

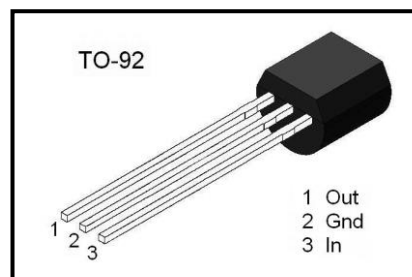
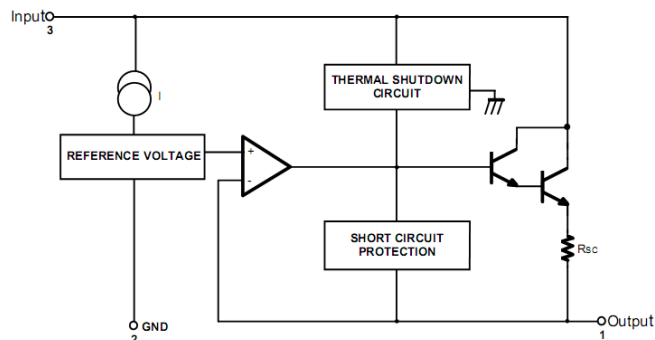
Features

- Maximum Output Current of 100mA
- Output Voltage of 5V
- Thermal Overload Protection
- Short Circuit Current Limiting
- Output Voltage Offered in $\pm 1\%$ Tolerance

Description

The 78L05 of fixed voltage monolithic integrated circuit voltage regulators are suitable for application that required supply current up to 100mA.

Internal Block Diagram



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Input Voltage	V_{IN}	25	V
Operating Temperature Range	T_{OPR}	0 ~ + 125	°C
Storage Temperature Range	T_{STG}	-55 ~ + 150	°C

Electrical Characteristics

($V_I = 10V$, $I_O = 40mA$, $0^\circ C \leq T_J \leq 125^\circ C$, $C_I = 0.33\mu F$, $C_O = 0.1\mu F$, unless otherwise specified. (Note)

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Output Voltage	V_{OUT}	$T_J = 25^\circ C$	4.95	5.0	5.05	V
		$V_{IN} = 7V \sim 20V$, $I_{OUT} = 1mA \sim 40mA$	4.95	5.0	5.05	
		$V_I = 7V \sim V_{Max}$, $I_{OUT} = 1mA \sim 70mA$	4.95	5.0	5.05	
Line Regulation(Note)	ΔV_{OUT}	$V_{IN} = 7V \sim 20V$, $T_J = 25^\circ C$			150	mV
		$V_{IN} = 8V \sim 20V$, $T_J = 25^\circ C$			100	
Load Regulation(Note)	ΔV_{OUT}	$I_{OUT} = 1mA \sim 100mA$, $T_J = 25^\circ C$			60	mV
		$I_{OUT} = 1mA \sim 40mA$, $T_J = 25^\circ C$			30	
Quiescent Current	I_Q	$V_{IN} = 10V$, $I_{OUT} = 0$, $T_J = 25^\circ C$			5.5	mA
Quiescent Current Change	ΔI_Q	$I_{OUT} = 1mA \sim 40mA$			0.1	mA
		$V_{IN} = 8V \sim 20V$			1.5	
Output Voltage Drift	$\Delta V / \Delta T$	$I_{OUT} = 5mA$		-0.65		mV/°C
Output Noise Voltage	V_N	$f = 10Hz \sim 100KHz$	50			μV
Ripple Rejection	RR	$f = 120Hz$, $V_I = 8V \sim 22V$, $T_J = 25^\circ C$	35			dB
Dropout Voltage	V_d	$T_J = 25^\circ C$		1.7		V

Notes: The maximum steady state usable output current and input voltage are very dependent on the heat Sinking and/or lead length of the package. The data above represent pulse test conditions with junction temperature as indicated at the initiation of tests.

