Ordering number: EN 1402C

Monolithic Linear IC

SANYO 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

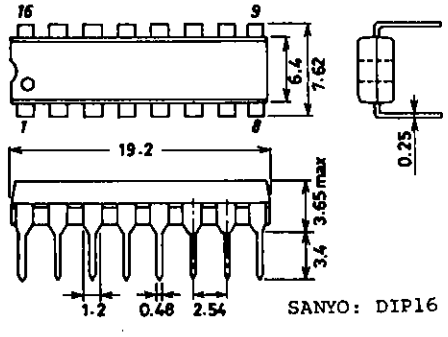
				unit
Maximum Supply Voltage	$V_{CC}max$		8	V
Allowable Power Dissipation	Pd max	LA5550	1	W
		LA5550M	0.42	W
Maximum Motor Current	I_m max		1000	mA
Operating Temperature	Topr		-20 to +80	°C
Storage Temperature	Tstg		-40 to +150	°C

Operating Conditions at Ta=25°C

			unit
Supply Voltage Range	$V_{CC}op$	1.8 to 8	V

LA5550

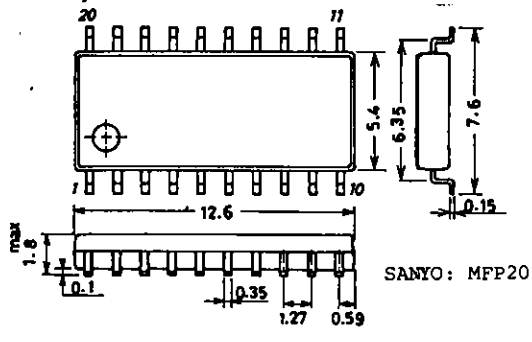
Package Dimensions 3006B-D16IC
(unit: mm)



SANYO: DIP16

LA5550N

Package Dimensions 3036B-M20IC
(unit: mm)



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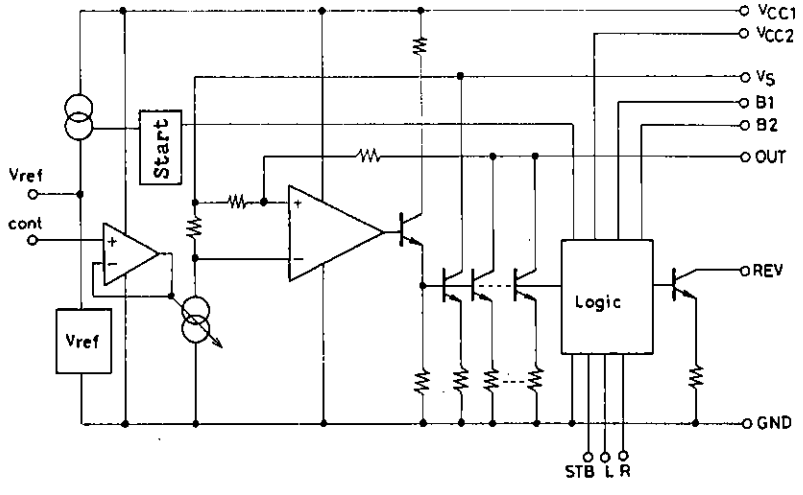
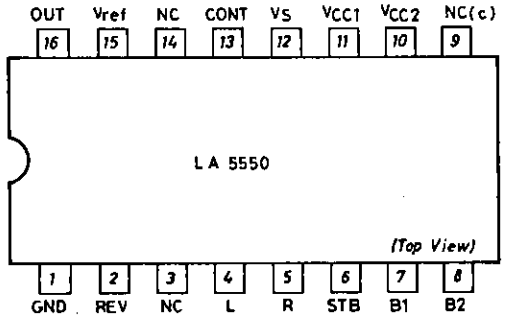
Operating Characteristics at Ta=25°C

