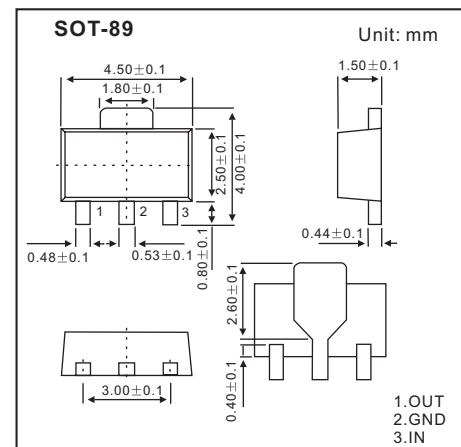


## Three-Terminal Positive Voltage Regulator

## LM78L10

## ■ Features

- Maximum Output current  $I_o$ : 0.1A
- Output Voltage  $V_o$ : 10V
- Continuous Total Dissipation  $P_D$ : 0.5W ( $T_a = 25^\circ\text{C}$ )



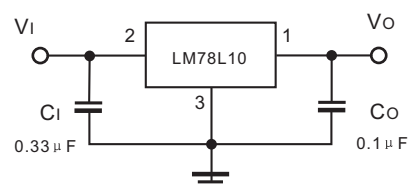
## ■ Absolute Maximum Ratings (Operating temperature range applies unless otherwise specified)

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

■ Electrical Characteristics ( $V_i=17\text{V}$ ,  $I_o=40\text{mA}$ ,  $C_i=0.33\ \mu\text{F}$ ,  $C_o=0.1\ \mu\text{F}$ , unless otherwise specified)

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Output Voltage	$V_o$	$T_J = 25^\circ\text{C}$	9.6	10	10.4	V
		$T_J = 0 \sim 125^\circ\text{C}$ , $13\text{V} \leq V_i \leq 25\text{V}$ , $I_o = 1\text{mA} \sim 40\text{mA}$	9.5	10	10.5	V
		$T_J = 0 \sim 125^\circ\text{C}$ , $I_o = 1\text{mA} \sim 70\text{mA}$	9.5	10	10.5	V
Load Regulation	$\Delta V_o$	$T_J = 25^\circ\text{C}$ , $I_o = 1\text{mA} \sim 100\text{mA}$		20	90	mV
		$T_J = 25^\circ\text{C}$ , $I_o = 1\text{mA} \sim 40\text{mA}$		11	40	mV
Line Regulation	$\Delta V_o$	$T_J = 25^\circ\text{C}$ , $13\text{V} \leq V_i \leq 25\text{V}$		51	175	mV
		$T_J = 25^\circ\text{C}$ , $14\text{V} \leq V_i \leq 25\text{V}$		42	125	mV
Quiescent Current	$I_q$	$T_J = 25^\circ\text{C}$		4.2	6.0	mA
Quiescent current Change	$\Delta I_q$	$T_J = 0 \sim 125^\circ\text{C}$ , $14\text{V} \leq V_i \leq 25\text{V}$			1.5	mA
		$T_J = 0 \sim 125^\circ\text{C}$ , $1\text{mA} \leq I_o \leq 40\text{mA}$			0.1	mA
Output Noise Voltage	$V_N$	$T_J = 25^\circ\text{C}$ , $10\text{Hz} \leq f \leq 100\text{KHz}$		62		$\mu\text{V}$
Ripple Rejection	RR	$T_J = 0 \sim 125^\circ\text{C}$ , $15\text{V} \leq V_i \leq 25\text{V}$ , $f = 120\text{Hz}$	37	44		dB
Dropout Voltage	$V_D$	$T_J = 25^\circ\text{C}$		1.7		V

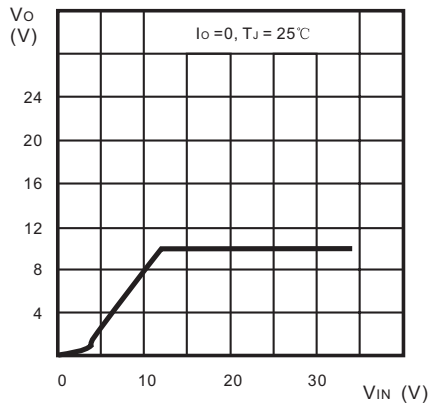
## ■ Typical Application



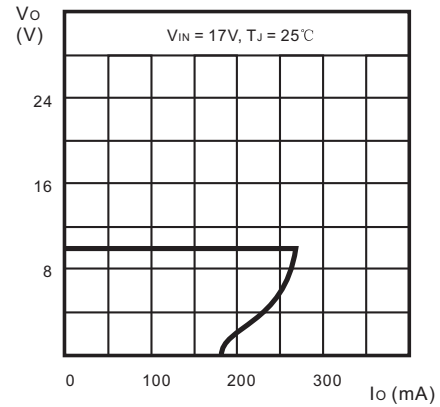
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

# LM78L10

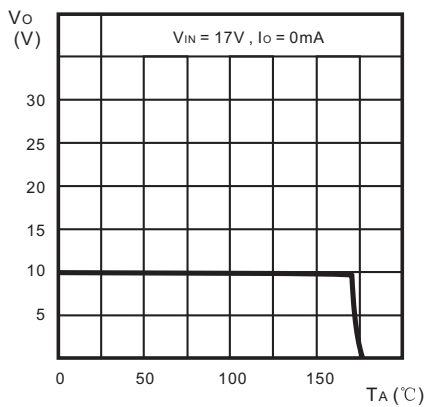
## ■ Typical Characteristics



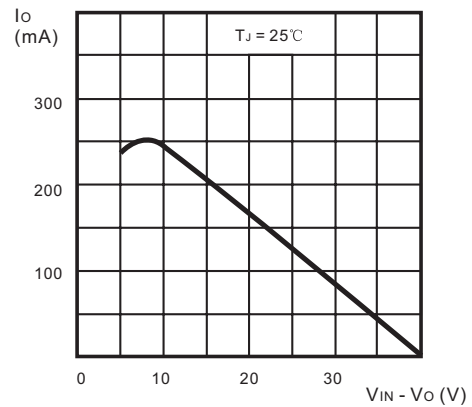
Output Characteristics



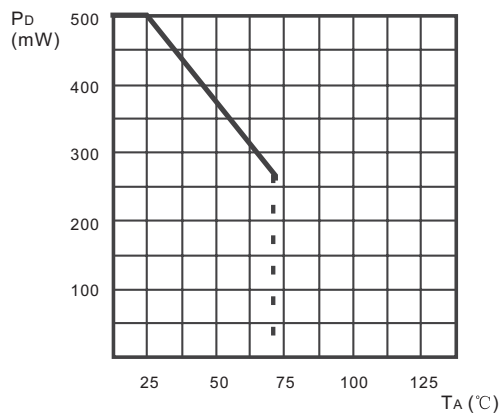
Load Characteristics



Thermal Shutdown



Short Circuit Output Current



Power Dissipation vs. Ambient Temperature