

No.1402C

LA5550,5550M

LOW-VOLTAGE DC MOTOR SPEED CONTROLLER WITH LOGIC CIRCUIT

Applications

The LA5550, 5550M are low-voltage (3V min.) DC motor speed control IC with bidirectional driver and logic circuit. Speed control, function control of DC motor for cassette tape recorder, tape deck, telephone answering machine.

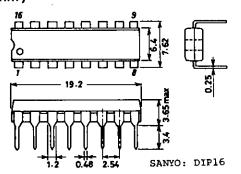
Features

- . Wide operating voltage range: 1.8 to 8V.
- . Has a logic circuit which operates in such a manner as 2 logic inputs cause FF, REW, GOVERNOR, BRAKE mode to occur.
- . Easy to vary speed at the GOVERNOR mode.
- . Turning OFF the strobe pin causes little I_{CC} to flow (100uA).
- Large starting torque.

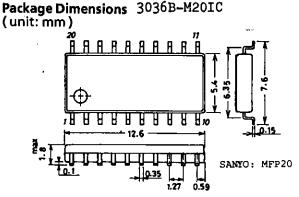
Maximum Ratings at Ta=25°C Maximum Supply Voltage Allowable Power Dissipation	V _{CCmax} Pd max	LA5550 LA5550M	8 1 0.42	unit V W W
Maximum Motor Current Operating Temperature Storage Temperature	I _m max Topr Tstg		1000 -20 to +80 -40 to +150	mA °C °C
Operating Conditions at Ta=25°C Supply Voltage Range	$v_{\rm CC}^{\rm op}$		1.8 to 8	unit V

LA5550

Package Dimensions 3006B-D16IC (unit: mm)

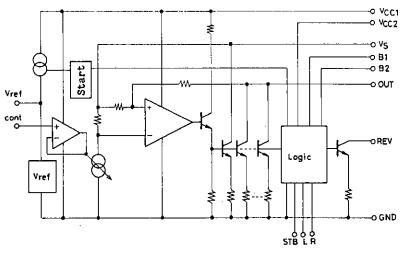


LA5550N

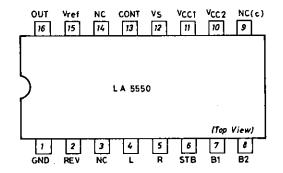


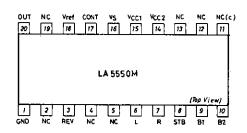
Operating Characteristics at Ta	=25 ⁰ C					
GOVERNOR Mode (G)			min	typ	max	unit
Reference Voltage	Vref	V _{CC} =3V, Im=100mA	1.1	1.2	1.3	V
Quiescent Current Dissipation		V _{CC} =3V, motor open		8	15	mΑ
Shunt Ratio	K	V _{CC} =3V, Im=50-150mA	45	50	55	
Residual Voltage	Vsat(G)	V _{CC} =3V.Im=200mA		0.27	0.5	V
Voltage Characteristic of		V _{CC} =1.8to8V, Im=100mA	L	0.26	0.5	%/V
Reference Voltage	<u> </u>					
Voltage Characteristic of	$\frac{\kappa}{\kappa}$ / ΔV	V _{CC} =1.8to8V,		0.45		%/V
Shunt Ratio	K''	Im=50-150mA				
Current Characteristic of	<u>△Vref</u> /∧Tm	V _{CC} =3V,Im=20to200mA		0.05	0.1	%/mA
Current Characteristic of	$\frac{\triangle K}{K} / \triangle Im$	V _{CC} =3V, Im=50-100to 150-200mA	-	-0.02		%/mA
Shunt Ratio	K'—	150-200mA				
FF Mode						
Quiescent Current Dissipation		V _{CC} =3V, motor open		18.5		
Residual Voltage	Vsat(F)	V _{CC} =3V, Im=200mA		0.28	0.5	V
REW Mode	T 1/D)			40 =		
Quiescent Current Dissipation		V _{CC} =3V, motor open		18.5	_	
Residual Voltage	Vsat(R)	V _{CC} =3V,Im=200mA		0.30	0.5	V
CMOD Node						
STOP Mode	74/61	n on (emp on)		26	20	A
Quiescent Current Dissipation	_	V _{CC} =3V (STB-ON)		26 100		
Strobe Current	I _T STB	V _{CC} =3V (STB+OFF)			200	
Base Pull-in Current	^I B1,2	V _{CC} =3V, Modes other	5.0	4.4	5.8	mA
		than BRAKE				

Equivalent Circuit Block Diagram

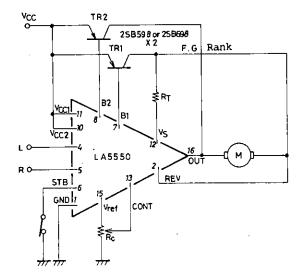


Pin Assignment





Sample Application Circuit (1)

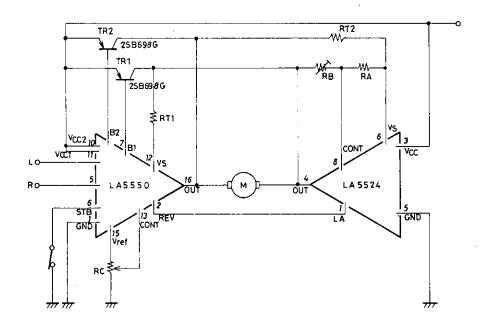


* Assuming R_T<K.R_m

Mode	Ь	R
High-speed FF	0	0
GOVERNOR FF	0_	1
High-speed REW	1	0_
BRAKE	1	Ī

0:0~0.3V 1:1.8V~V_{CC}

Sample Application Circuit (II): Bidirectional Governor



 $R_A = 2.2k\Omega$ $R_B = 50K$ VR $R_C = 30K$ VR

Turning OFF the STB pin causes I_{CC} <100uA (at 3V).

Mode	L	R
High-speed FF	0	0
FF control	0	_
REW control	ī	0
BRAKE	1	ì

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