VS78M12 Three-terminal positive voltage regulator

FEATURES

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- Maximum output current
  I_{OM}: 0.5A
- Output voltage
  V_O: 12 V
- Continuous total dissipation
  P_D: 1.5W (T_a= 25 ℃)

TO-220C

1.IN
2.GND
3.OUT

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

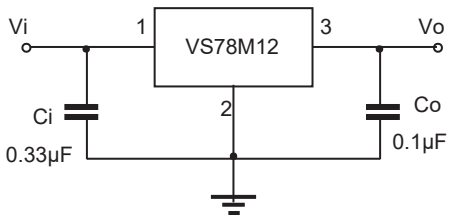
Parameter	Symbol	Value	Unit
Input Voltage	V_i	35	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	66.7	℃/W
Operating Junction Temperature Range	T_{OPR}	-40~+125	℃
Storage Temperature Range	T_{STG}	-65~+150	℃

ELECTRICAL CHARACTERISTICS (Vi=19V,Io=350mA, Ci=0.33 F,Co=0.1 F, unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	Vo	T_J=25℃	11.64	12	12.36	V
		14.5≤V_i≤27V, Io=5mA-350mA Po≤ 1.25W	11.4	12	12.6	V
Load Regulation	ΔVo	Io=5mA-500mA,T_J=25℃		25	240	mV
		Io=5mA-200mA,T_J=25℃		10	120	mV
Line Regulation	ΔVo	14.5V≤V_i≤30V, Io=200mA,T_J=25℃		10	100	mV
		16V≤V_i≤30V, Io=200mA,T_J=25℃		3	50	mV
Quiescent Current	Iq	T_J=25℃		4.6	6	mA
Quiescent Current Change	ΔIq	14.5V≤V_i≤30V, Io=200mA			0.8	mA
	ΔIq	5mA≤I_O≤350mA			0.5	mA
Output Noise Voltage	V_N	10Hz≤f≤100KHz,T_J=25℃		75		μV
Ripple Rejection	RR	15≤V_i≤25V,f=120Hz,Io=300mA	55	80		dB
Dropout Voltage	Vd	Io=350mA,T_J=25℃		2		V
Short Circuit Current	Isc	Vi=19V ,T_J=25℃		240		mA
Peak Current	Ipk	T_J=25℃		0.7		A

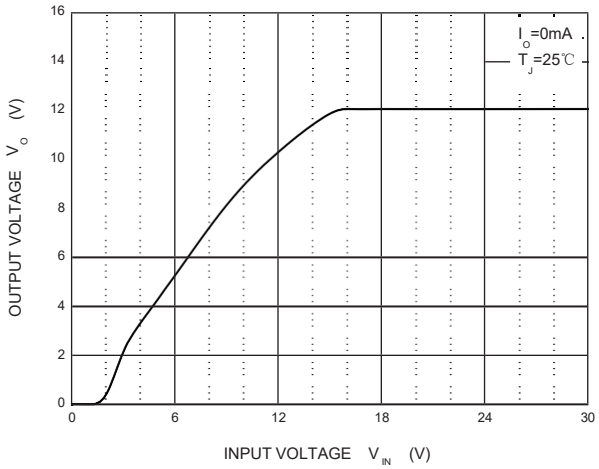
* Pulse test.

TYPICAL APPLICATION

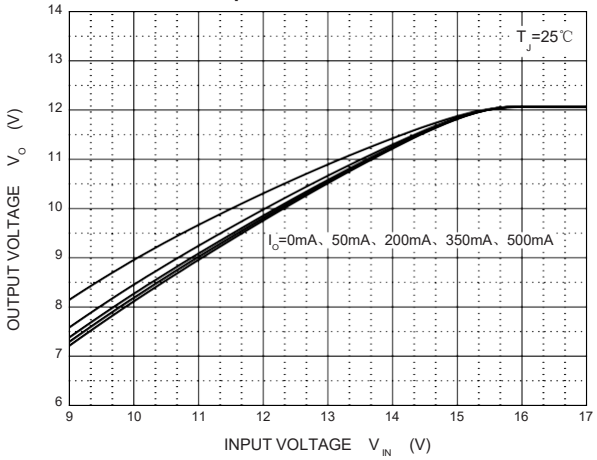


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

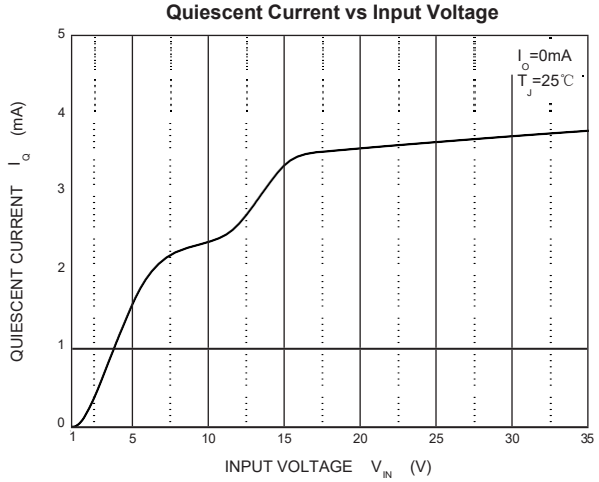
Output Characteristics



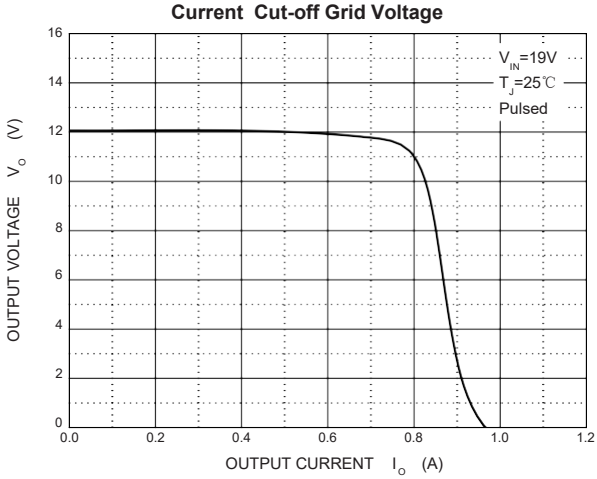
Dropout Characteristics



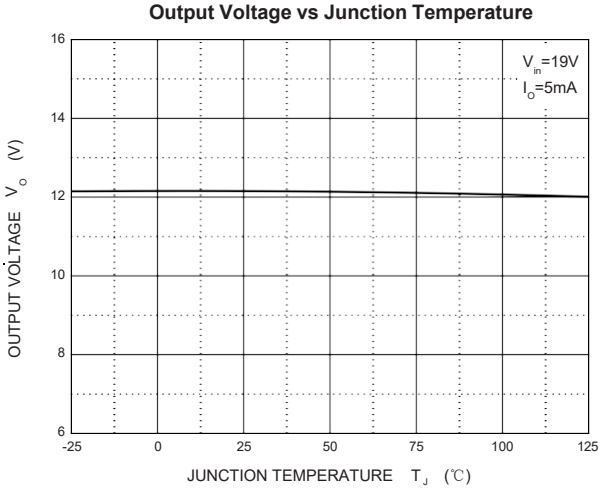
Quiescent Current vs Input Voltage



Current Cut-off Grid Voltage



Output Voltage vs Junction Temperature



Power Derating Curve