POWER DRIVER

NE/SE540

DESCRIPTION

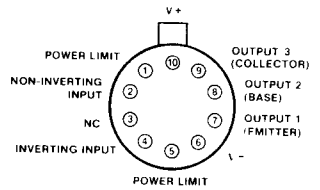
The NE/SE540 is a monolithic, class AB power amplifier designed specifically to drive a pair of complementary output transistors. The device features low standby current yet retains a high output current drive capability with internal current limiting. A wide power bandwidth and excellent linearity make this device ideal for use an audio power amplifier.

FEATURES

- **Internal current limiting**
- **Low standby current**
- **High output current capability**
- **Wide power bandwidth**
- **Low distortion**

PIN CONFIGURATION

H PACKAGE



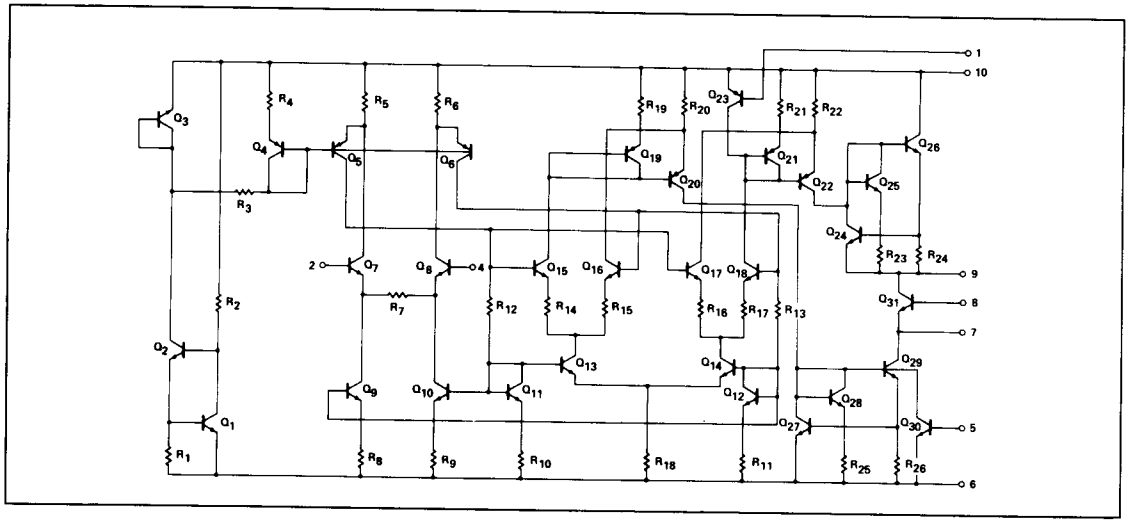
ORDER NUMBERS

NE540H, SE540H

ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNIT
Supply voltage		
SE540	±27	V
NE540	±22	V
Operating temperature range		
SE540	-55 to +125	°C
NE540	0 to +70	°C
Storage temperature range	-65 to +150	°C
Output short circuit duration (Not exceeding maximum dissipation.)	Indefinite	

EQUIVALENT SCHEMATIC



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DC ELECTRICAL CHARACTERISTICS $T_A = 25°C$ and $V_{CC} = \pm 20V$ unless otherwise specified.

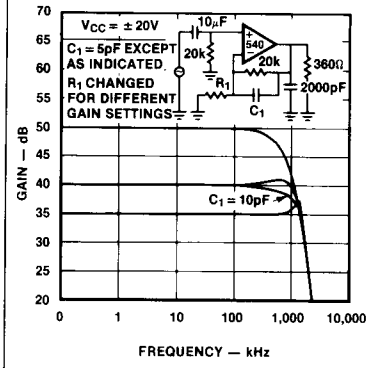
PARAMETER	TEST CONDITIONS	SE540			NE540			UNIT
		Min	Typ	Max	Min	Typ	Max	
Operating supply voltage		±5		±25	±5		±20	V
Quiescent current			13	20		13	20	mA
Input offset voltage			5	7		7	10	mV
Input offset current			0.3	0.7		0.5	1	μA
Input bias current			1.5	3		2	5	μA
Input impedance			20			20		kΩ
Current gain		80	100		70	90		dB
Gain variation over temperature range	40dB gain		±0.1			±0.1		dB
Power supply rejection ratio	40dB gain	80	90		60	80		dB
Common mode rejection ratio			110			90		dB
Output drive current		±120	±150		±80	±100		mA

AC ELECTRICAL CHARACTERISTICS $T_A = 25°C$ and $V_{CC} = \pm 20V$ unless otherwise specified.

