

NE544

Servo Amplifier

Product Specification

DESCRIPTION

The NE544 is a servo amplifier and pulse-width demodulator with internal motor drive transistors. It is designed for remote control applications in digital proportional systems but can be used in many other closed-loop position control applications. It incorporates a linear one-shot for improved positional accuracy and outputs for external PNP motor drive transistors.

FEATURES

- 500mA load current capability
- Bidirectional bridge output with single power supply
- Low standby power drain
- Adjustable deadband and trigger thresholds
- High linearity, 0.5% maximum error
- Output drive for external PNP transistors (optional)
- Wide supply voltage range

APPLICATIONS

- Miniature position servo
- Robotics
- Control devices
- Remote positioning

ORDERING INFORMATION

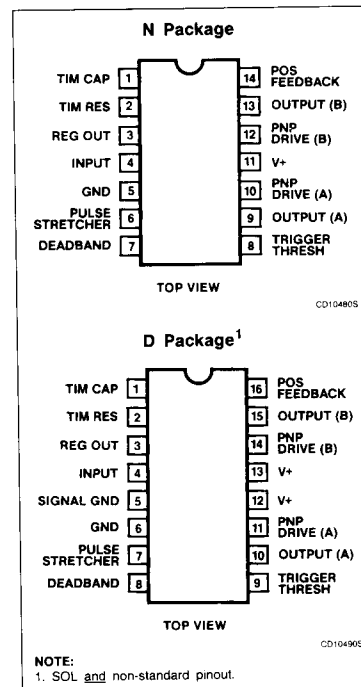
DESCRIPTION	TEMPERATURE RANGE	ORDER CODE
14-Pin Plastic DIP	0 to +70°C	NE544N
16-Pin Plastic SOL Package	0 to +70°C	NE544D

ABSOLUTE MAXIMUM RATINGS

$T_A = 25^\circ\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	RATING	UNIT
V+	Supply voltage	6.0	V
I_O	Output current D package N package	400 500	mA
T_A	Operating temperature	0 to +70	°C
T_{STG}	Storage temperature	-65 to +150	°C

