



LA5528N, 5528NM

Low-Voltage DC Motor Speed Controllers

Overview

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

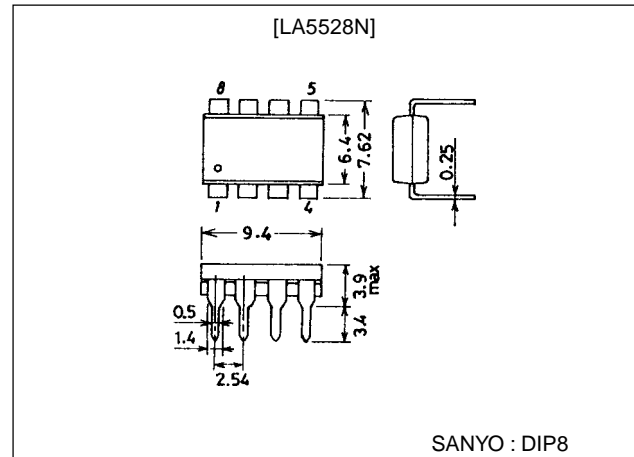
Features

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

Package Dimensions

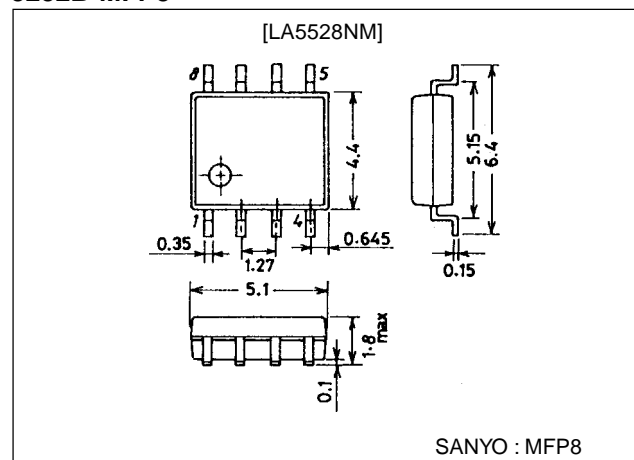
unit:mm

3001B-DIP8



unit:mm

3232B-MFP8



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Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max	LA5528N	12.0	V
		LA5528NM	8.0	V
Allowable power dissipation	Pd max	LA5528N	1.0	W
		LA5528NM	0.3	W
Operating temperature	Topr		-20 to +80	°C
Storage temperature	Tstg		-40 to +150	°C
Motor current	I _m	LA5528N	1000	mA
		LA5528NM	700	mA

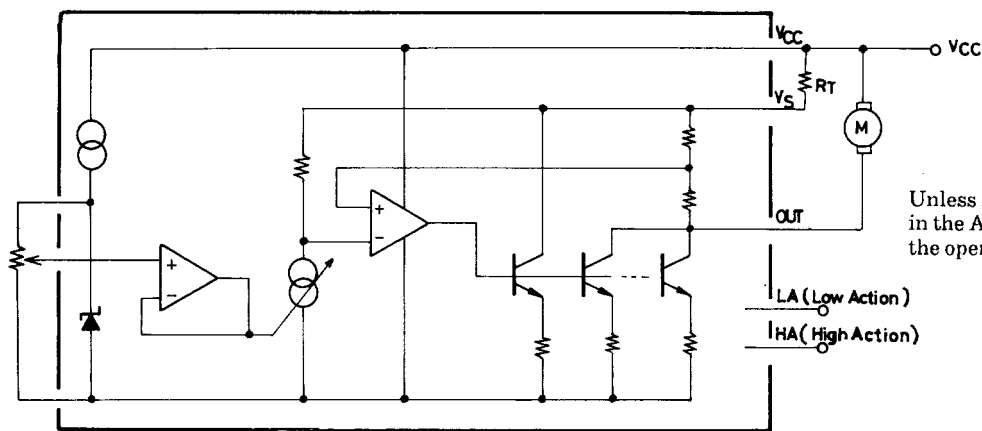
Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V _{CC}	LA5528N	1.8 to 10	V
		LA5528NM	1.8 to 6	V
Recommended operating temperature	Topg		-10 to +60	°C

