

# 78L09 Three-terminal positive voltage regulator

## FEATURES

**Maximum Output current**

$I_{OM}$ : 0.1 A

**Output voltage**

$V_o$ : 9 V

**Continuous total dissipation**

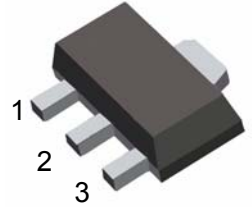
$P_D$ : 0.5 W

## SOT-89

1.OUT

2.GND

3.IN



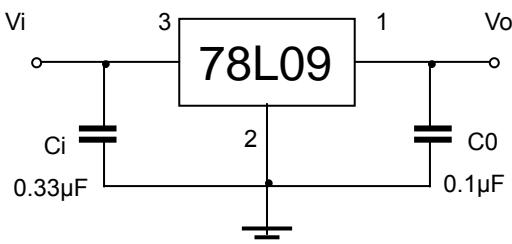
## ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value	Unit
Input Voltage	$V_i$	30	V
Operating Junction Temperature Range	$T_{OPR}$	0-+125	°C
Storage Temperature Range	$T_{STG}$	-55-+150	°C

## ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ( $V_i=16V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$ , unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Output voltage	$V_o$	25°C	8.64	9.0	9.36	V
		12V ≤ $V_i$ ≤ 24V, $I_o=1mA-40mA$	8.55	9.0	9.45	V
		$I_o=1mA-70mA$	8.55	9.0	9.45	V
Load Regulation	$\Delta V_o$	$I_o=1mA-100mA$		19	90	mV
		$I_o=1mA-40mA$		11	40	mV
Line regulation	$\Delta V_o$	12V ≤ $V_i$ ≤ 24V		45	175	mV
		13V ≤ $V_i$ ≤ 24V		40	125	mV
Quiescent Current	$I_q$	25°C		4.1	6.0	mA
Quiescent Current Change	$\Delta I_q$	13V ≤ $V_i$ ≤ 24V			1.5	mA
	$\Delta I_q$	1mA ≤ $I_o$ ≤ 40mA			0.1	mA
Output Noise Voltage	$V_N$	10Hz ≤ $f$ ≤ 100KHz		58		uV
Ripple Rejection	RR	15V ≤ $V_i$ ≤ 25V, $f=120Hz$		45		dB
Dropout Voltage	$V_d$	25°C		1.7		V

## TYPICAL APPLICATION

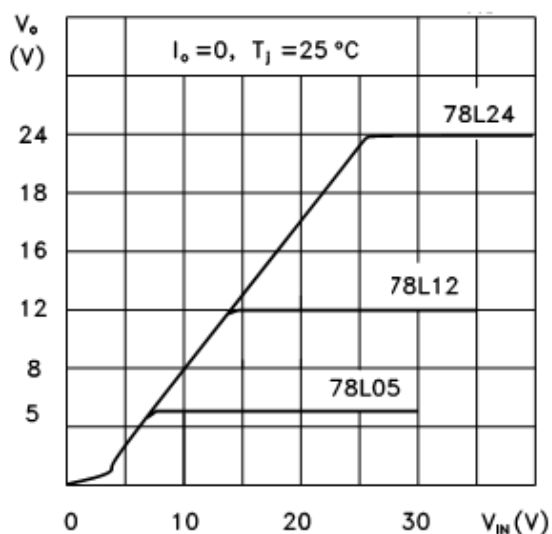


Note : Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

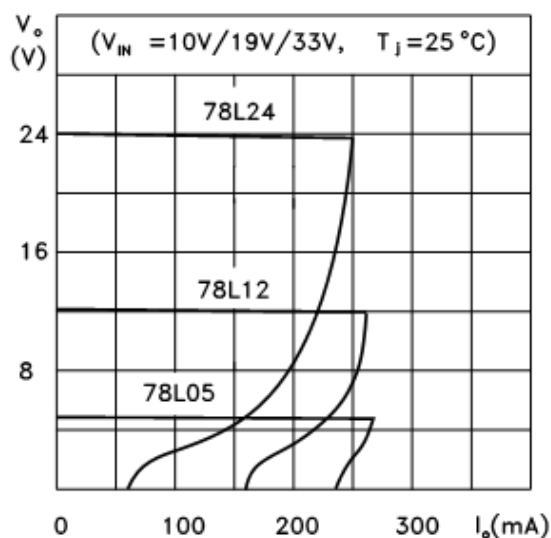
# Typical Characteristics

78L09

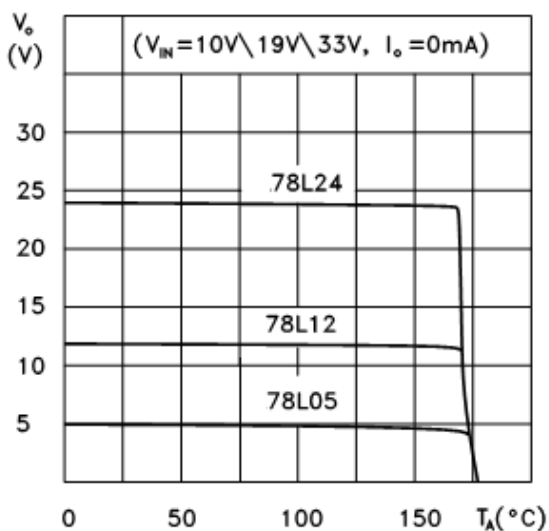
78L05/12/24 Output Characteristics



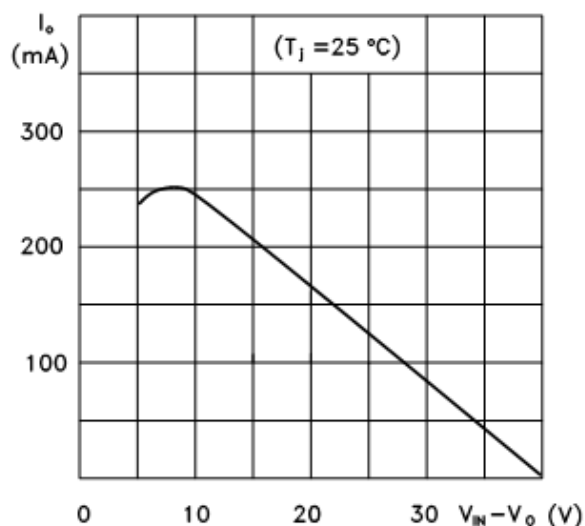
78L05/12/24 Load Characteristics



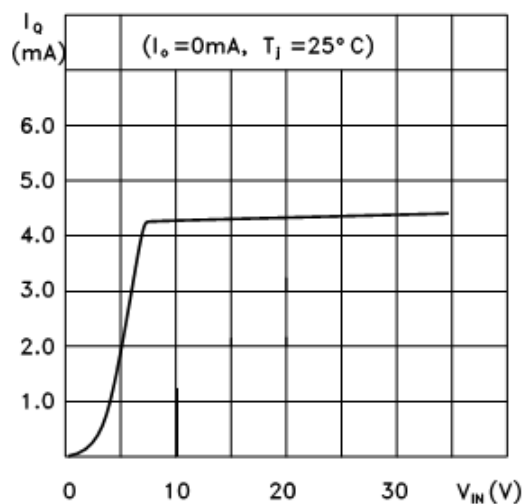
78L05/12/24 Thermal Shutdown



78L00 Series Short Circuit Output Current



78L05 Quiescent Current vs Input Voltage



PD-TA