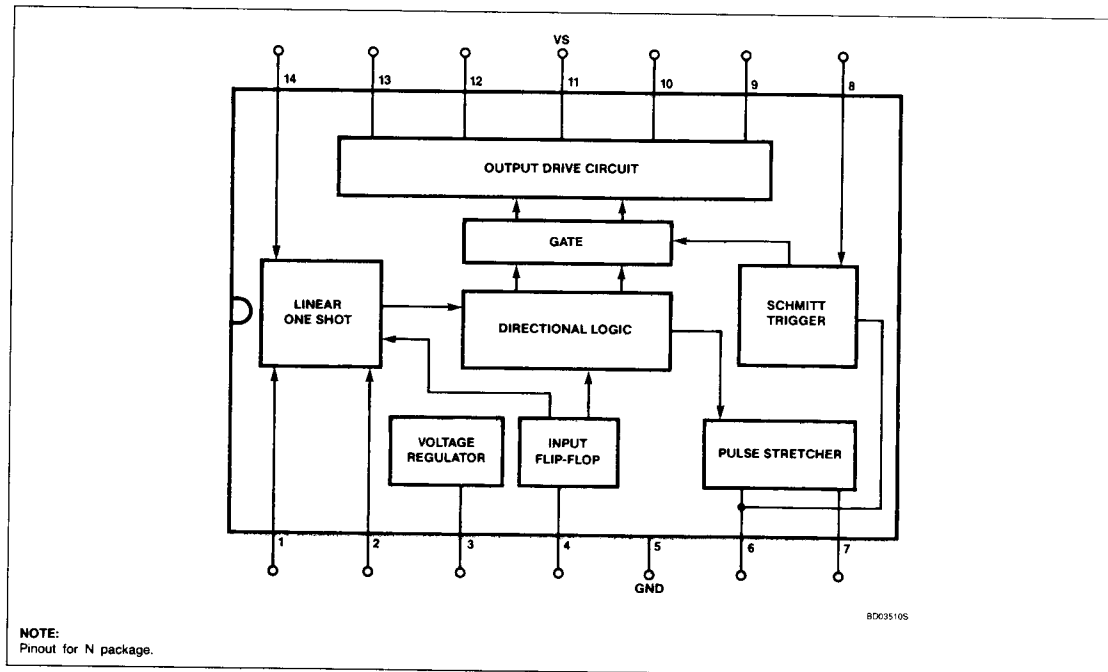
PIN CONFIGURATIONS



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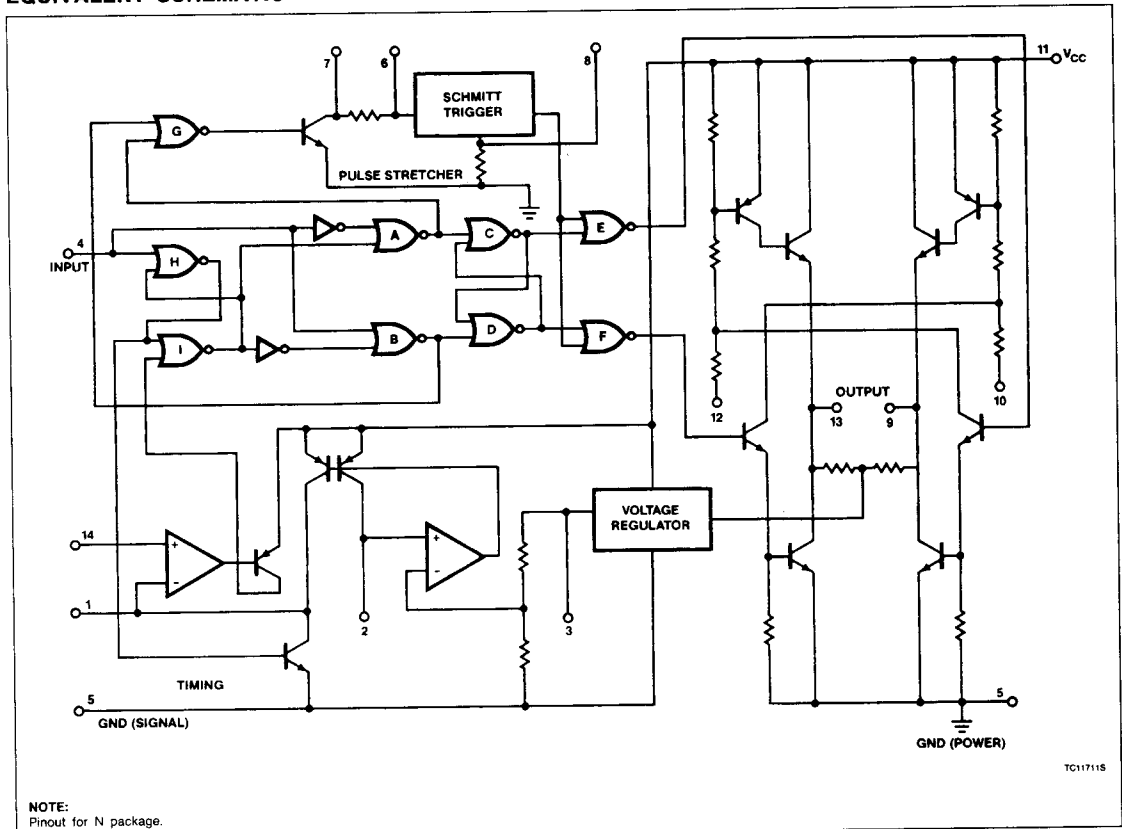
BLOCK DIAGRAM



