VS78L05 Three-terminal positive voltage regulator

FEATURE

Maximum Output Current $I_{O:}$ 0.1 A

Output Voltage V_O: 5 V

Continuous Total Dissipation

P_D: 0.25 W (T_a= 25 ℃)

SOT-23-3

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

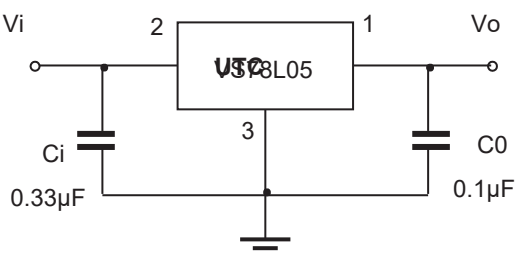
Parameter	Symbol	Value	Unit
Input Voltage	V_i	30	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	160	℃/W
Operating Junction Temperature Range	T_{OPR}	-40~+125	℃
Storage Temperature Range	T_{STG}	-65~+150	℃

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE (Vi=10V,Io=40mA,Ci=0.33uF,,Co=0.1uF, unless otherwise specified)

Parameter	Symbol	Test conditions		Min	Typ	Max	Unit
Output voltage	Vo	T_J=25℃	3%	4.85	5.0	5.15	V
			2%	4.90	5.0	5.10	V
		7V≤Vi≤20V, Io=1mA~40mA		4.75	5.0	5.25	V
		Io=1mA~70mA		4.75	5.0	5.25	V
Load Regulation	ΔVo	Io=1mA~100mA,T_J=25℃			15	60	mV
		Io=1mA~40mA,T_J=25℃			8	30	mV
Line regulation	ΔVo	7V≤V_i≤20V			32	150	mV
		8V≤Vi≤20V,T_J=25℃			26	100	mV
Quiescent Current	Iq	T_J=25℃			3.8	6	mA
Quiescent Current Change	ΔIq	8V≤Vi≤20V				1.5	mA
	ΔIq	1mA≤V_I≤40mA				0.1	mA
Output Noise Voltage	V_N	10Hz≤f≤100KHz,T_J=25℃			42		μV/Vo
Ripple Rejection	RR	8V≤Vi≤20V,f=120Hz		41	49		dB
Dropout Voltage	Vd	T_J=25℃			1.7		V

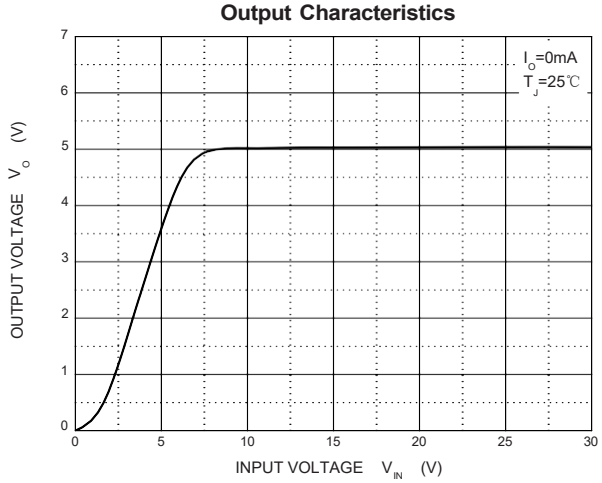
* Pulse test.

TYPICAL APPLICATION

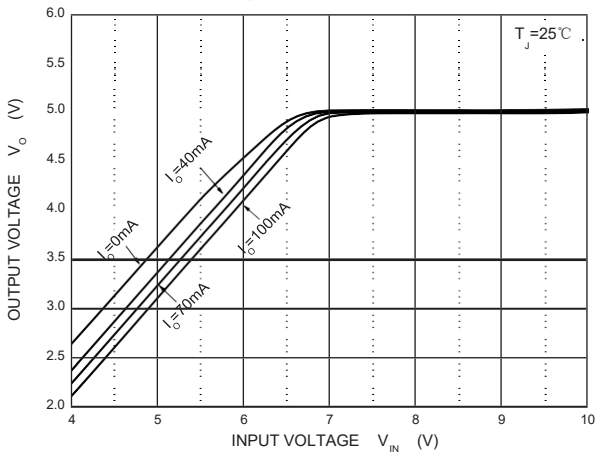


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as Possible to the regulators.

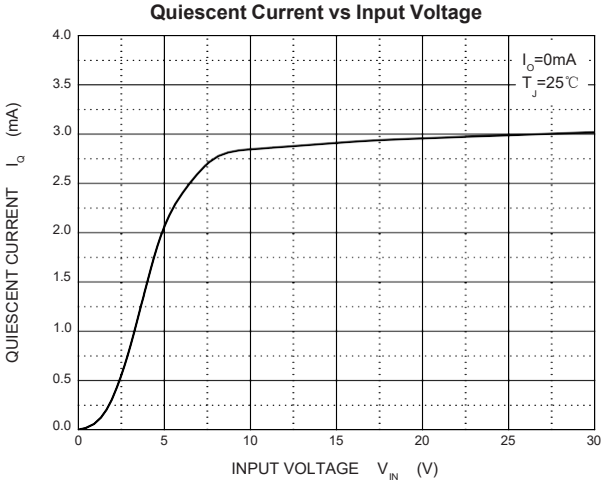
Output Characteristics



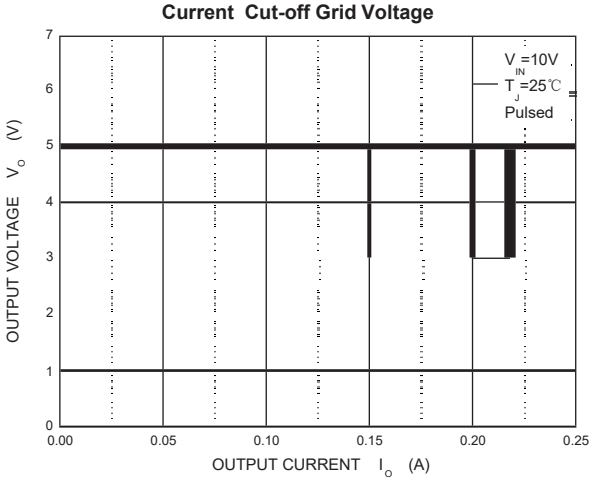
Dropout Characteristics



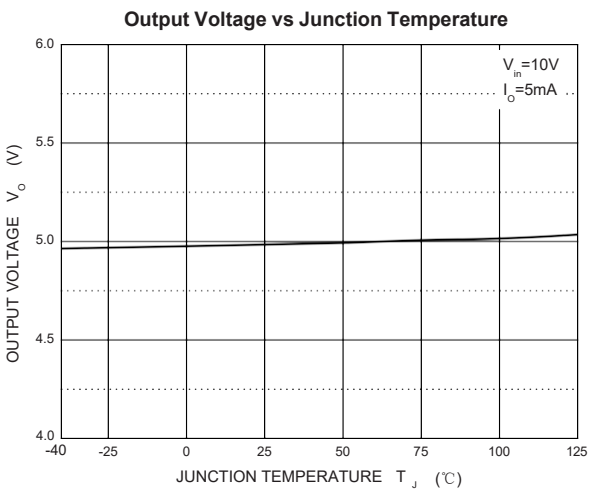
Quiescent Current vs Input Voltage



Current Cut-off Grid Voltage



Output Voltage vs Junction Temperature



Power Derating Curve