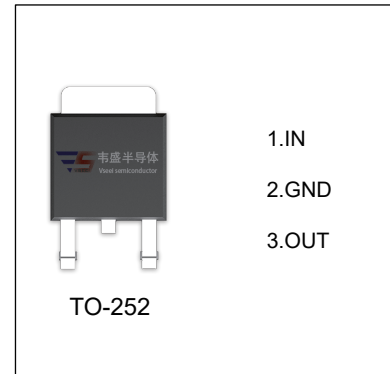


VS78D09 Three-terminal positive voltage regulator

FEATURES

- Maximum output current
 $I_{OM}: 1.0\text{ A}$
- Output voltage
 $V_O: 9\text{ V}$
- Continuous total dissipation
 $P_D: 1.25\text{ W}$ ($T_a = 25\text{ }^\circ\text{C}$)



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

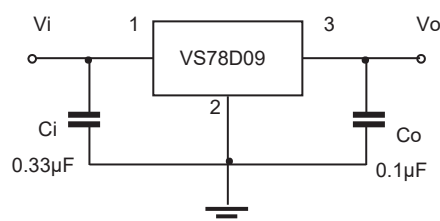
Parameter	Symbol	Value	Unit
Input Voltage	V_i	35	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	80	$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	T_{OPR}	-40~+125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65~+150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ($V_i=16\text{V}$, $I_o=500\text{mA}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	V_o	$T_J=25^\circ\text{C}$	8.73	9.0	9.27	V
		$I_o=5\text{mA}-1\text{A}$, $12.5\text{V} \leq V_i \leq 24\text{V}$	8.64	9.0	9.36	V
Load Regulation	ΔV_o	$I_o=5\text{mA}-1.0\text{A}, T_J=25^\circ\text{C}$			180	mV
		$I_o=250\text{mA}-750\text{mA}, T_J=25^\circ\text{C}$			90	mV
Line Regulation	ΔV_o	$11.5\text{V} \leq V_i \leq 26\text{V}, T_J=25^\circ\text{C}$			180	mV
		$12\text{V} \leq V_i \leq 18\text{V}, T_J=25^\circ\text{C}$			90	mV
Quiescent Current	I_q	$T_J=25^\circ\text{C}$		4.3	8.0	mA
Quiescent Current Change	ΔI_q	$5.0\text{mA} \leq I_o \leq 1.0\text{A}$			0.5	mA
		$12.5\text{V} \leq V_i \leq 25\text{V}$			0.8	mA
Output Voltage Drift	$\Delta V_o/\Delta T$	$I_o=5\text{mA}$		1.2		$\text{mV}/^\circ\text{C}$
Output Noise Voltage	V_N	$f=10\text{Hz}$ to $100\text{KHz}, T_J=25^\circ\text{C}$		42		$\mu\text{V}/V_o$
Ripple Rejection	RR	$f=120\text{Hz}, 12.5\text{V} \leq V_i \leq 22.5\text{V}$		61		dB
Dropout Voltage	V_d	$I_o=1.0\text{A}, T_J=25^\circ\text{C}$		2.0		V
Output Resistance	R_o	$f=1\text{KHz}$		18		$\text{m}\Omega$
Short Circuit Current	I_{sc}	$T_J=25^\circ\text{C}$		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.

