



DONGGUAN NANJING ELECTRONICS LTD.,

TO-92 Encapsulate Three-terminal Voltage Regulator

78L05 Three-terminal positive voltage regulator

FEATURES

Maximum Output Current I_O : 0.1 A

Output Voltage V_O : 5 V

Continuous Total Dissipation

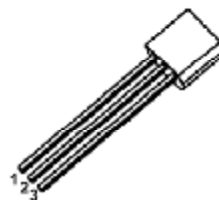
P_D : 0.625W ($T_a=25^\circ\text{C}$)

TO-92

1. OUT

2. GND

3. IN



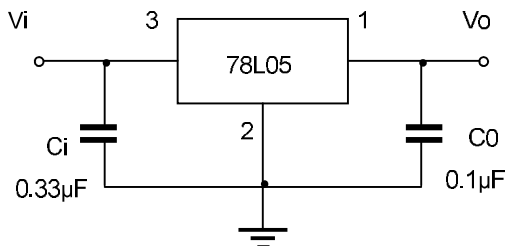
ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

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

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

TYPICAL APPLICATION

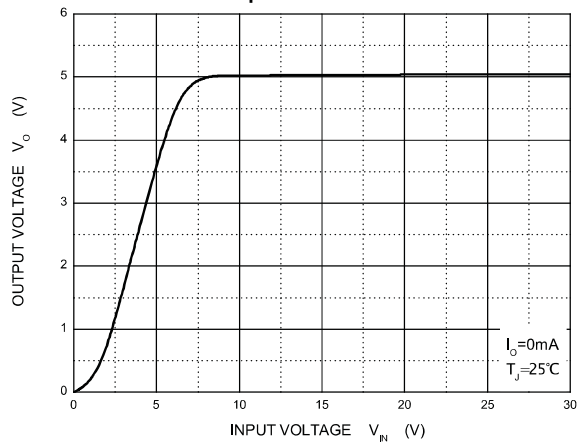


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

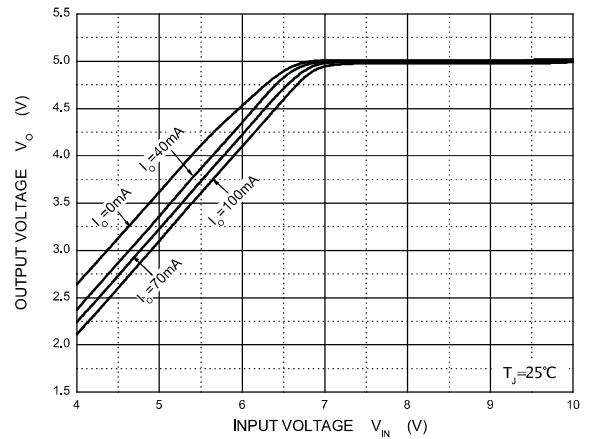
Typical Characteristics

78L05

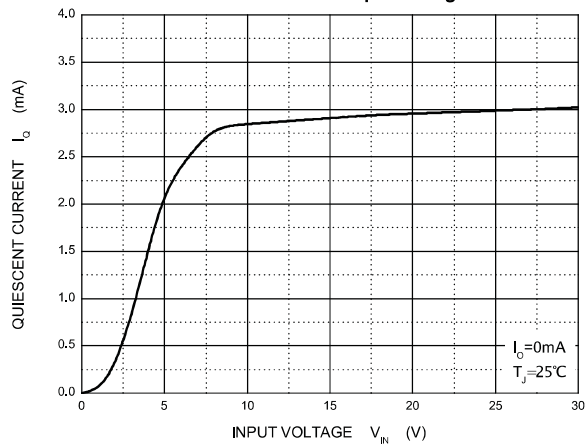
Output Characteristics



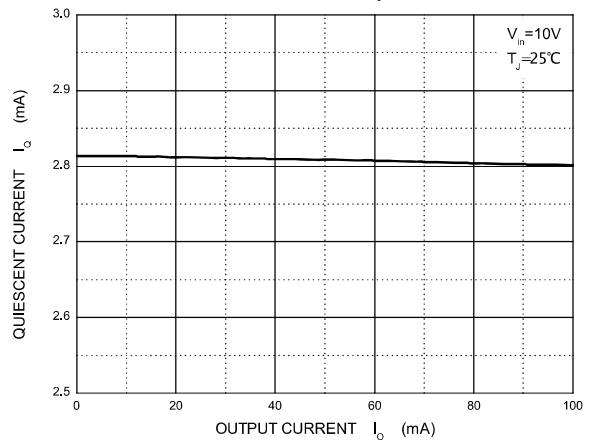
Dropout Characteristics



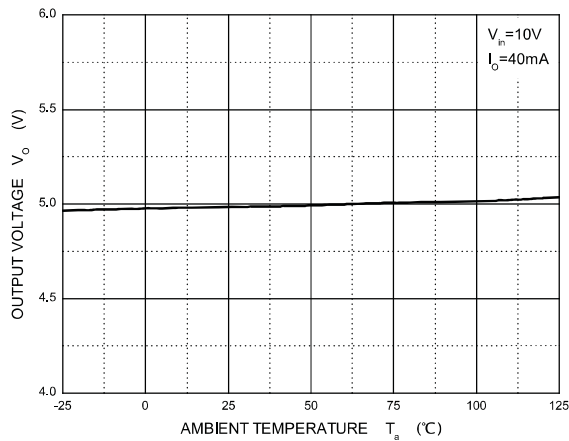
Quiescent Current vs Input Voltage



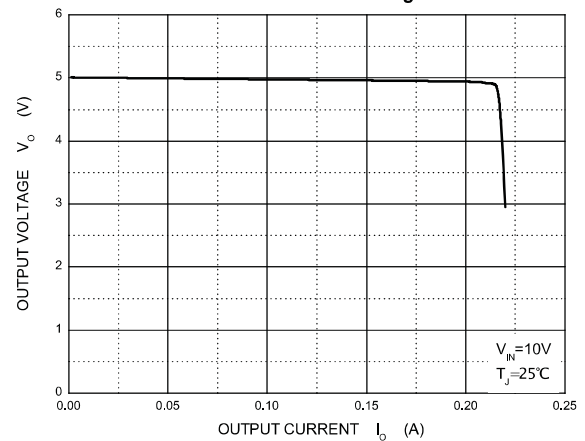
Quiescent Current vs Output Current



Output Voltage vs Ambient Temperature



Current Cut-off Grid Voltage



Power Derating Curve

