VS78D09 Three-terminal positive voltage regulator

TO-220C

1.IN
2.GND
3.OUT

FEATURES

- Maximum output current
  I_{OM}:1.0 A
- Output voltage
  V_O: 9 V
- Continuous total dissipation
  P_D: 1.5 W (T_a= 25 ℃)

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

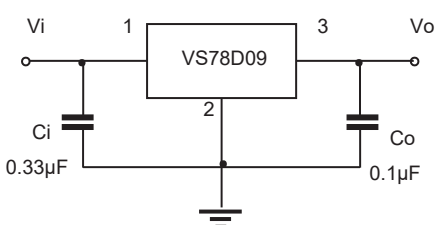
Parameter	Symbol	Value	Unit
Input Voltage	V_i	35	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	66.7	℃/W
Operating Junction Temperature Range	T_{OPR}	-40~+125	℃
Storage Temperature Range	T_{STG}	-65~+150	℃

ELECTRICALCHARACTERISTICSAT SPECIFIED VIRTUAL JINCTION TEMPERATURE (Vi=16V, Io=500mA, Ci=0.33μF, Co=0.1μF, unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	Vo	T_J=25℃	8.73	9.0	9.27	V
		Io= 5mA-1A, 12.5V≤ V_i ≤24V	8.64	9.0	9.36	V
Load Regulation	ΔVo	I_O=5mA -1.0A,T_J=25℃			180	mV
		I_O=250mA - 750mA,T_J=25℃			90	mV
Line Regulation	ΔVo	11.5V≤ Vi ≤26V,T_J=25℃			180	mV
		12V≤V_i≤18V,T_J=25℃			90	mV
Quiescent Current	Iq	T_J=25℃		4.3	8.0	mA
Quiescent Current Change	ΔIq	5.0mA≤ I_O ≤1.0A			0.5	mA
		12.5V ≤V_i≤ 25V			0.8	mA
Output Voltage Drift	△Vo/△T	I_O=5mA		1.2		mV/℃
Output Noise Voltage	V_N	f =10Hz to 100KHz,T_J=25℃		42		μV/Vo
Ripple Rejection	RR	f =120Hz, 12.5V≤ V_i ≤22.5V		61		dB
Dropout Voltage	V_d	I_O=1.0A,T_J=25℃		2.0		V
Output Resistance	R_O	f = 1KHz		18		mΩ
Short Circuit Current	Isc	T_J=25℃		200		mA

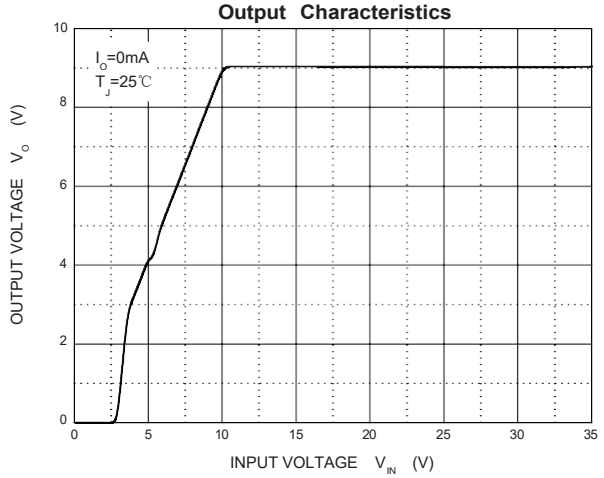
* Pulse test.

TYPICAL APPLICATION

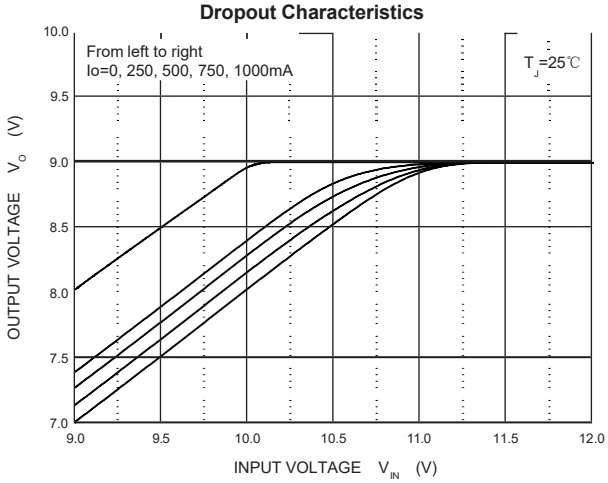


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

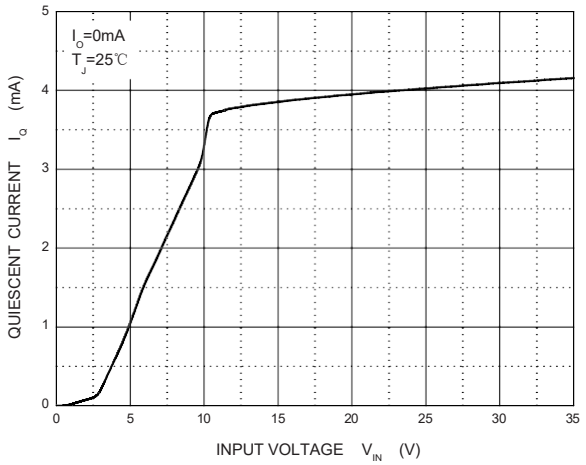
Output Characteristics



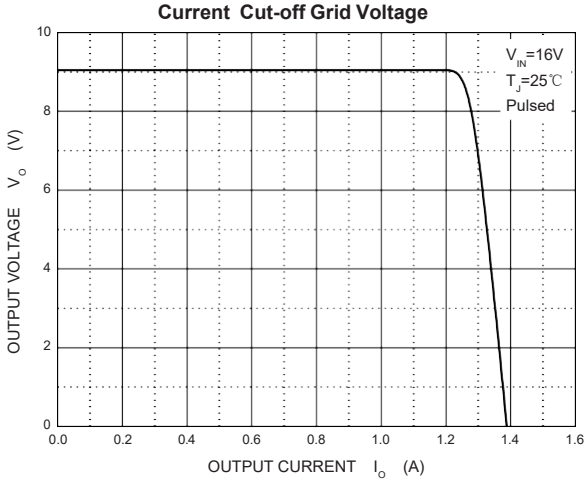
Dropout Characteristics



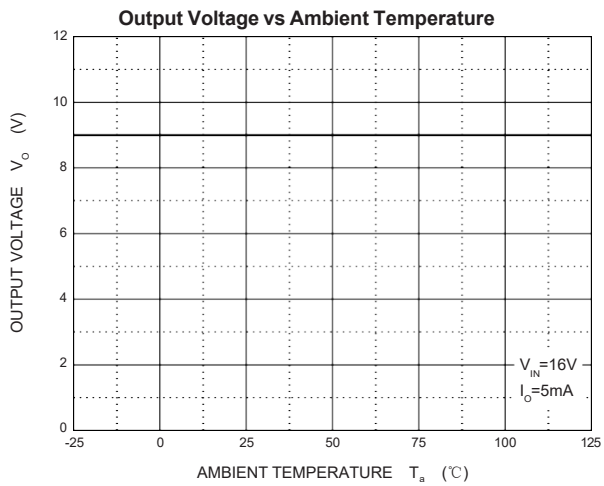
Quiescent Current



Current Cut-off Grid Voltage



Output Voltage vs Ambient Temperature



Power Derating Curve