Typical Characteristics

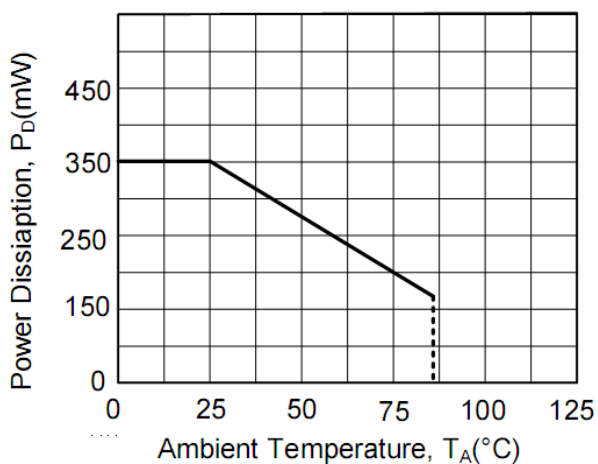


Figure 1 : Ambient temperature vs. Power dissipation

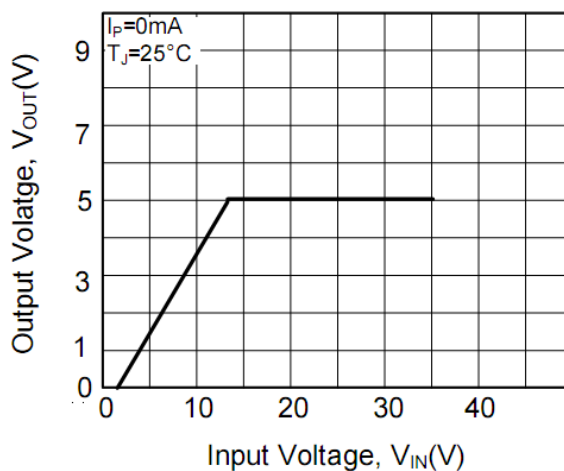


Figure 2 : Output Characteristics

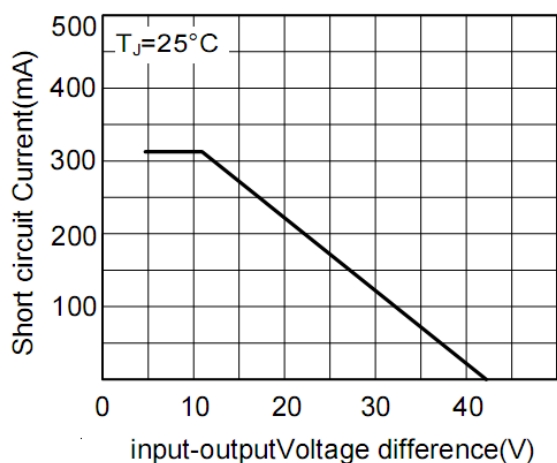


Figure 3 : Short Circuit output current

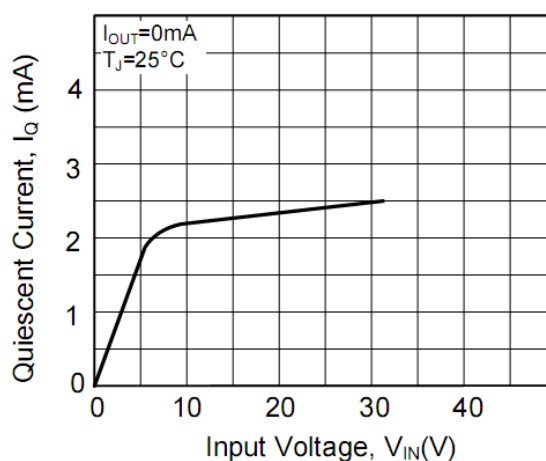


Figure 4 : Quiescent Current vs Input Voltage

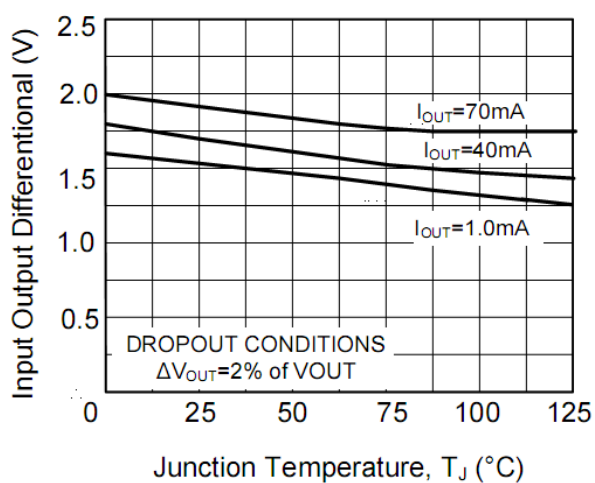


Figure5 : Dropout Voltage

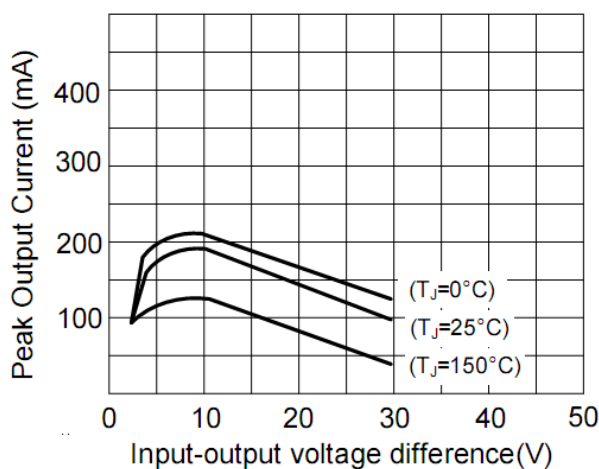
