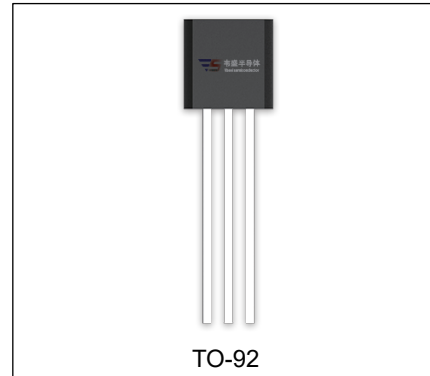


VS78L05 Three-terminal positive voltage regulator

FEATURES

- Maximum output current
 I_{OM} : 0.1A
- Output voltage
 V_O : 5V
- Continuous total dissipation
 P_D : 0.625 W ($T_a=25\text{ }^\circ\text{C}$)



ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
VS78L05	TO-92	Bulk	1000pcs/Bag
VS78L05-TA	TO-92	Tape	2000pcs/Box

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

Parameter	Symbol	Value	Unit
Input Voltage	V_i	30	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	160	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_{OPR}	-40~+125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65~+150	$^\circ\text{C}$

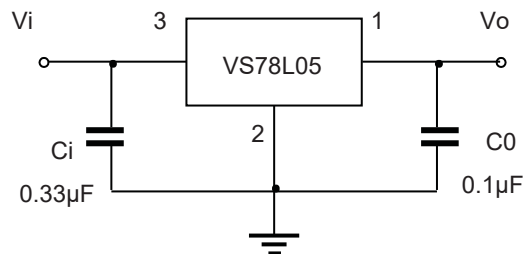
$T_a=25^\circ\text{C}$ unless otherwise specified

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	V_o	$T_j=25^\circ\text{C}$	4.85	5.0	5.15	V
			4.90	5.0	5.10	V
		$7\text{V}\leq V_i\leq 20\text{V}, I_o=1\text{mA}\sim 40\text{mA}$	4.75	5.0	5.25	V
			$I_o=1\text{mA}\sim 70\text{mA}$	4.75	5.0	5.25
Load Regulation	ΔV_o	$I_o=1\text{mA}\sim 100\text{mA}, T_j=25^\circ\text{C}$		15	60	mV
		$I_o=1\text{mA}\sim 40\text{mA}, T_j=25^\circ\text{C}$		8	30	mV
Line regulation	ΔV_o	$7\text{V}\leq V_i\leq 20\text{V}$		32	150	mV
		$8\text{V}\leq V_i\leq 20\text{V}, T_j=25^\circ\text{C}$		26	100	mV
Quiescent Current	I_q	$T_j=25^\circ\text{C}$		3.8	6	mA
Quiescent Current Change	ΔI_q	$8\text{V}\leq V_i\leq 20\text{V}$			1.5	mA
	ΔI_q	$1\text{mA}\leq V_i\leq 40\text{mA}$			0.1	mA
Output Noise Voltage	V_N	$10\text{Hz}\leq f\leq 100\text{KHz}, T_j=25^\circ\text{C}$		42		$\mu\text{V}/V_o$
Ripple Rejection	RR	$8\text{V}\leq V_i\leq 20\text{V}, f=120\text{Hz}$	41	49		dB
Dropout Voltage	V_d	$T_j=25^\circ\text{C}$		1.7		V

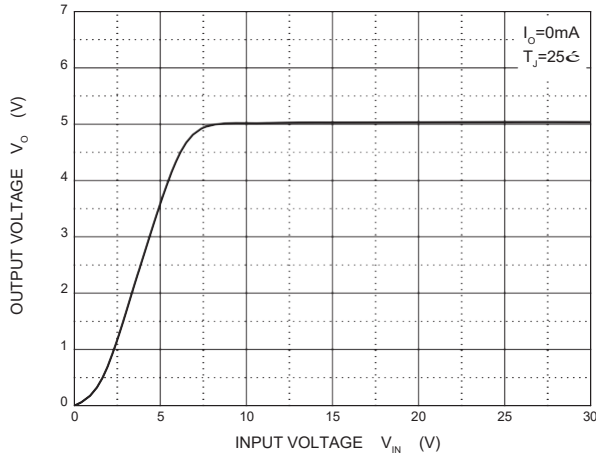
* Pulse test.

