

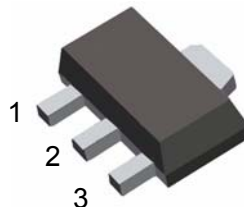
THREE-TERMINAL POSITIVE VOLTAGE REGULATOR

FEATURES

Maximum Output current
 $I_{OM}: 0.1 \text{ A}$
 Output voltage
 $V_o: 8 \text{ V}$
 Continuous total dissipation
 $P_D: 0.5 \text{ W}$

SOT-89

1. OUT
2. GND
3. IN



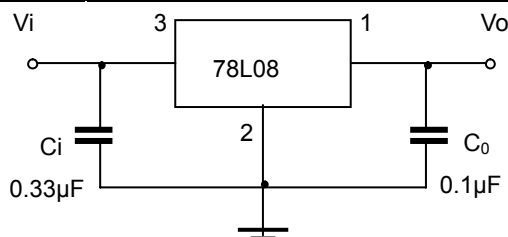
ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value	Units
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 ($V_i=14\text{V}$, $I_o=40\text{mA}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT	
Output voltage	V_o		25°C	7.7	8.0	8.3	V
		$10.5\text{V} \leq V_i \leq 23\text{V}$, $I_o=1\text{mA} \sim 40\text{mA}$	0-125°C	7.6	8.0	8.4	V
		$I_o=1\text{mA} \sim 70\text{mA}$		7.6	8.0	8.4	V
Load Regulation	ΔV_o	$I_o=1\text{mA} \sim 100\text{mA}$	25°C		18	80	mV
		$I_o=1\text{mA} \sim 40\text{mA}$	25°C		10	40	mV
Line regulation	ΔV_o	$10.5\text{V} \leq V_i \leq 23\text{V}$	25°C		42	175	mV
		$11\text{V} \leq V_i \leq 23\text{V}$	25°C		36	125	mV
Quiescent Current	I_q		25°C		4	6	mA
Quiescent Current Change	ΔI_q	$11\text{V} \leq V_i \leq 23\text{V}$	0-125°C			1.5	mA
	ΔI_q	$1\text{mA} \leq I_o \leq 40\text{mA}$	0-125°C			0.1	mA
Output Noise Voltage	V_N	$10\text{Hz} \leq f \leq 100\text{KHz}$	25°C		54		uV
Ripple Rejection	RR	$13\text{V} \leq V_i \leq 23\text{V}$, $f=120\text{Hz}$	0-125°C	37	46		dB
Dropout Voltage	V_d		25°C		1.7		V