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EQUIVALENT SCHEMATIC



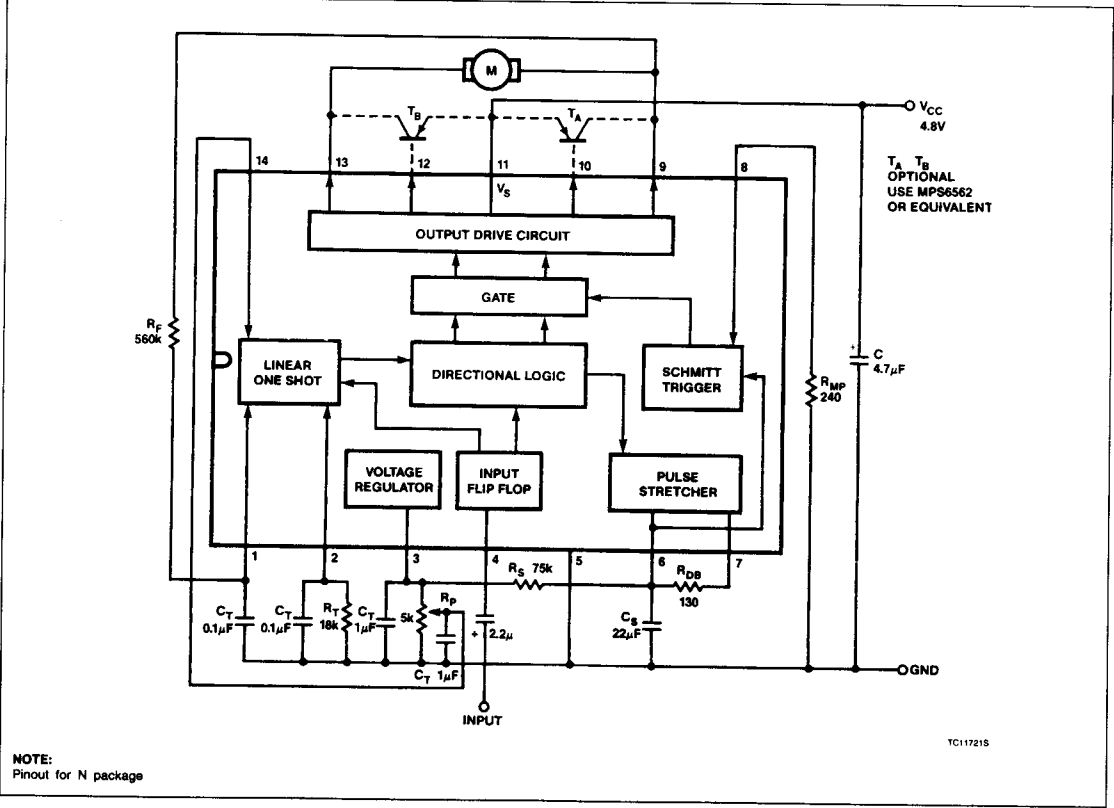
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DC ELECTRICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$, $V_S = 4.8\text{V}$ unless otherwise specified.

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
V_{CC}	Supply voltage	Quiescent	3.2	4.8	6	V
I_{CC}	Supply current, Pin 11		4.2	5.5	10	mA
V_{TH}	Input threshold, Pin 4 On Off			1.5 1.4		V
Z_{IN}	Input resistance, Pin 4			18		$k\Omega$
V_{OL} V_{OH}	Output voltage Low High	Pin 9 or 13. $I_L = 400\text{mA}$		0.3 3.9		V
V_{REG}	Regulated voltage, Pin 3		2.1	2.5	2.9	V
ΔV_{REG}	Regulation, Pin 3 Minimum deadband, Pin 7 One-shot temperature coefficient	$3.9\text{V} \leq V_{CC} \leq 6\text{V}$ $R_{DB} = 0$		10 1 0.01		mV/V μs $\%/^\circ\text{C}$
	Standby output voltage PNP drive current	Pins 9 and 13 Pins 10 and 12		2.5 20		V mA

