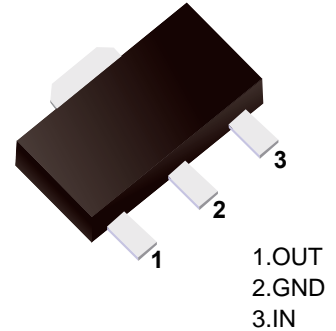


78L05

Three-Terminal Positive Voltage Regulator

Features

- Maximum Output current I_o : 0.1A
- Output Voltage V_o : 5V
- Continuous Total Dissipation P_d : 0.5W ($T_a = 25^\circ\text{C}$)



Simplified outline(SOT-89)

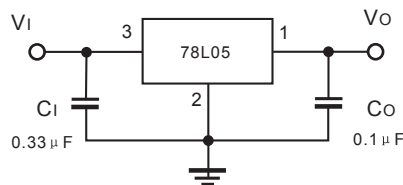
Absolute Maximum Ratings (Operating temperature range applies unless otherwise specified)

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 ($V_i=10\text{V}$, $I_o=40\text{mA}$, $C_i=0.33\ \mu\text{F}$, $C_o=0.1\ \mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	V_o	$T_J = 25^\circ\text{C}$	4.8	5.0	5.2	V
		$T_J = 0\sim 125^\circ\text{C}$, $7\text{V} \leq V_i \leq 20\text{V}$, $I_o=1\text{mA}\sim 40\text{mA}$	4.75	5.0	5.25	V
		$T_J = 0\sim 125^\circ\text{C}$, $I_o=1\text{mA}\sim 70\text{mA}$	4.75	5.0	5.25	V
Load Regulation	ΔV_o	$T_J = 25^\circ\text{C}$, $I_o=1\text{mA}\sim 100\text{mA}$		15	60	mV
		$T_J = 25^\circ\text{C}$, $I_o=1\text{mA}\sim 40\text{mA}$		8	30	mV
Line Regulation	ΔV_o	$7\text{V} \leq V_i \leq 20\text{V}$		32	150	mV
		$T_J = 25^\circ\text{C}$, $8\text{V} \leq V_i \leq 20\text{V}$		26	100	mV
Quiescent Current	I_q	$T_J = 25^\circ\text{C}$		3.8	6	mA
Quiescent current Change	ΔI_q	$T_J = 0\sim 125^\circ\text{C}$, $8\text{V} \leq V_i \leq 20\text{V}$			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	$T_J = 25^\circ\text{C}$, $10\text{Hz} \leq f \leq 100\text{KHz}$		42		μV
Ripple Rejection	RR	$T_J = 0\sim 125^\circ\text{C}$, $8\text{V} \leq V_i \leq 20\text{V}$, $f = 120\text{Hz}$	41	49		dB
Dropout Voltage	V_D	$T_J = 25^\circ\text{C}$		1.7		V

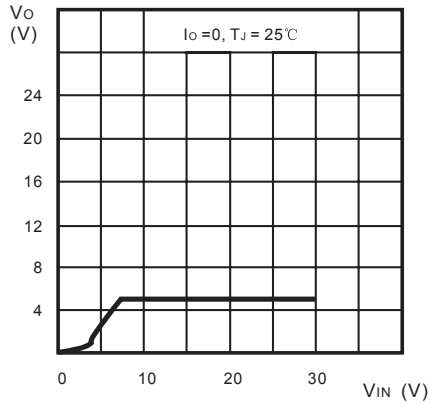
Typical Application



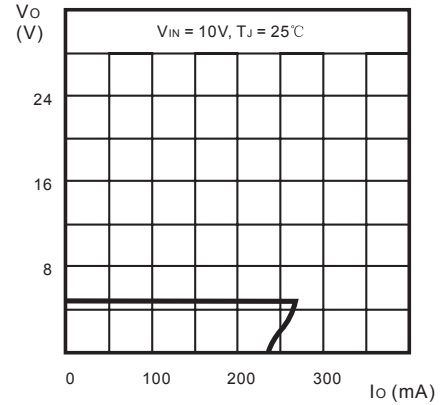
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

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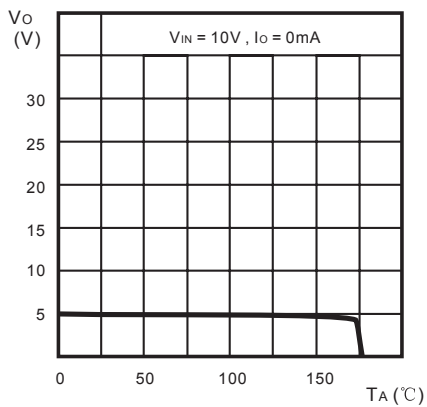
■ Typical Characteristics



