



Monolithic Linear IC
LA5528N, 5528NM

Low-Voltage DC Motor
Speed Controllers

Especially suited for controlling speed of a low-voltage (3V min.) DC motor for cassette tape recorders, 8mm motion-picture cameras, record players

Features

- Wide operating voltage range LA5528N : 1.8 to 10V
LA5528NM : 1.8 to 6V
- Easy to vary speed
- Large starting torque
- Easy to control rotational speed from very low speed to high speed

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

			unit
Maximum Supply Voltage	V_{CC} max	LA5528N	12.0 V
		LA5528NM	8.0 V
Allowable Power Dissipation	P_d max	LA5528N	1.0 W
		LA5528NM	0.3 W
Operating Temperature	T_{opr}		-20 to +80 °C
Storage Temperature	T_{stg}		-40 to +150 °C
Motor Current	I_m	LA5528N	1000 mA
		LA5528NM	700 mA

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

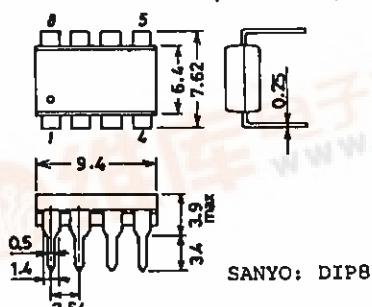
			unit
Recommended Supply Voltage	V_{CC}	LA5528N	1.8 to 10 V
		LA5528NM	1.8 to 6 V
Recommended Operating Temperature	T_{opg}		-10 to +60 °C

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

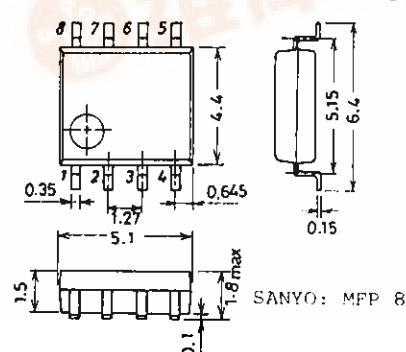
		min	typ	max	unit
Reference Voltage	V_{ref}	1.15	1.25	1.3	V
Quiescent Current Dissipation	I_d	3.0	6.0	mA	
Shunt Ratio	K	45	50	55	

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Package Dimensions 3001B
(unit : mm) [LA5528N]



Package Dimensions 3232B
(unit : mm) [LA5528NM]

