

**L78MG****Variable 4-Pin Voltage Regulator****Applications**

- General-purpose voltage regulator.

Features

- Wide operating voltage range : 7.5 to 35V
- 500mA output.
- On-chip thermal protector.
- On-chip overcurrent limiter.
- On-chip ASO protector.
- 4-pin SIP package facilitating mounting and thermal design as in case of transistor.
- Minimum number of external parts required.
- Easy to vary voltage.

Specifications**Maximum Ratings** at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum Supply Voltage	$V_{CC \text{ max}}$	Pin 1	35	V
Allowable Power Dissipation	$P_d \text{ max}$		1.2	W
Operating Temperature	T_{opr}		-20 to +80	$^\circ\text{C}$
Storage Temperature	T_{stg}		-40 to +150	$^\circ\text{C}$

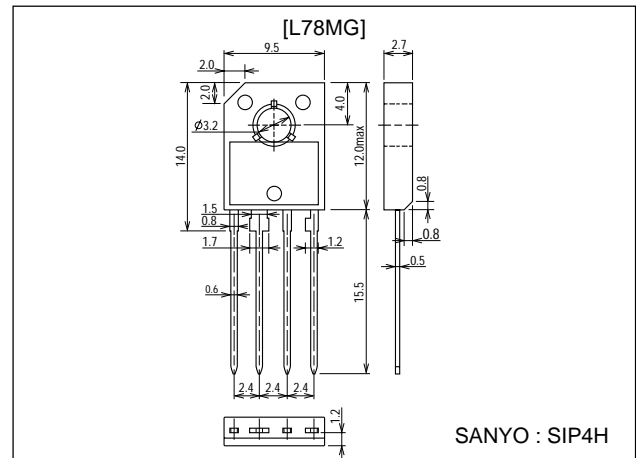
Recommended Operating Conditions at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Input Voltage	V_{IN}		$V_{OUT}+3$ to $V_{OUT}+15$	V
Output Current	I_{OUT}		500 or less	mA

Package Dimensions

unit:mm

3027A-SIP4H



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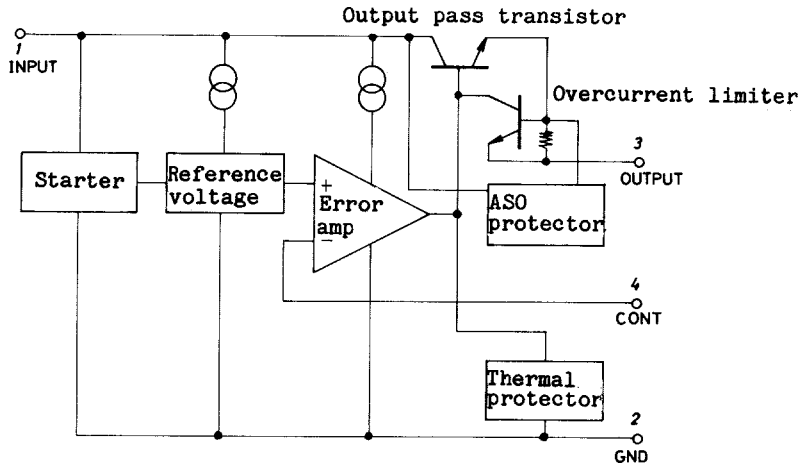
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L78MG

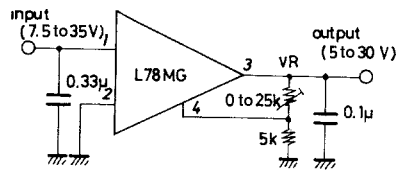
Operating Characteristics at $T_a = 25^\circ\text{C}$, $V_{IN}=10\text{V}$, $I_{OUT}=350\text{mA}$, $C_{IN}=0.33\mu\text{F}$, $C_{OUT}=0.1\mu\text{F}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Voltage	V_{IN}	$T_j=25^\circ\text{C}$	7.5		35	V
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+5$	5.0		30	V
Line Regulation (Referenced to output voltage)	ΔV_o LINE	$T_j=25^\circ\text{C}$, $I_{OUT}=200\text{mA}$, $V_{OUT}\leq 10\text{V}$ ($V_{OUT}+2.5\text{V}\leq V_{IN}\leq (V_{OUT}+20\text{V})$)		0.2	1.0	%
		$T_j=25^\circ\text{C}$, $I_{OUT}=200\text{mA}$, $V_{OUT}\geq 10\text{V}$ ($V_{OUT}+3\text{V}\leq V_{IN}\leq (V_{OUT}+15\text{V})$)		0.15	0.75	%
		($V_{OUT}+3\text{V}\leq V_{IN}\leq (V_{OUT}+7\text{V})$)		0.1	0.67	%
Load Regulation (Referenced to output voltage)	ΔV_o LOAD	$T_j=25^\circ\text{C}$, $5\text{mA}\leq I_{OUT}\leq 500\text{mA}$, $V_{IN}=V_{OUT}+7\text{V}$		0.2	1.0	%
Control Pin Current		$T_j=25^\circ\text{C}$		1.0	5.0	μA
Current Dissipation	I_{CC}	$T_j=25^\circ\text{C}$		2.8	5.0	mA
Ripple Rejection	Rrej	$8\text{V}\leq V_{IN}=18\text{V}$, $V_{OUT}=5\text{V}$, $f=120\text{Hz}$, $I_{OUT}=300\text{mA}$, $T_j=25^\circ\text{C}$	62	80		dB
		$8\text{V}\leq V_{IN}=18\text{V}$, $V_{OUT}=5\text{V}$, $f=120\text{Hz}$, $I_{OUT}=100\text{mA}$	62			dB
Output Noise Voltage	V_{NO}	$10\text{Hz}\leq f\leq 100\text{kHz}$, $V_{OUT}=5\text{V}$		8	40	μV
Minimum Input-Output Voltage Drop	V_{DROP}			2	2.5	V
Short Circuit Current	I_{OS}	$V_{IN}=35\text{V}$, $T_j=25^\circ\text{C}$		100	600	mA
Peak Output Current	I_{OP}	$T_j=25^\circ\text{C}$	0.4	0.8	1.4	A
Reference Voltage		$T_j=25^\circ\text{C}$	4.8	5.0	5.2	V