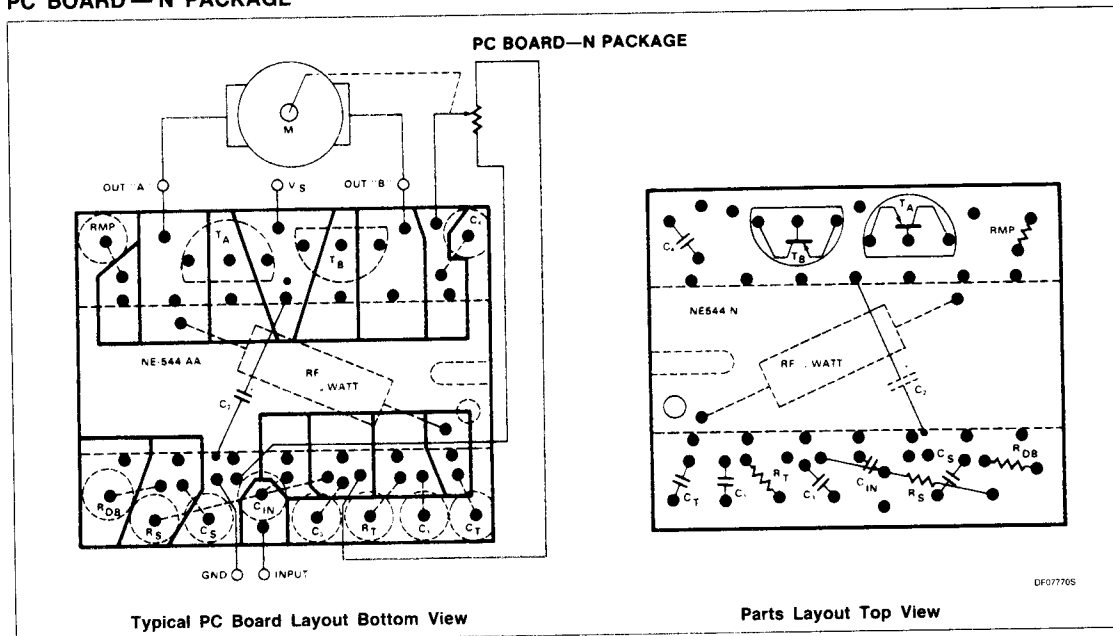
TYPICAL CONNECTION OF NE544N FOR LINEAR ONE-SHOT TIMING



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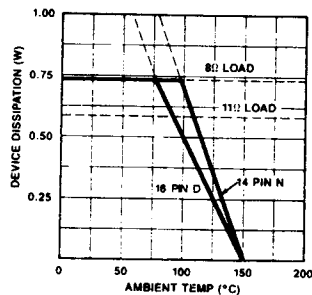
PC BOARD — N PACKAGE



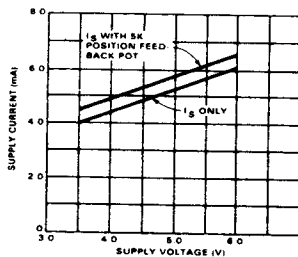
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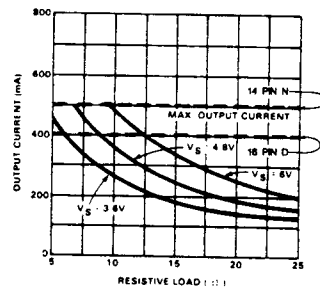
TYPICAL PERFORMANCE CHARACTERISTICS

Maximum Dissipation vs
Ambient Temperature

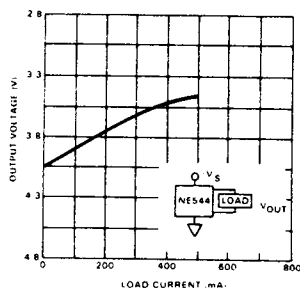
OP194615

Supply Current vs
Supply Voltage

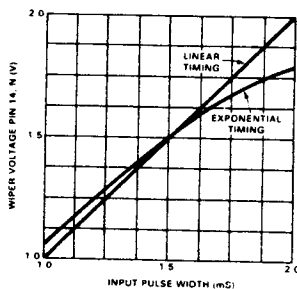
OP194608

Output Current vs
Load Resistance

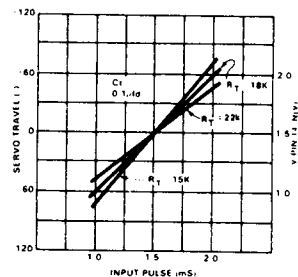
OP196018

Output Voltage vs
Load Current

OP196108

Input Pulse Width vs
Feedback Pot Output

OP196208

Input Pulse vs
Servo Travel

OP196308