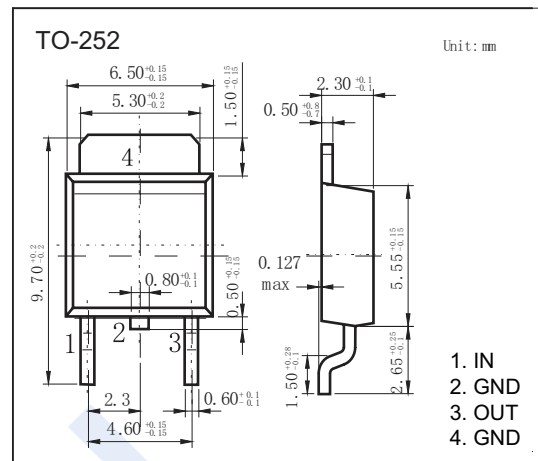


## Three Terminal Positive Voltage Regulator

## 78M09

## ■ Features

- Maximum Output Current  $I_o=500\text{mA}$
- Output Voltage  $V_o=9\text{V}$
- Internal Thermal Overload Protection
- Internal Short Circuit Current Limiting
- Output Transistor Safe Operating Area Protection



## ■ Absolute Maximum Ratings(unless otherwise noted)

Parameter	Symbol	Rating	Unit
Input Voltage	$V_i$	35	V
Maximum Output Current	$I_o$	0.5	A
Thermal Resistance, Junction-to-Ambient	$R_{thJA}$	80	°C/W
Thermal Resistance, Junction-to-Case	$R_{thJC}$	5	
Operating Junction Temperature	$T_J$	0 to 125	°C
Storage Temperature Range	$T_{stg}$	-65 to 150	

■ Electrical Characteristics ( $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_i=15\text{V}$ ,  $C_i=0.33\mu\text{F}$ ,  $C_o=0.1\mu\text{F}$ , unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_o$	$T_J=25^\circ\text{C}$	8.65	9.0	9.35	V
		$5.0\text{mA} \leq I_o \leq 0.5\text{A}$ , $P_D \leq 10\text{W}$ , $11.5\text{V} \leq V_i \leq 24\text{V}$	8.6	9.0	9.4	
Line Regulation	$\Delta V_o$	$T_J=25^\circ\text{C}$ , $11.5\text{V} \leq V_i \leq 25\text{V}$			180	mV
		$T_J=25^\circ\text{C}$ , $12\text{V} \leq V_i \leq 18\text{V}$			90	
Load Regulation	$\Delta V_o$	$T_J=25^\circ\text{C}$ , $5.0\text{mA} \leq I_o \leq 0.5\text{A}$			180	mV
		$T_J=25^\circ\text{C}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$			90	
Quiescent Current	$I_q$	$T_J=25^\circ\text{C}$			8.0	mA
Quiescent Current Change	$\Delta I_q$	$5\text{mA} \leq I_o \leq 0.5\text{A}$			0.5	
		$11.5\text{V} \leq V_i \leq 26\text{V}$			1.3	
Output Noise Voltage	$V_N$	$T_A=25^\circ\text{C}$ , $10\text{Hz} \leq f \leq 100\text{kHz}$		58		$\mu\text{V}$
Ripple Rejection	$R_R$	$f=120\text{Hz}$ , $13\text{V} \leq V_i \leq 23\text{V}$	56			dB
Dropout Voltage	$V_d$	$I_o=0.5\text{A}$ , $T_J=25^\circ\text{C}$		2		V
Output Resistance	$R_o$	$f=1\text{kHz}$		17		$\text{m}\Omega$
Short Circuit Current Limit	$I_{sc}$	$V_i=35\text{V}$ , $T_A=25^\circ\text{C}$		250		mA
Peak Output Current	$I_{pk}$	$T_J=25^\circ\text{C}$		2.2		A

## Three Terminal Positive Voltage Regulator

### 78M09

#### ■ Typical Characteristics

