

<b>SANYO</b>	No.918F	<b>L78MG</b>
<b>Variable 4-Pin Voltage Regulator</b>		

**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 SEP package facilitating mounting and thermal design as in case of transistor
- . Minimum number of external parts required
- . Easy to vary voltage

**Maximum Ratings at Ta=25°C**

				unit
Maximum Supply Voltage	V <sub>CC</sub> max	Pin 1	35	V
Allowable Power Dissipation	Pd max		1.2	W
Operating Temperature	T <sub>opr</sub>		-20 to +80	°C
Storage Temperature	T <sub>stg</sub>		-40 to +150	°C

**Recommended Operating Conditions at Ta=25°C**

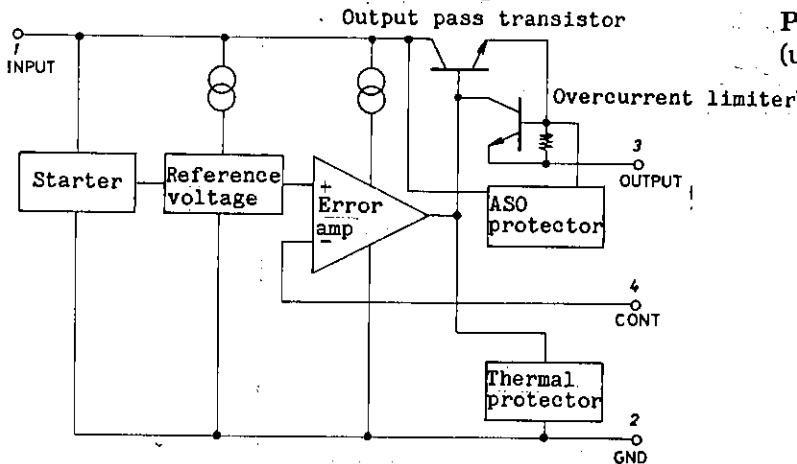
				unit
Input Voltage	V <sub>IN</sub>	V <sub>OUT</sub> +3 to V <sub>OUT</sub> +15	V	V
Output Current	I <sub>OUT</sub>	500 or less	mA	mA

**Operating Characteristics at Ta=25°C, V<sub>IN</sub>=10V, I<sub>OUT</sub>=350mA, C<sub>IN</sub>=0.33µF, C<sub>OUT</sub>=0.1µF**

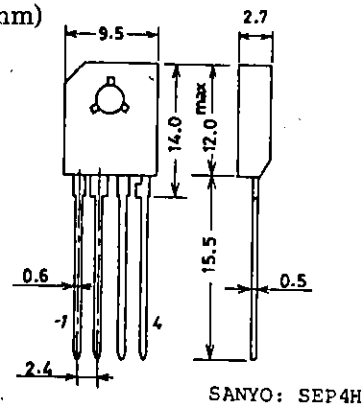
			min	typ	max	unit
Input Voltage	V <sub>IN</sub>	T <sub>j</sub> =25°C	7.5		35	V
Output Voltage	V <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +5	5.0		30	V
Line Regulation (Referenced to output voltage)	ΔV <sub>oline</sub>	T <sub>j</sub> =25°C, I <sub>OUT</sub> =200mA, V <sub>OUT</sub> ≤10V (V <sub>OUT</sub> +2.5V) ≤ V <sub>IN</sub> ≤ (V <sub>OUT</sub> +20V)	0.2	1.0		%
		T <sub>j</sub> =25°C, I <sub>OUT</sub> =200mA, V <sub>OUT</sub> ≥10V (V <sub>OUT</sub> +3V) ≤ V <sub>IN</sub> ≤ (V <sub>OUT</sub> +15V)	0.15	0.75		%
		(V <sub>OUT</sub> +3V) ≤ V <sub>IN</sub> ≤ (V <sub>OUT</sub> +7V)	0.1	0.67		%

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**Equivalent Circuit Block Diagram**