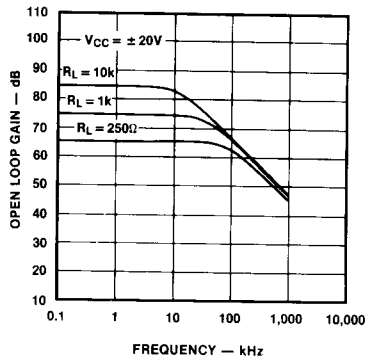
PARAMETER	TEST CONDITIONS	SE540			NE540			UNIT
		Min	Typ	Max	Min	Typ	Max	
Frequency response	40dB gain ±1dB		500			100		kHz
Distortion	40dB gain, Output 3dB below clipping		0.25	0.5		0.5	1.0	%
	$R_L = 600\Omega$							
	$R_L = 2k\Omega$		0.06			0.06		
Equivalent input noise voltage	$R_S = 600\Omega$ 50Hz to 500kHz		10			10		μV
Slew rate	$V_{CC} = \pm 20V$ $V_{OUT} = \pm 15V$		200			200		V/μs

TYPICAL PERFORMANCE CHARACTERISTICS

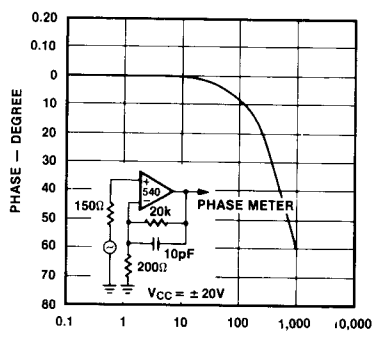
CLOSED LOOP FREQUENCY RESPONSE



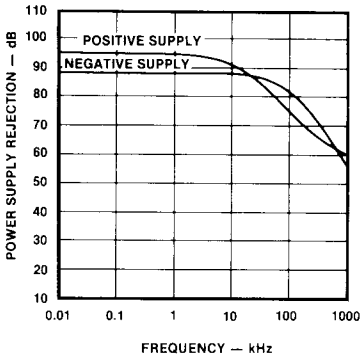
OPEN LOOP GAIN AND FREQUENCY RESPONSE



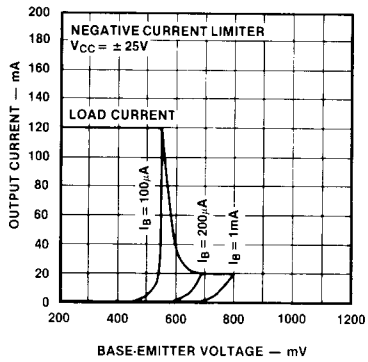
PHASE RESPONSE vs FREQUENCY



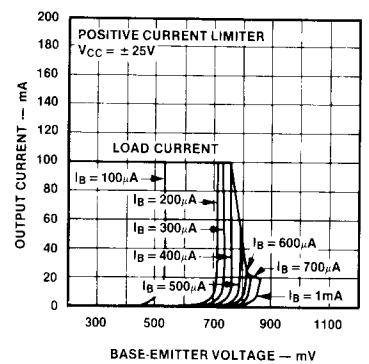
POWER SUPPLY REJECTION vs FREQUENCY



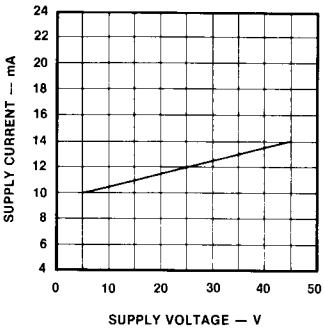
OUTPUT CURRENT vs I_B/V_{BE} OF CURRENT LIMITER