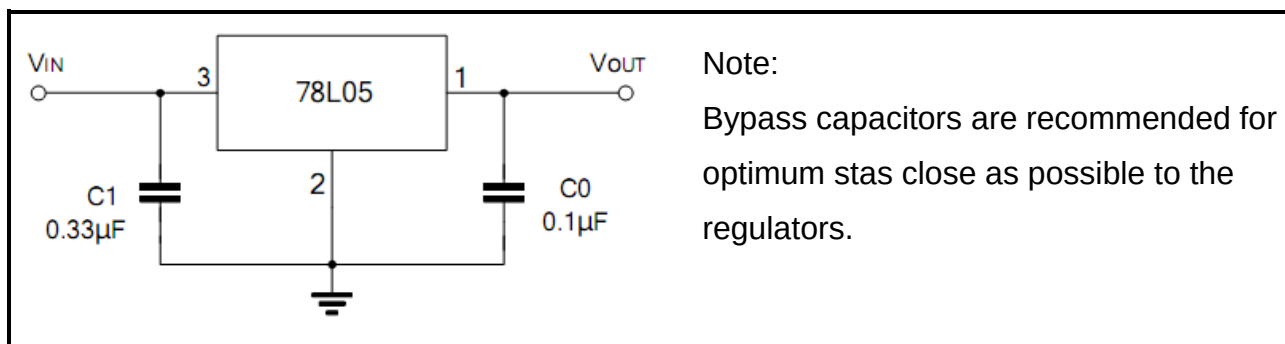
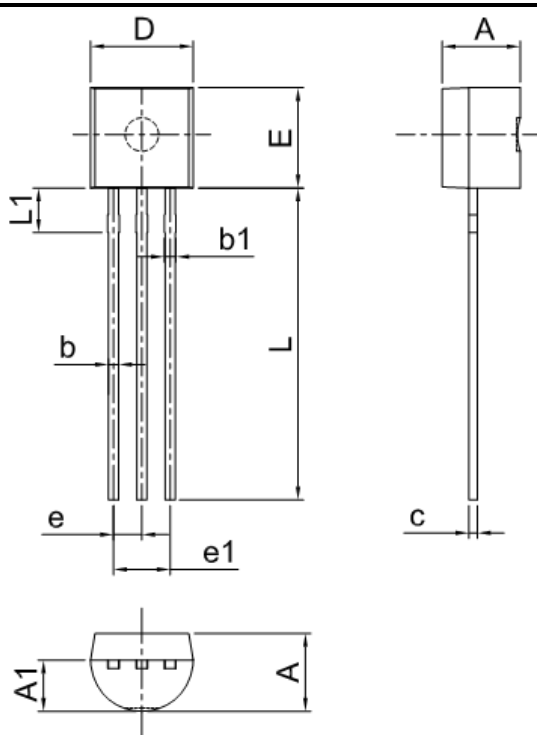


Figure 6 : Peak Output Current vs. Dropout Voltage Difference

Application Circuit



Package Dimensions



Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	3.30	3.70	0.130	0.146
A1	2.30	2.70	0.091	0.106
b	0.40	0.50	0.016	0.020
b1	0.50	0.70	0.020	0.028
c	0.35	0.45	0.014	0.018
D	4.45	4.70	0.175	0.185
E	4.40	4.65	0.173	0.183
e	1.17	1.37	0.046	0.054
e1	2.34	2.64	0.092	0.104
L	13.50	14.50	0.531	0.571
L1	1.80	2.20	0.071	0.087