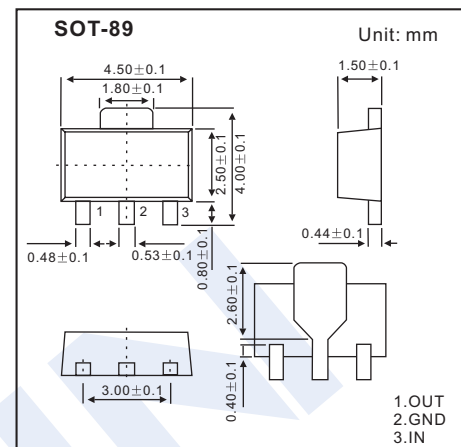


Three-Terminal Positive Voltage Regulator

LM78L15



■ Features

- Maximum Output current I_o : 0.1A
- Output Voltage V_o : 15V
- Continuous Total Dissipation P_d : 0.5W ($T_a = 25^\circ\text{C}$)

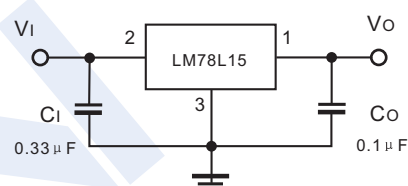
■ Absolute Maximum Ratings (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Rating	Unit
Input Voltage	V_i	35	V
Operating Junction Temperature Range	T_{opr}	-55 ~ +125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 ~ +150	$^\circ\text{C}$

■ Electrical Characteristics ($V_i=23\text{V}$, $I_o=40\text{mA}$, $C_i=0.33\ \mu\text{F}$, $C_o=0.1\ \mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	V_o	$T_J = 25^\circ\text{C}$	14.4	15	15.6	V
		$T_J = 0 \sim 125^\circ\text{C}$, $17.5\text{V} \leq V_i \leq 30\text{V}$, $I_o = 1\text{mA} \sim 40\text{mA}$	14.25	15	15.75	V
		$T_J = 0 \sim 125^\circ\text{C}$, $V_i = 23\text{V}$, $I_o = 1\text{mA} \sim 70\text{mA}$	14.25	15	15.75	V
Load Regulation	ΔV_o	$T_J = 25^\circ\text{C}$, $V_i = 23\text{V}$, $I_o = 1\text{mA} \sim 100\text{mA}$		25	150	mV
		$T_J = 25^\circ\text{C}$, $V_i = 23\text{V}$, $I_o = 1\text{mA} \sim 40\text{mA}$		15	75	mV
Line Regulation	ΔV_o	$T_J = 25^\circ\text{C}$, $17.5\text{V} \leq V_i \leq 30\text{V}$, $I_o = 40\text{mA}$		65	300	mV
		$T_J = 25^\circ\text{C}$, $19\text{V} \leq V_i \leq 30\text{V}$, $I_o = 40\text{mA}$		58	250	mV
Quiescent Current	I_q	$T_J = 25^\circ\text{C}$		4.6	6.5	mA
Quiescent current Change	ΔI_q	$T_J = 0 \sim 125^\circ\text{C}$, $19\text{V} \leq V_i \leq 30\text{V}$, $I_o = 40\text{mA}$			1.5	mA
		$T_J = 0 \sim 125^\circ\text{C}$, $V_i = 23\text{V}$, $1\text{mA} \leq I_o \leq 40\text{mA}$			0.1	mA
Output Noise Voltage	V_N	$T_J = 25^\circ\text{C}$, $10\text{Hz} \leq f \leq 100\text{kHz}$		82		μV
Ripple Rejection	RR	$T_J = 0 \sim 125^\circ\text{C}$, $18.5\text{V} \leq V_i \leq 28.5\text{V}$, $f = 120\text{Hz}$	34	39		dB
Dropout Voltage	V_D	$T_J = 25^\circ\text{C}$		1.7		V

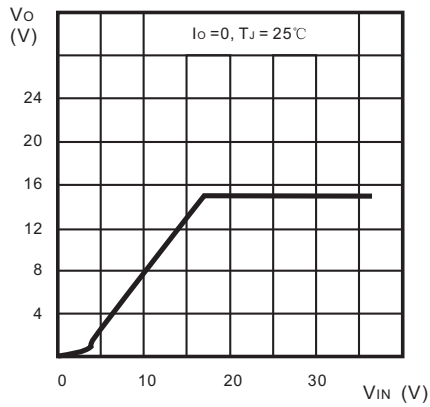
■ Typical Application



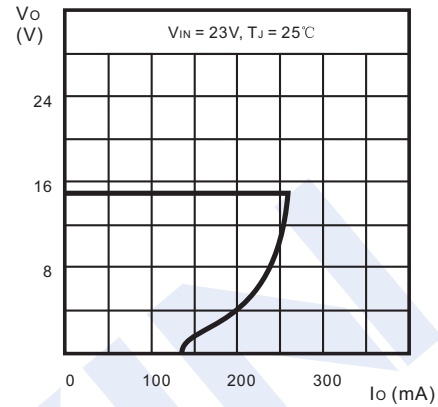
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

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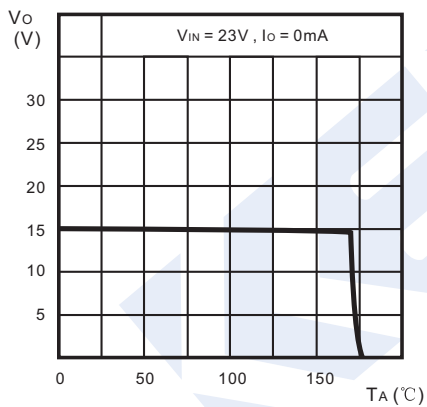
■ Typical Characteristics



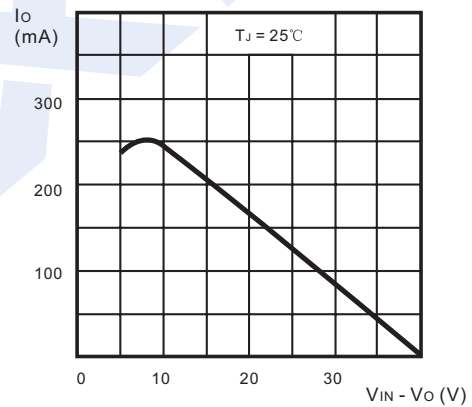
Output Characteristics



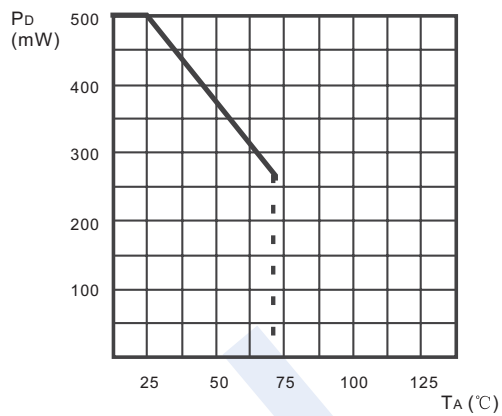
Load Characteristics



Thermal Shutdown



Short Circuit Output Current



Power Dissipation vs. Ambient Temperature