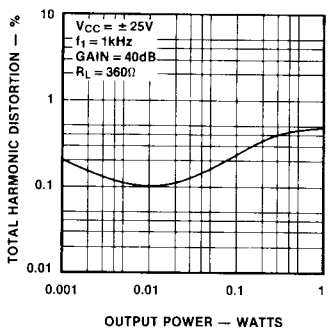
OUTPUT CURRENT vs I_B/V_{BE} OF CURRENT LIMITER



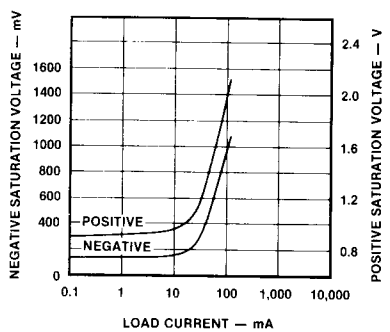
QUIESCENT CURRENT vs SUPPLY VOLTAGE



TOTAL HARMONIC DISTORTION vs OUTPUT



OUTPUT SATURATION VOLTAGE vs LOAD



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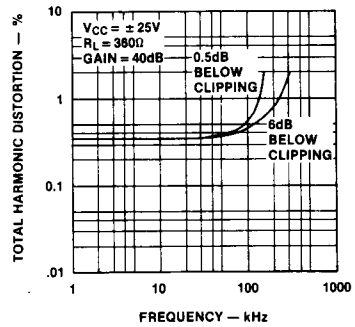
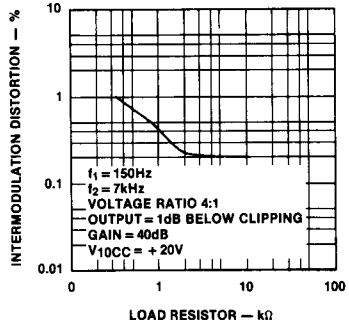
TYPICAL PERFORMANCE CHARACTERISTICS (Cont'd)

