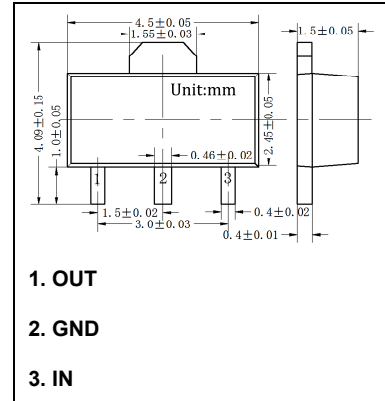


### 78L05

Three-terminal positive voltage regulator

**Features:**

- Maximum Output current  $I_{OM}$ : 0.1A
- Output voltage  $V_O$ : 5V
- Continuous total dissipation  $P_D$ : 0.8W ( $T_a = 25^\circ\text{C}$ )



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

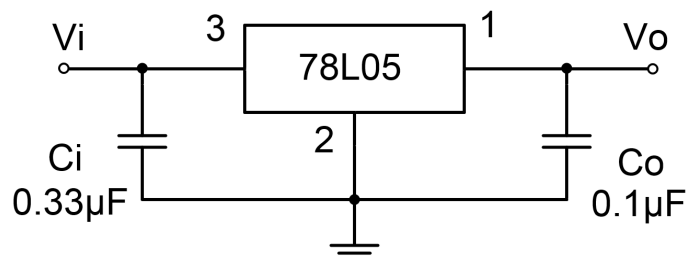
Symbol	Parameter	Value	Unit
$V_i$	Input Voltage	30	V
$T_{OPR}$	Operating Junction Temperature Range	0 to +150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to +150	$^\circ\text{C}$

**Electrical Characteristics at Specified Virtual Junction Temperature**

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

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit	
$V_o$	Output Voltage	$25^\circ\text{C}$	4.8	5.0	5.2	V	
		0-125 $^\circ\text{C}$	$7\text{V} \leq V_i \leq 20\text{V}$ , $I_o = 1\text{mA} - 40\text{mA}$	4.75	5.0	5.25	V
			$I_o = 1\text{mA} - 70\text{mA}$	4.75	5.0	5.25	V
$\Delta V_o$	Load Regulation	$I_o = 1\text{mA} - 100\text{mA}$ , $25^\circ\text{C}$		15	60	mV	
		$I_o = 1\text{mA} - 40\text{mA}$ , $25^\circ\text{C}$		8	30	mV	
$\Delta V_o$	Line Regulation	$7\text{V} \leq V_i \leq 20\text{V}$ , $25^\circ\text{C}$		32	150	mV	
		$8\text{V} \leq V_i \leq 20\text{V}$ , $25^\circ\text{C}$		26	100	mV	
$I_q$	Quiescent Current	$25^\circ\text{C}$		3.8	6	mA	
$\Delta I_q$	Quiescent Current Change	$8\text{V} \leq V_i \leq 20\text{V}$ , 0-125 $^\circ\text{C}$			1.5	mA	
		$1\text{mA} \leq I_o \leq 40\text{mA}$ , 0-125 $^\circ\text{C}$			0.1	mA	
$V_N$	Output Noise Voltage	$f = 10\text{Hz to } 100\text{KHz}$ , $25^\circ\text{C}$		42		$\mu\text{V}$	
$RR$	Ripple Rejection	$f = 120\text{Hz}$ , $8\text{V} \leq V_i \leq 20\text{V}$ , 0-125 $^\circ\text{C}$	41	49		dB	
$V_d$	Dropout Voltage	$25^\circ\text{C}$		1.7		V	

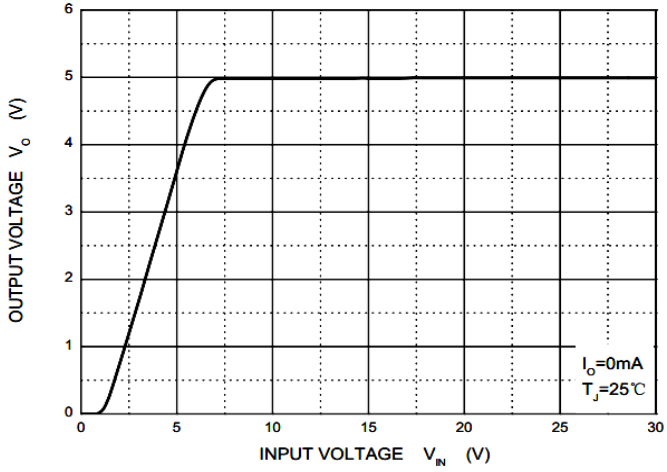
**Typical Application**



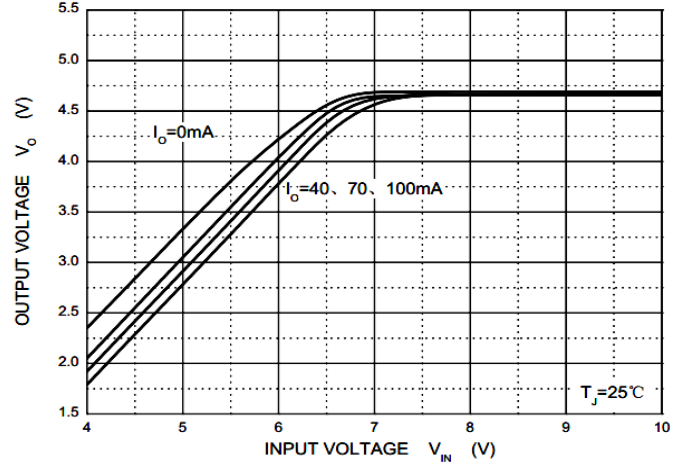
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as Possible to the regulators.