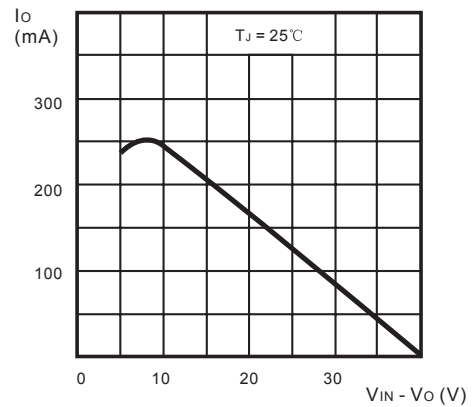
Output Characteristics



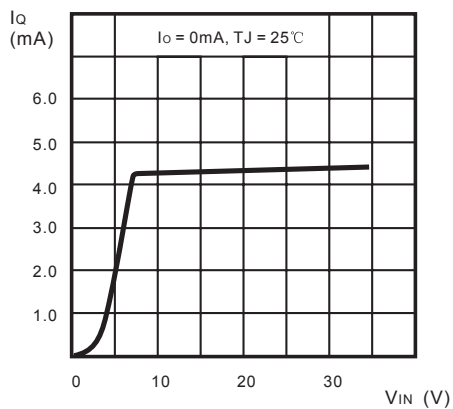
Load Characteristics



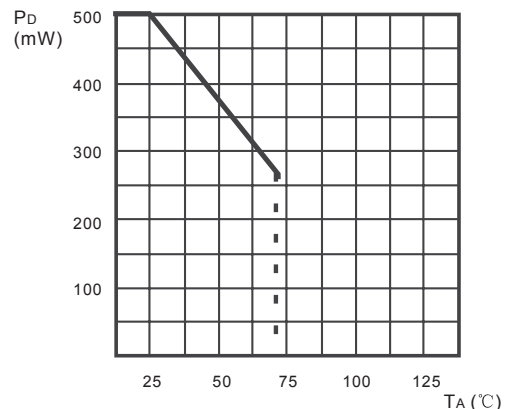
Thermal Shutdown



Short Circuit Output Current



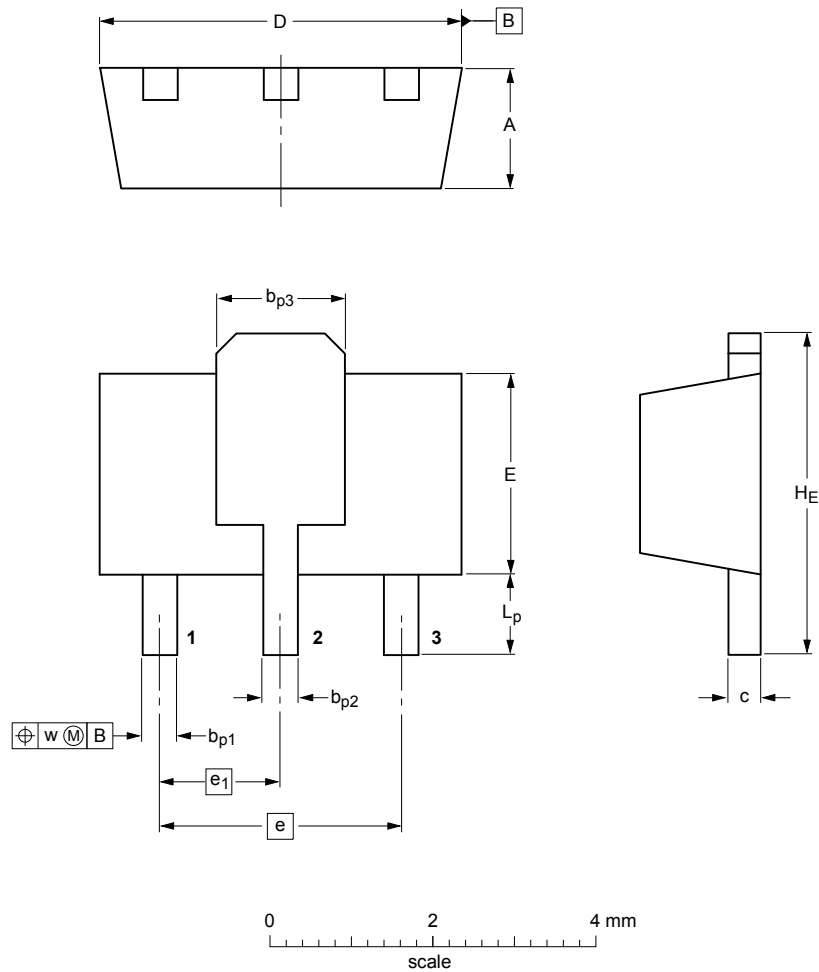
Quiescent Current vs Input Voltage



Power Dissipation vs. Ambient Temperature

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■ SOT-89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_{p1}	b_{p2}	b_{p3}	c	D	E	e	e_1	H_E	L_p	w
mm	1.6	0.48	0.53	1.8	0.44	4.6	2.6	3.0	1.5	4.25	1.2	0.13
	1.4	0.35	0.40	1.4	0.23	4.4	2.4					