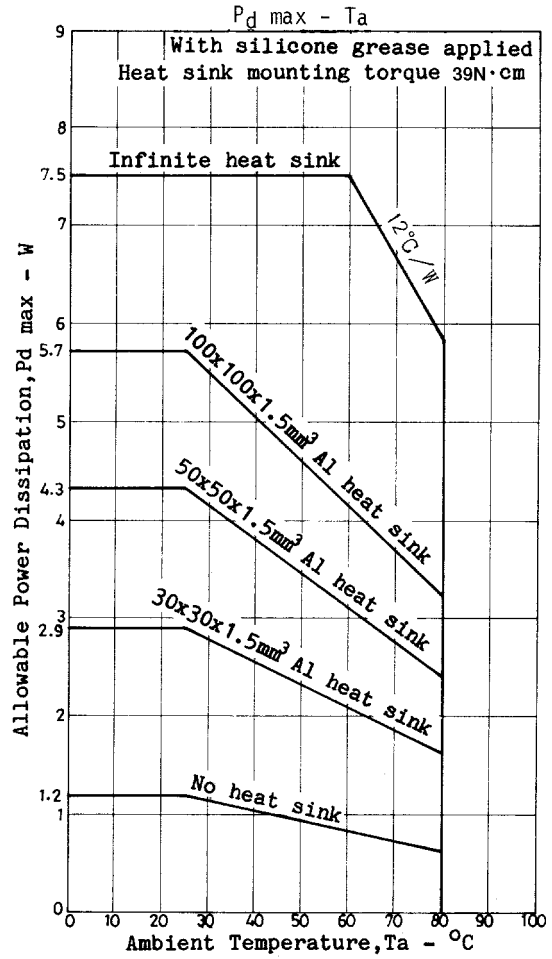
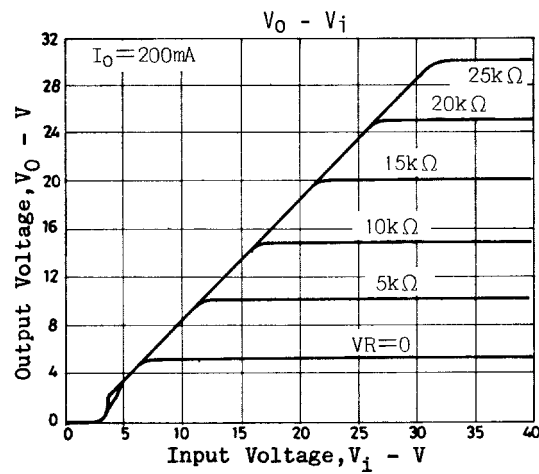
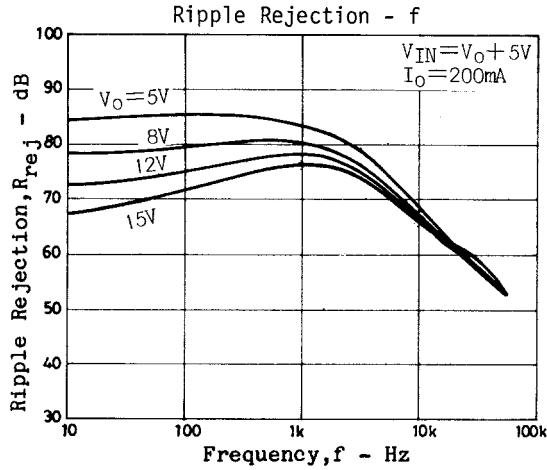
Equivalent Circuit



Sample Application Circuit



Unit (resistance: Ω , capacitance: F)



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