**Package Dimensions 3027A  
(unit: mm)**

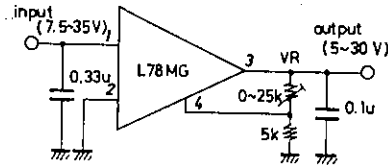


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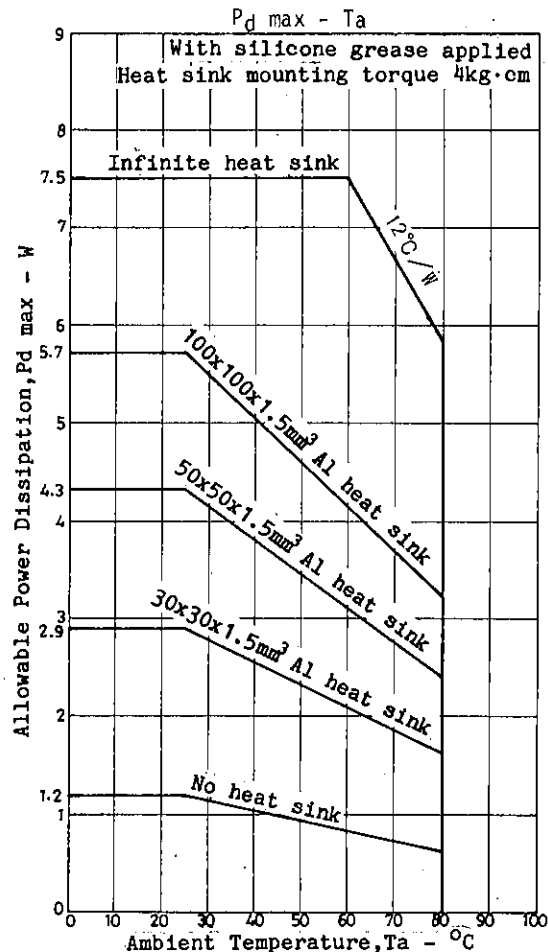
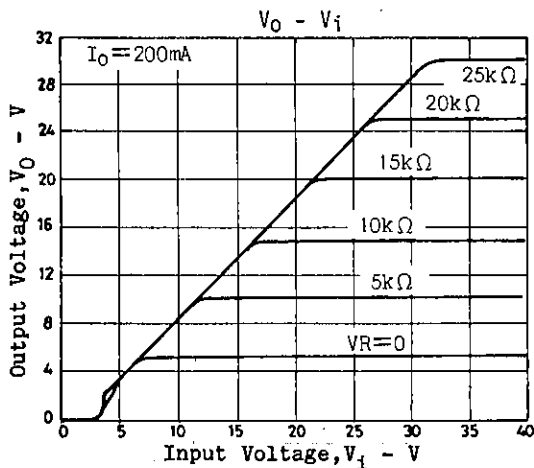
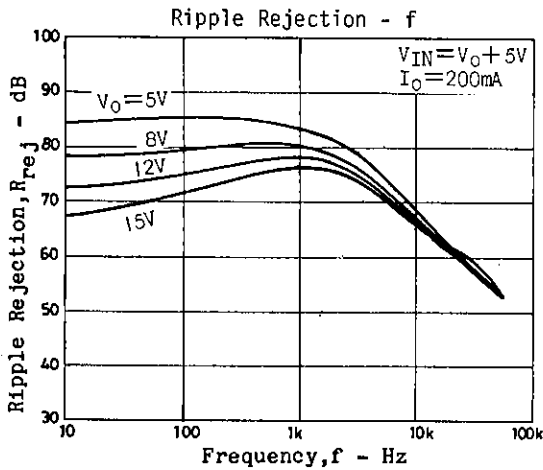
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			min	typ	max	unit
Load Regulation (Referenced to output voltage)	$4V_{Oload}$	$T_j=25^{\circ}C, 5mA \leq I_{OUT} \leq 500mA,$ $V_{IN}=V_{OUT}+7V$		0.2	1.0	%
Control Pin Current		$T_j=25^{\circ}C$		1.0	5.0	$\mu A$
Current Dissipation	$I_{CC}$	$T_j=25^{\circ}C$		2.8	5.0	mA
Ripple Rejection	$R_{rej}$	$8V \leq V_{IN} \leq 18V, V_{OUT}=5V, f=120Hz$ $I_{OUT}=300mA, T_j=25^{\circ}C$	62	80		dB
		$8V \leq V_{IN} \leq 18V, V_{OUT}=5V, f=120Hz$ $I_{OUT}=100mA$	62			dB
Output Noise Voltage	$V_{NO}$	$10Hz \leq f \leq 100kHz, V_{OUT}=5V$		8	40	$\mu V$
Minimum Input-Output Voltage Drop	$V_{drop}$			2	2.5	V
Short Circuit Current	$I_{OS}$	$V_{IN}=35V, T_j=25^{\circ}C$		100	600	mA
Peak Output Current	$I_{op}$	$T_j=25^{\circ}C$	0.4	0.8	1.4	A
Reference Voltage		$T_j=25^{\circ}C$	4.8	5.0	5.2	V

## Sample Application Circuit



Unit (resistance:  $\Omega$ , capacitance: F)



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