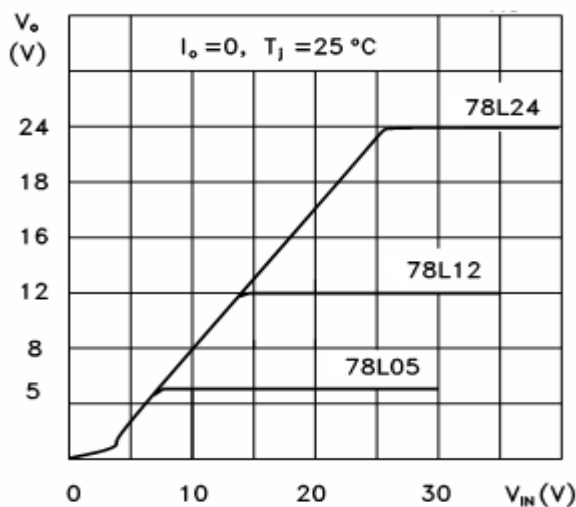
TYPICAL APPLICATION



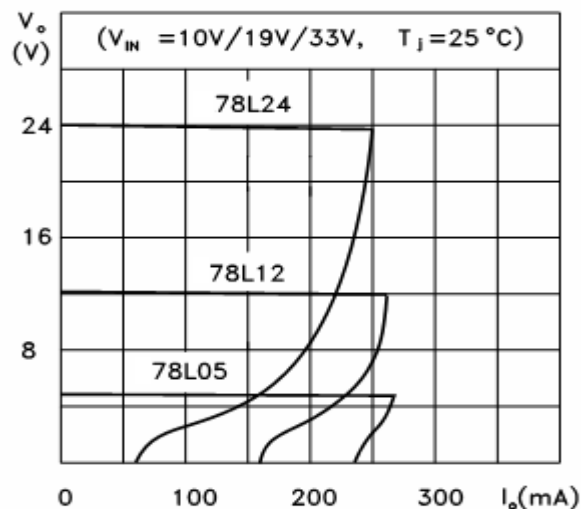
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

Typical Characteristics

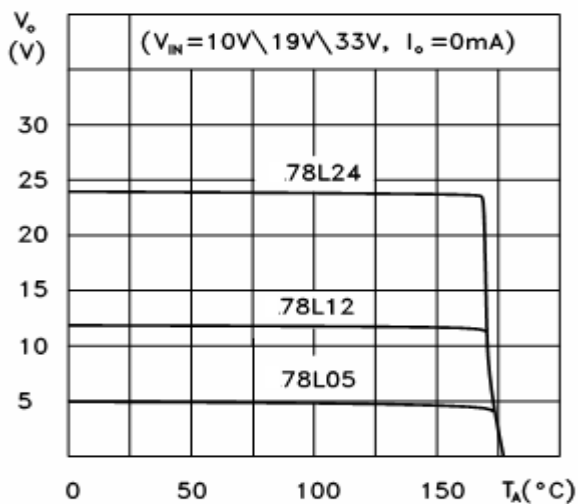
78L05/12/24 Output Characteristics



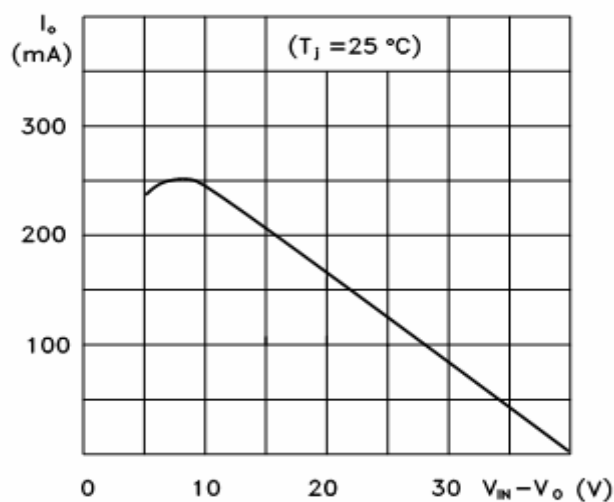
78L05/12/24 Load Characteristics



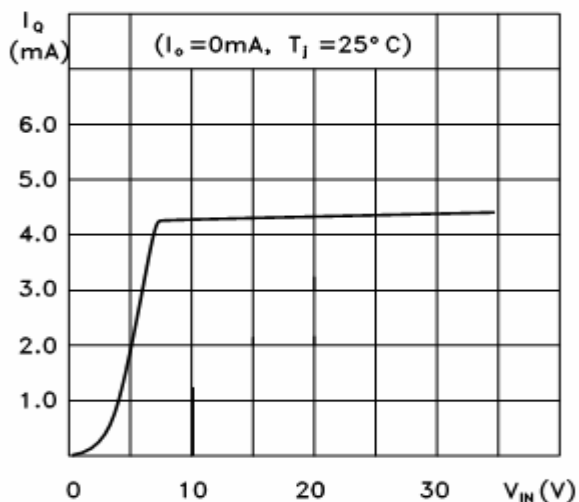
78L05/12/24 Thermal Shutdown



78L00 Series Short Circuit Output Current



78L05 Quiescent Current vs Input Voltage



Power dissipation vs ambient temperature

