

SOT-23 Plastic-Encapsulate Regulators

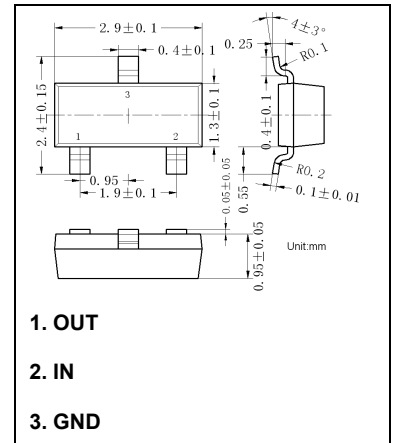
78L05

Three-terminal positive voltage regulator

Features:

- Maximum Output current I_o : 0.1A
- Output voltage V_o : 5 V
- Continuous total dissipation
 P_D : 0.25W ($T_a = 25^\circ\text{C}$)

Marking: L05



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

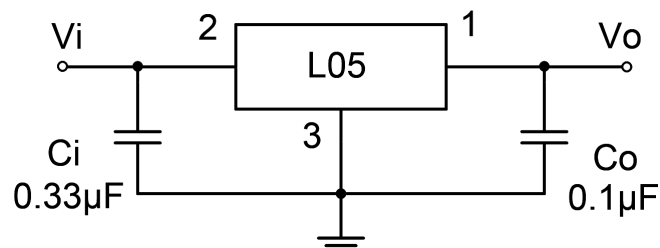
Symbol	Parameter	Value	Unit
V_i	Input Voltage	30	V
T_{OPR}	Operating Junction Temperature Range	0 to +120	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to +150	$^\circ\text{C}$

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°C	4.8	5.0	5.2	V	
		0-125 $^\circ\text{C}$	$7\text{V} \leq V_i \leq 20\text{V}$, $I_o=1\text{mA} \sim 40\text{mA}$	4.75	5.0	5.25	V
			$I_o=1\text{mA} \sim 70\text{mA}$	4.75	5.0	5.25	V
ΔV_o	Load Regulation	$I_o=1\text{mA} \sim 100\text{mA}$, 25°C		15	60	mV	
		$I_o=1\text{mA} \sim 40\text{mA}$, 25°C		8	30	mV	
ΔV_o	Line Regulation	$7\text{V} \leq V_i \leq 20\text{V}$, 25°C		32	150	mV	
		$8\text{V} \leq V_i \leq 20\text{V}$, 25°C		26	100	mV	
I_q	Quiescent Current	25°C		3.8	6	mA	
ΔI_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°C		42		μV	
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°C		1.7		V	

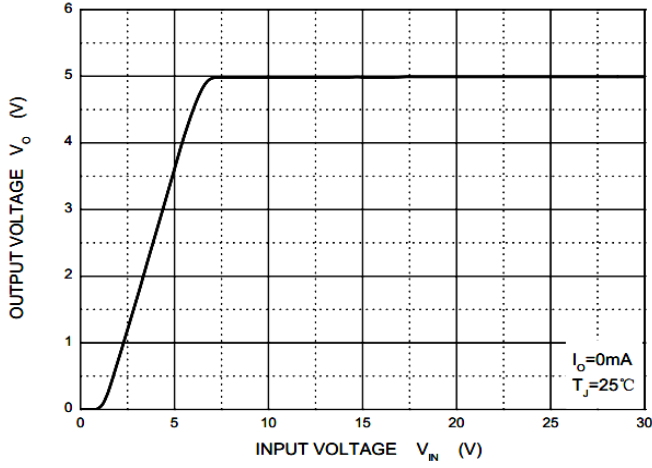
Typical Application



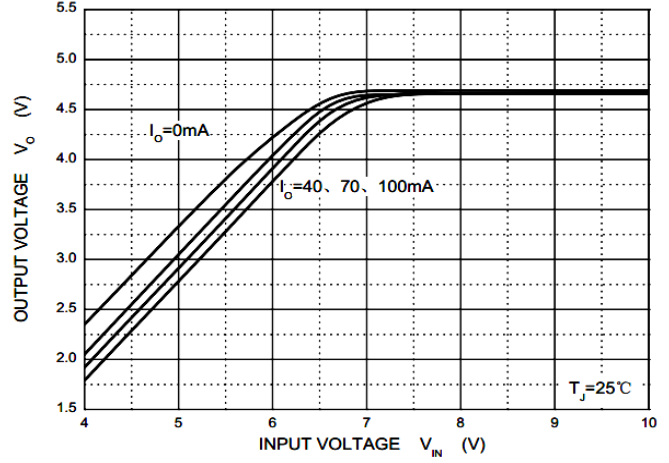
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulator .

Typical Characteristics

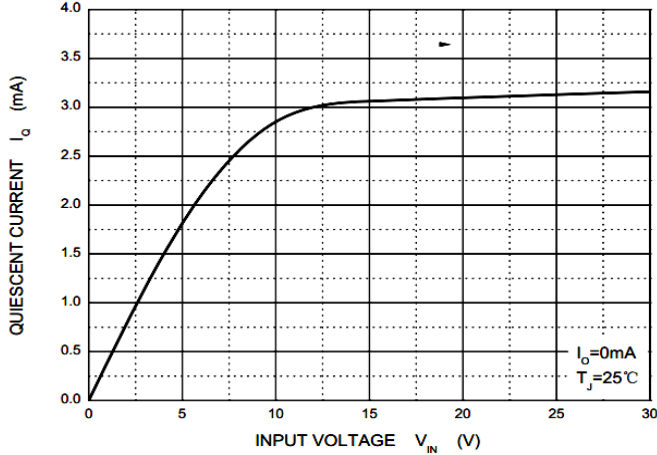
Output Characteristics



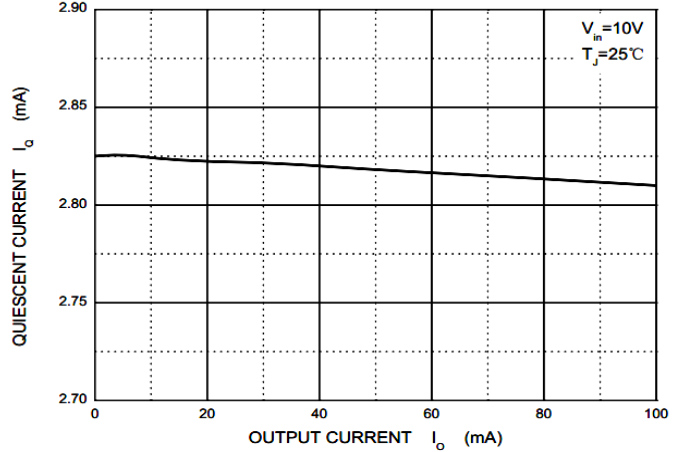
Dropout Characteristics



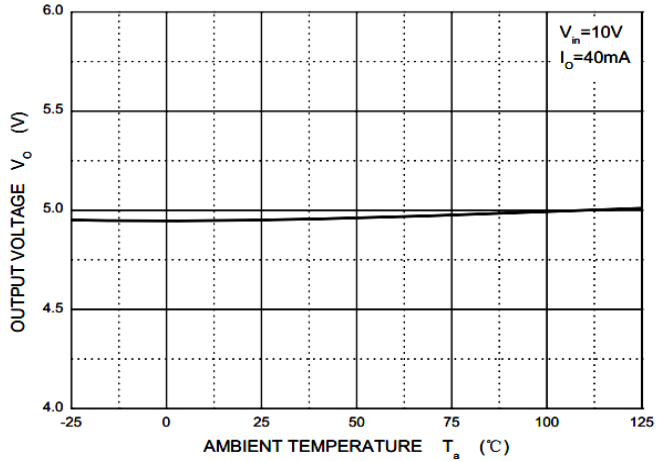
Quiescent Current vs Input Voltage



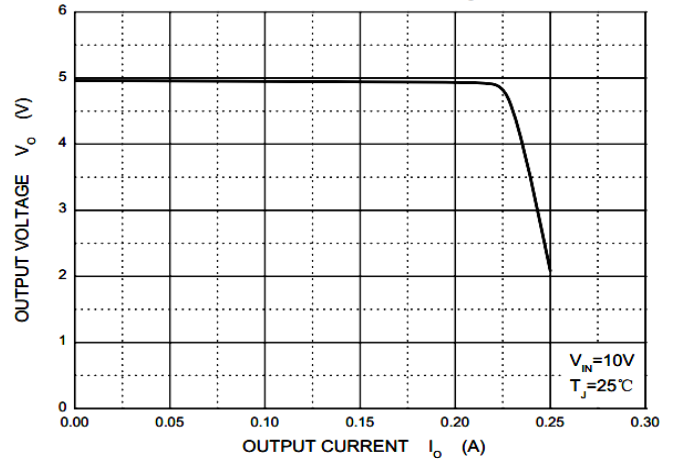
Quiescent Current vs Output Current



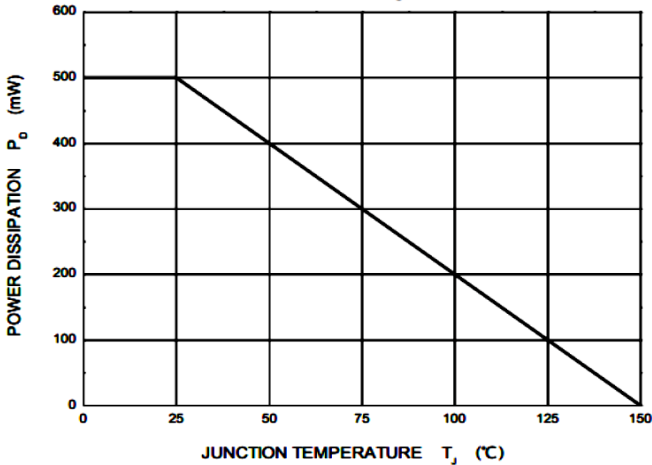
Output Voltage vs Ambient Temperature



Current Cut-off Grid Voltage



Power Derating Curve



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