Ordering number:EN3232A

Monolithic Linear IC

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

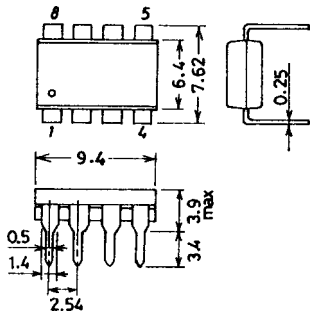
- Wide operating voltage range LA5528N : 18 to 10V
  LA5528NM : 1.8 to 6V
- Easy to very speed.
- Large starting torque.
- Easy to control rotational speed from very low speed to high speed.

Package Dimensions

unit:mm

3001B-DIP8

[LA5528N]

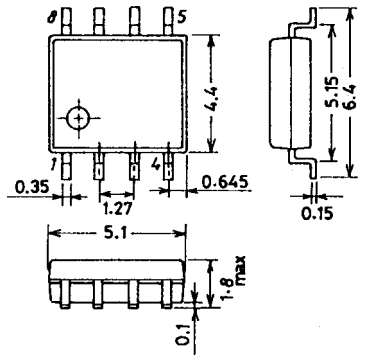


SANYO : DIP8

unit:mm

3232B-MFP8

[LA5528NM]



SANYO : MFP8

SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

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

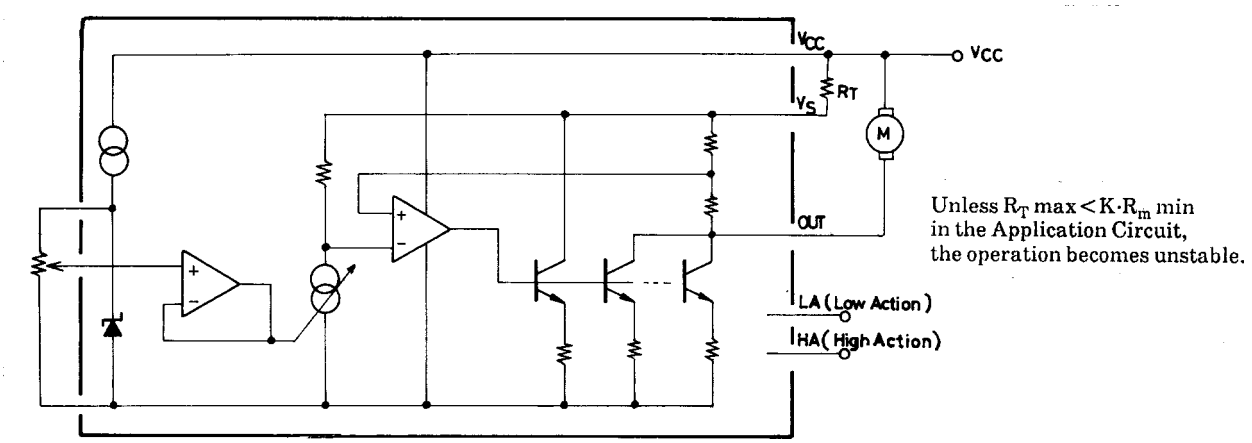
Operating Conditions at Ta = 25˚C

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

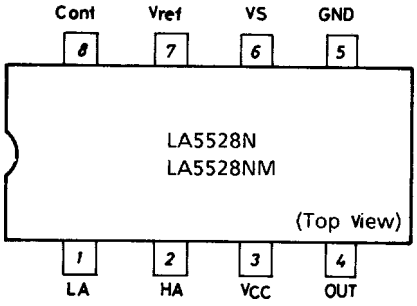
Operating Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Reference voltage	Vref	V_{CC}=3V, I_m=100mA	1.15	1.25	1.3	V
Quiescent flow-in current	Id	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	Vsat	V_{CC}=3V, I_m=200mA, Vref=Vcont		0.3	0.5	V
Voltage of characteristic of reference voltage	$\frac{\Delta Vref}{Vref}/\Delta V_{CC}$	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	$\frac{\Delta Vref}{Vref}/\Delta I_m$	I_m=20 to 200mA, V_{CC}=3V		0.005	0.01	%/mA
Current chacacteristic 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	$\frac{\Delta Vref}{Vref}/\Delta Ta$	V_{CC}=3V, I_m=100mA, Ta=–20 to +80˚C		0.02		%/˚C
Temperature characteristics of shunt ratio	$\frac{\Delta K}{K}/\Delta Ta$	V_{CC}=3V, I_m=50mA, 150mA, Ta=–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	$VH_{(on)}$	V_{CC}=3V, I_m=100mA	1.8		V_{CC}	V
LA on-state voltage	$VL_{(on)}$	V_{CC}=3V, I_m=100mA	0		1.0	V

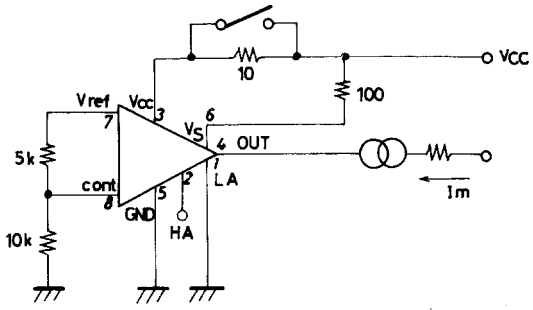
Equivalent Circuit Block Diagram



Pin Assignment

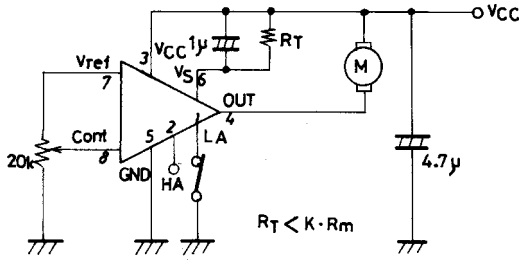


Test Circuit



Unit (resistance: Ω)

Sample Application Circuit



Unit (capacitance : F)

Pd max – Ta