TYPICAL APPLICATION

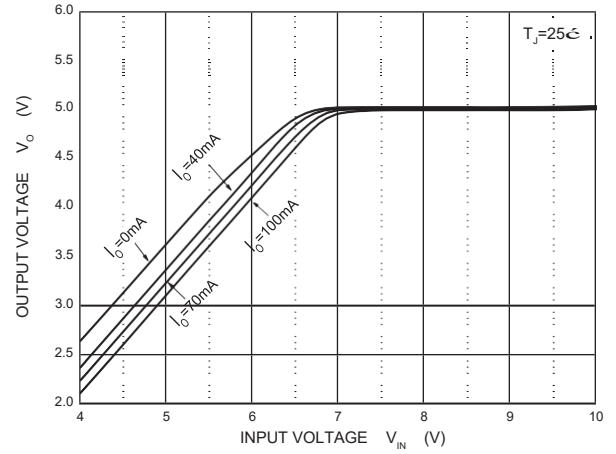


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as Possible to the regulators.

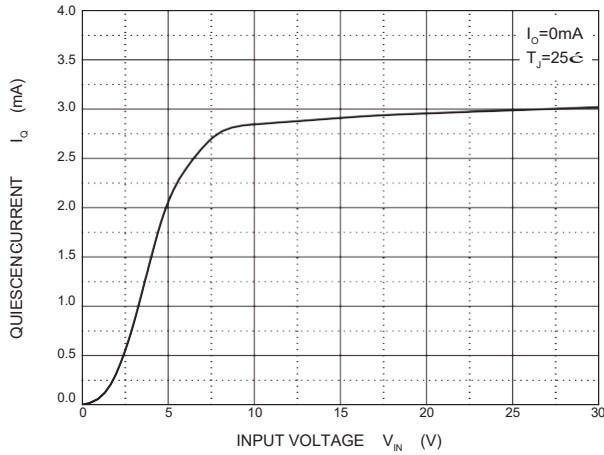
Output Characteristics



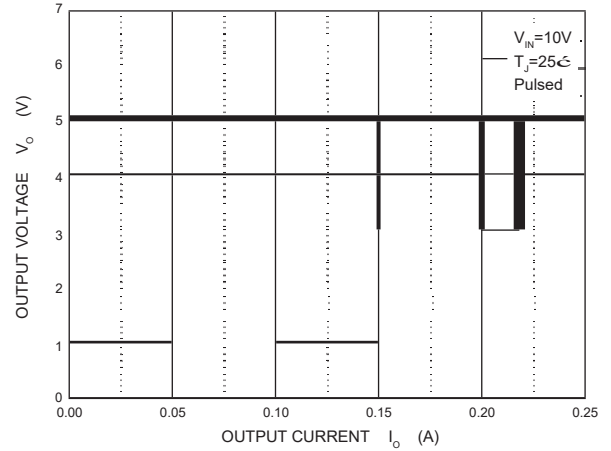
Dropout Characteristics



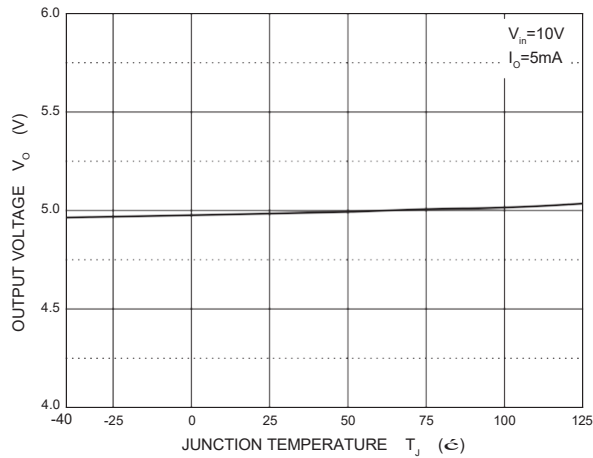
Quiescent Current vs Input Voltage



Current Cut-off Grid Voltage



Output Voltage vs Junction Temperature



Power Derating Curve