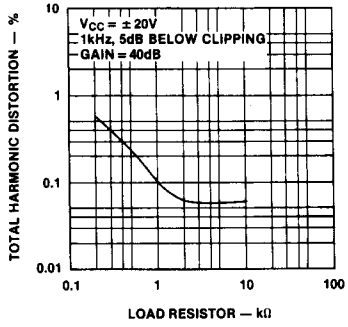
TOTAL HARMONIC DISTORTION vs FREQUENCY



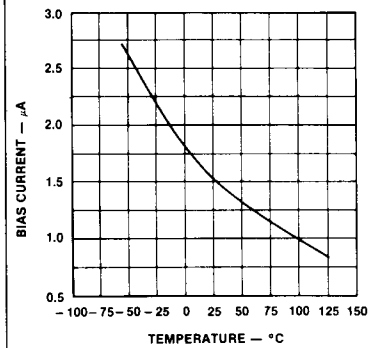
INTERMODULATION DISTORTION vs LOAD



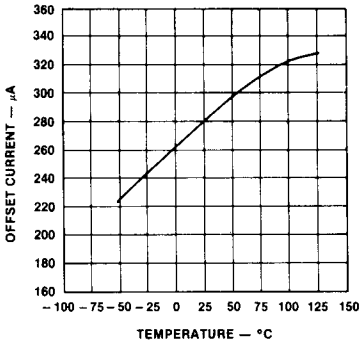
TOTAL HARMONIC DISTORTION vs LOAD



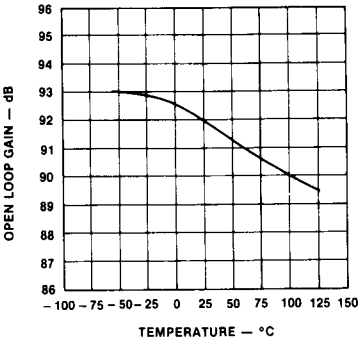
BIAS CURRENT vs TEMPERATURE



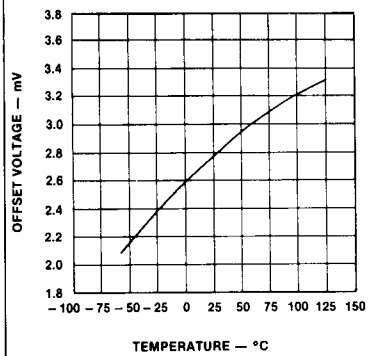
OFFSET CURRENT vs TEMPERATURE



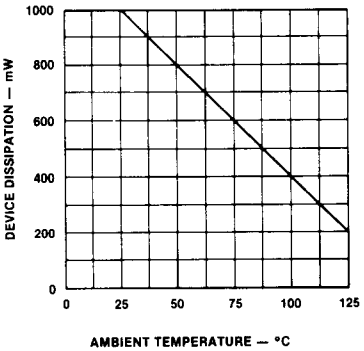
OPEN LOOP GAIN vs TEMPERATURE



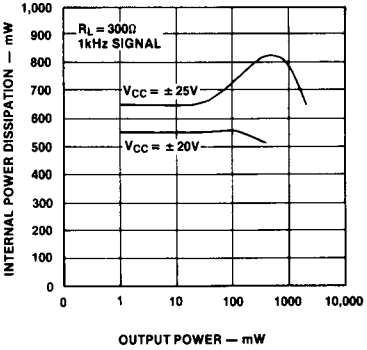
OFFSET VOLTAGE vs TEMPERATURE



MAXIMUM DISSIPATION vs AMBIENT TEMPERATURE

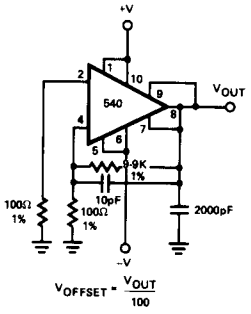


INTERNAL POWER DISSIPATION vs LOAD POWER

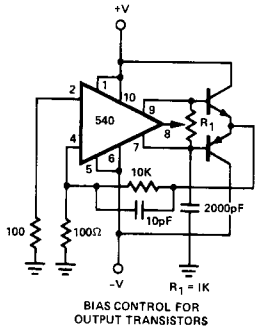


TEST CIRCUITS

OFFSET VOLTAGE MEASUREMENT

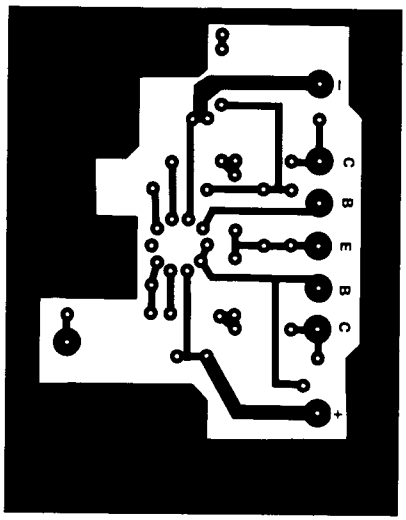


OUTPUT BIAS CONTROL

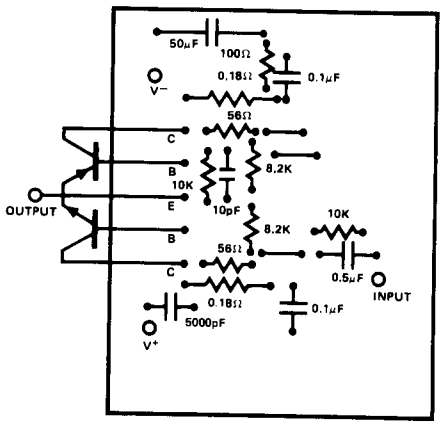


35 WATT AMPLIFIER

P.C. BOARD LAYOUT
(Bottom View)



PARTS LAYOUT
(Top View)



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