# Typical Characteristics

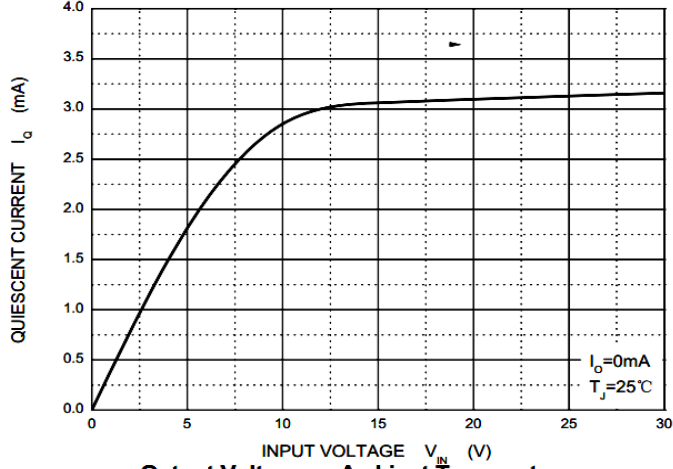
**Output Characteristics**



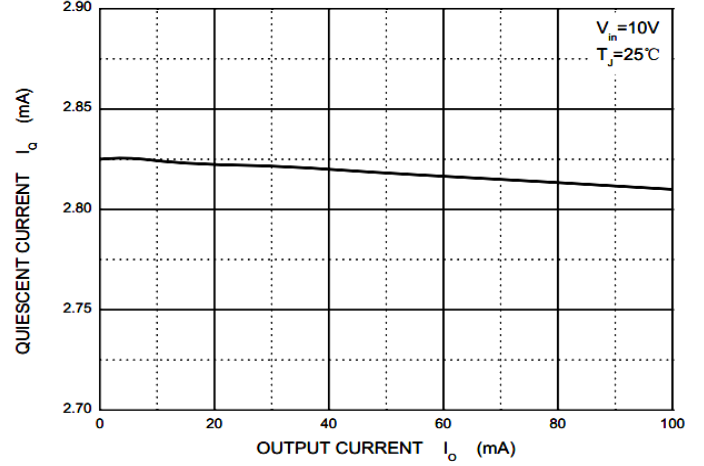
**Dropout Characteristics**



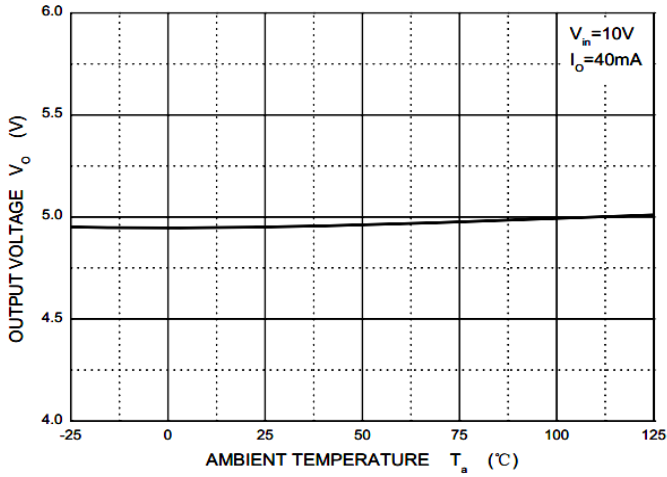
**Quiescent Current vs Input Voltage**



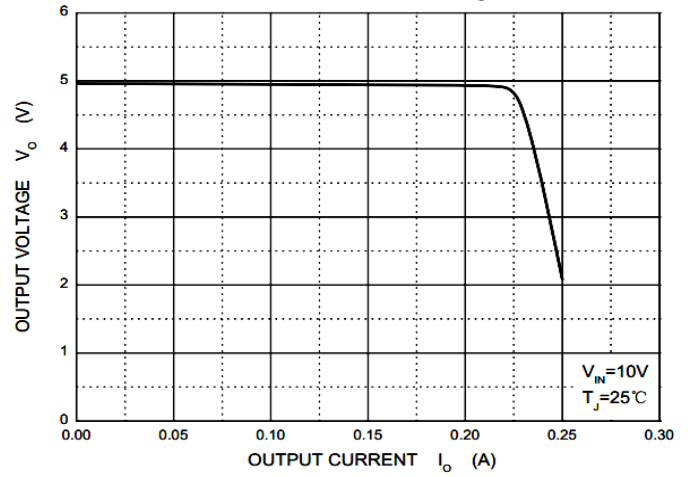
**Quiescent Current vs Output Current**



**Output Voltage vs Ambient Temperature**



**Current Cut-off Grid Voltage**



**Power Derating Curve**