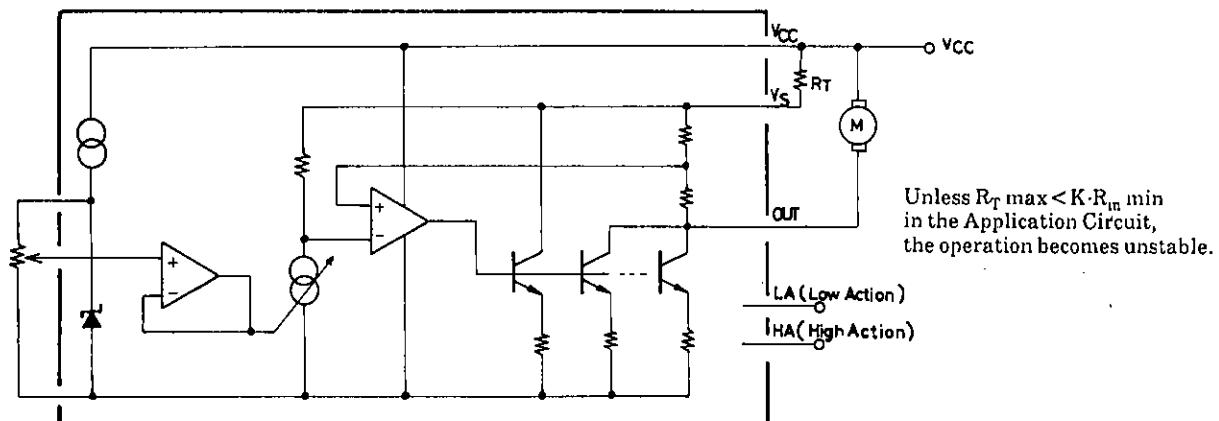


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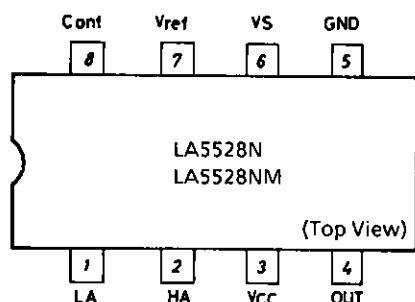
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			min	typ	max	unit
Residual Voltage	V_{sat}	$V_{CC}=3V, I_m=200mA, V_{ref}=V_{cont}$	0.3	0.5	V	
Voltage Characteristic of Reference Voltage	$\frac{\Delta V_{ref}}{V_{ref}} / \Delta V_{CC}$	LA5528N : $V_{CC}=1.8$ to $10V$, $I_m=100mA$ LA5528NM : $V_{CC}=1.8$ to $6V$, $I_m=100mA$	0.1	0.3	%/V	
Voltage Characteristic of Shunt Ratio	$\frac{\Delta K}{K} / \Delta V_{CC}$	LA5528N : $V_{CC}=1.8$ to $10V$, $I_m=50-150mA$ LA5528NM : $V_{CC}=1.8$ to $6V$, $I_m=50-150mA$	0.25	0.5	%/V	
Current Characteristic of Reference Voltage	$\frac{\Delta V_{ref}}{V_{ref}} / \Delta I_m$	$I_m=20$ to $200mA, V_{CC}=3V$	0.005	0.01	%/mA	
Current Characteristic of Shunt Ratio	$\frac{\Delta K}{K} / \Delta I_m$	$I_m=20-50mA$ to $170-200mA$, $V_{CC}=3V$	-0.02	-0.005	0.02	%/mA
Temperature Characteristic of Reference Voltage	$\frac{\Delta V_{ref}}{V_{ref}} / \Delta T_a$	$V_{CC}=3V, I_m=100mA$, $T_a = -20$ to $+80^\circ C$	0.02			%/ $^\circ C$
Temperature Characteristic of Shunt Ratio	$\frac{\Delta K}{K} / \Delta T_a$	$V_{CC}=3V, I_m=50-150mA$, $T_a = -20$ to $+80^\circ C$	-0.002			%/ $^\circ C$
Bias Current at OFF-State	$I_{(st)}$	$V_{CC}=3V, R_L=100\Omega$	0.4	30	μA	
HA ON-State Voltage	$V_{H(on)}$	$V_{CC}=3V, I_m=100mA$	1.8		V_{CC}	V
LA ON-State Voltage	$V_{L(on)}$	$V_{CC}=3V, I_m=100mA$	0		1.0	V

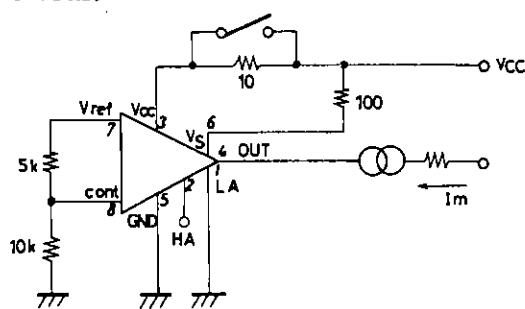
Equivalent Circuit Block Diagram



Pin Assignment

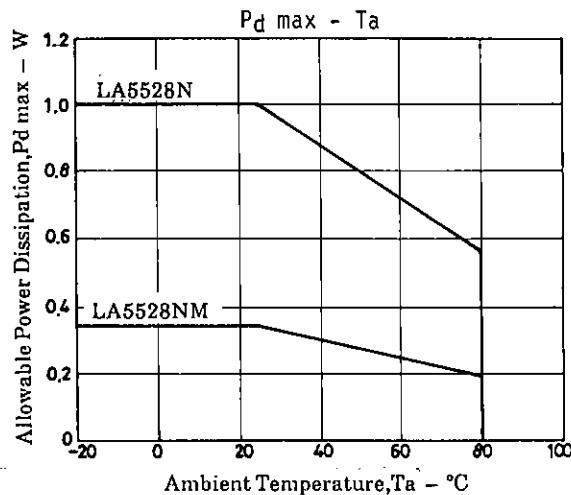


Test Circuit

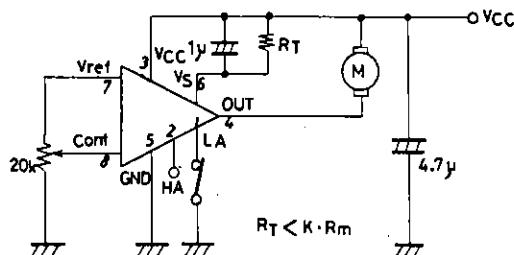


Unit (resistance: Ω)

LA5528N,5528NM



Application Circuit



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