Operating Characteristics at Ta = 25°C

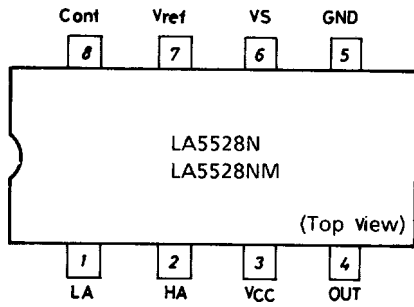
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Reference voltage	V _{ref}	V _{CC} =3V, I _m =100mA	1.15	1.25	1.3	V
Quiescent flow-in current	I _d	V _{CC} =3V, I _m =100mA		3.0	6.0	mA
Shunt ratio	K	V _{CC} =3V, I _m =50mA, 150mA	45	50	55	
Residual voltage	V _{sat}	V _{CC} =3V, I _m =200mA, V _{ref} =V _{cont}		0.3	0.5	V
Voltage of characteristic of reference voltage	$\frac{\Delta V_{ref}}{V_{ref}} / \Delta V_{CC}$	LA5528N: I _m =100mA, V _{CC} =1.8 to 10V LA5528NM: I _m =100mA, V _{CC} =1.8 to 6V		0.1	0.3	%/V
Voltage of characteristic of shunt ratio	$\frac{\Delta K}{K} / \Delta V_{CC}$	LA5528N: I _m =50mA, 150mA, V _{CC} =1.8 to 10V LA5528NM: I _m =50mA, 150mA, V _{CC} =1.8 to 6V		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	$\frac{\Delta K}{K} / \Delta I_m$	V _{CC} =3V, I _m =20mA, 50mA to 170mA, 200mA	-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°C		0.02		%/°C
Temperature characteristics of shunt ratio	$\frac{\Delta K}{K} / \Delta T_a$	V _{CC} =3V, I _m =50mA, 150mA, T _a =-20 to +80°C		-0.002		%/°C
Bias current at off-state	I _(st)	V _{CC} =3V, R _L =100Ω		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

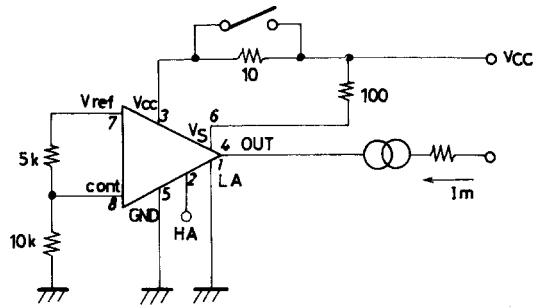


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Pin Assignment

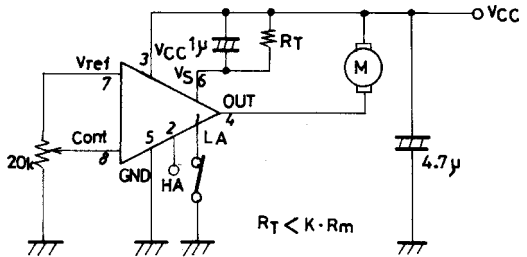


Test Circuit

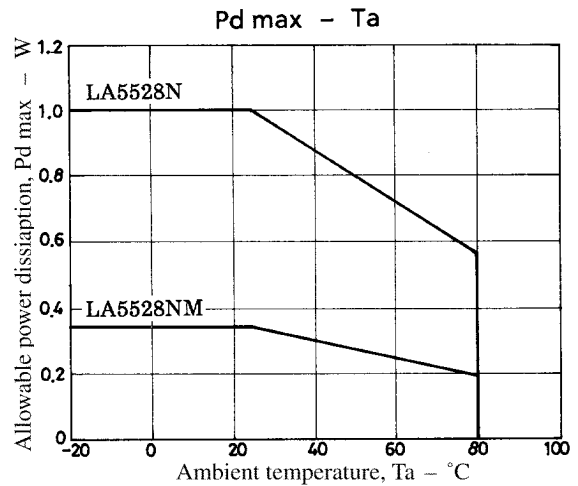


Unit (resistance: Ω)

Sample Application Circuit



Unit (capacitance : F)



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