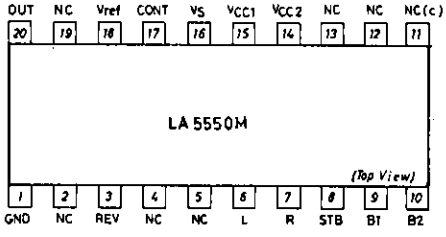
			min	typ	max	unit
GOVERNOR Mode (G)						
Reference Voltage	Vref	V_{CC}=3V,Im=100mA	1.1	1.2	1.3	V
Quiescent Current Dissipation	Id	V_{CC}=3V,motor open		8	15	mA
Shunt Ratio	K	V_{CC}=3V,Im=50-150mA	45	50	55	
Residual Voltage	Vsat(G)	V_{CC}=3V,Im=200mA		0.27	0.5	V
Voltage Characteristic of Reference Voltage	$\frac{\triangle Vref}{Vref}/\triangle V$	V_{CC}=1.8to8V,Im=100mA		0.26	0.5	%/V
Voltage Characteristic of Shunt Ratio	$\frac{K}{K}/\triangle V$	V_{CC}=1.8to8V, Im=50-150mA		0.45		%/V
Current Characteristic of Reference Voltage	$\frac{\triangle Vref}{Vref}/\triangle Im$	V_{CC}=3V,Im=20to200mA		0.05	0.1	%/mA
Current Characteristic of Shunt Ratio	$\frac{\triangle K}{K}/\triangle Im$	V_{CC}=3V,Im=50-100to 150-200mA		-0.02		%/mA
FF Mode						
Quiescent Current Dissipation	Id(F)	V_{CC}=3V,motor open		18.5	23	mA
Residual Voltage	Vsat(F)	V_{CC}=3V,Im=200mA		0.28	0.5	V
REW Mode						
Quiescent Current Dissipation	Id(R)	V_{CC}=3V,motor open		18.5	23	mA
Residual Voltage	Vsat(R)	V_{CC}=3V,Im=200mA		0.30	0.5	V
STOP Mode						
Quiescent Current Dissipation	Id(S)	V_{CC}=3V (STB-ON)		26	30	mA
Strobe Current	I_{STB}	V_{CC}=3V (STB-OFF)		100	200	uA
Base Pull-in Current	$I_{B1,2}$	V_{CC}=3V,Modes other than BRAKE	3.8	4.4	5.8	mA

Equivalent Circuit Block Diagram

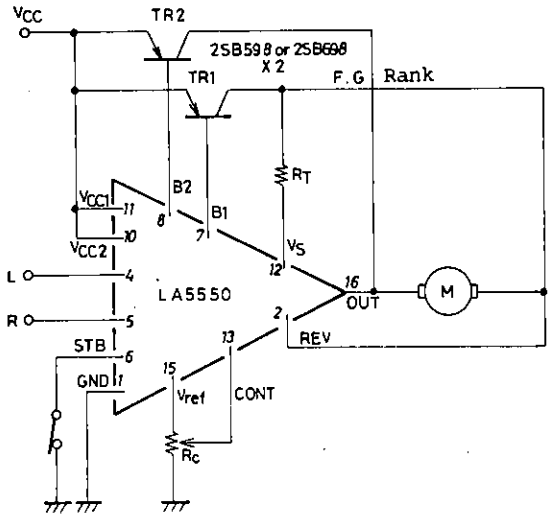


Pin Assignment





Sample Application Circuit (I)



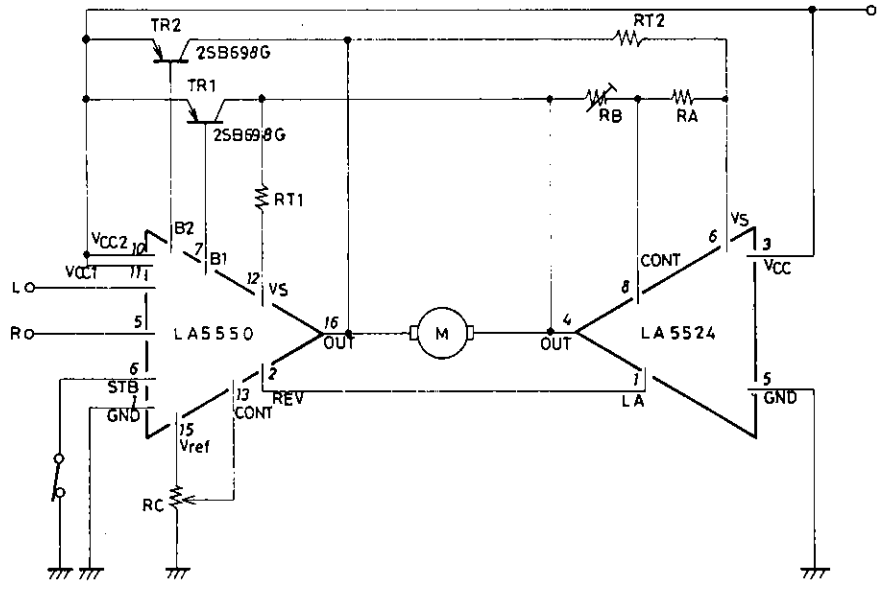
* Assuming $R_T < K.R_m$

Mode	L	R
High-speed FF	0	0
GOVERNOR FF	0	1
High-speed REW	1	0
BRAKE	1	1

0 : 0~0.3V

1 : 1.8V~V_{CC}

Sample Application Circuit (II): Bidirectional Governor



R_A = 2.2kΩ

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	1
REW control	1	0
BRAKE	1	1