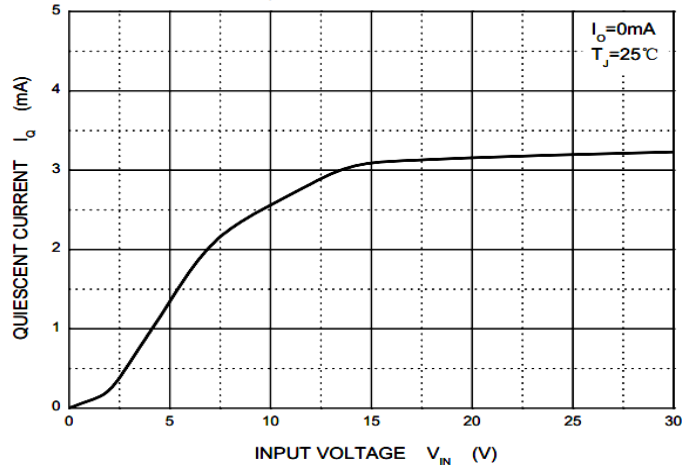
## Output Characteristics



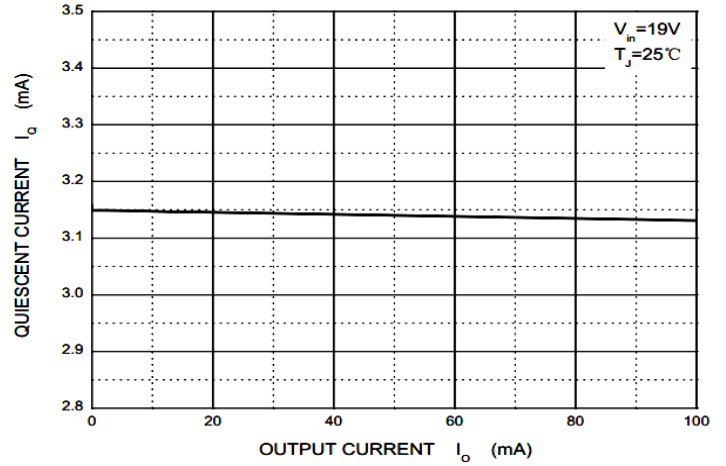
## Dropout Characteristics



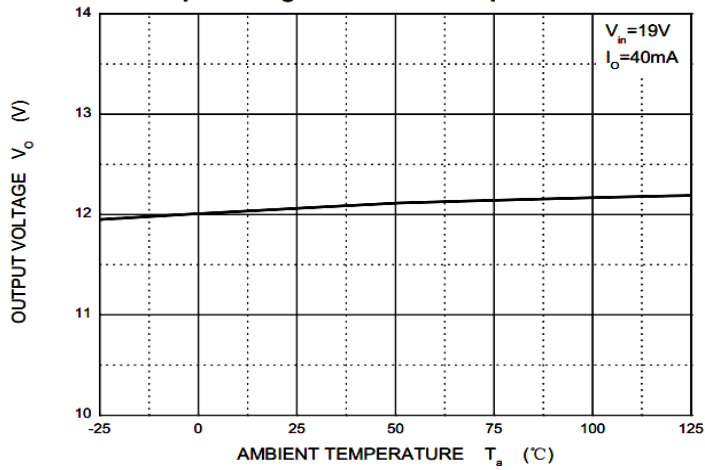
## Quiescent Current



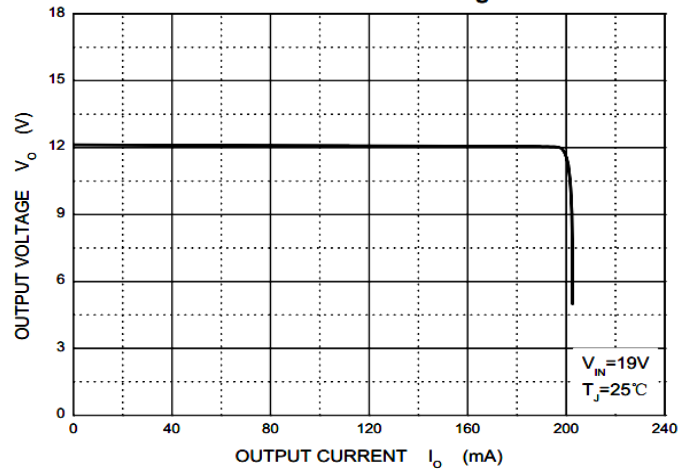
## Quiescent Current vs Output Current



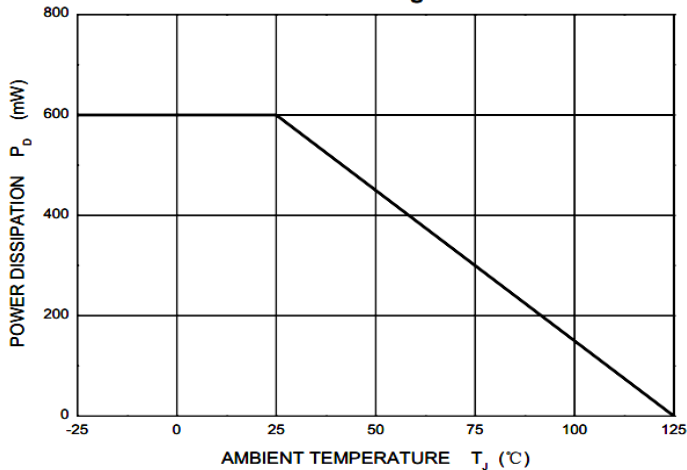
## Output Voltage vs Ambient Temperature



## Current Cut-off Grid Voltage



## Power Derating Curve



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