Signetics

Linear Products

DESCRIPTION

The NE5592 is a dual monolithic, twostage, differential output, wideband video amplifier. It offers a fixed gain of 400 without external components and an adjustable gain from 400 to 0 with one external resistor. The input stage has been designed so that with the addition of a few external reactive elements between the gain select terminals, the circuit can function as a high-pass, lowpass, or band-pass filter. This feature makes the circuit ideal for use as a video or pulse amplifier in communications, magnetic memories, display, video recorder systems, and floppy disk head amplifiers.

NE5592 Video Amplifier

Product Specification

FEATURES

- 110MHz unity gain bandwidth
- Adjustable gain from 0 to 400
- Adjustable pass band
- No frequency compensation required
- Wave shaping with minimal external components

APPLICATIONS

- Floppy disk head amplifier
- Video amplifier
- Pulse amplifier in communications
- Magnetic memory
- Video recorder systems

PIN CONFIGURATION



ORDERING INFORMATION

DESCRIPTION	TEMPERATURE RANGE	ORDER CODE
14-Pin Plastic DIP	0 to 70°C	NE5592N
14-Pin SO package	0 to 70°C	NE5592D



EQUIVALENT CIRCUIT

NE5592

ABSOLUTE MAXIMUM RATINGS $T_A = 25^{\circ}C$, unless otherwise specified.

SYMBOL	PARAMETER	RATING	UNIT
V _{CC}	Supply voltage	± 8	v
V _{IN}	Differential input voltage	± 5	v
V _{CM}	Common mode input voltage	± 6	v
lout	Output current	10	mA
T _A	Operating temperature range 0 to +70 NE5592		°C
T _{STG}	Storage temperature range	-65 to +150	°C
P _{D MAX}	Maximum power dissipation, T _A = 25°C (still air) ¹ D package N package	1.03 1.48	w w

NOTE:

1. Derate above 25°C at the following rates:

D package 8.3mW/°C

N package 11.9mW/°C

DC ELECTRICAL CHARACTERISTICS $T_A = +25^{\circ}C$, $V_{SS} \approx \pm 6V$, $V_{CM} = 0$, unless otherwise specified. Recommended operating supply voltage is $V_S = \pm 6.0V$, and gain select pins are connected together.

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			
			Min	Тур	Max	UNITS
A _{VOL}	Differential voltage gain	$R_L = 2k\Omega, V_{OUT} = 3V_{P-P}$	400	480	600	V/V
R _{IN}	Input resistance		3	14		kΩ
CIN	Input capacitance			2.5		pF
los	Input offset current			0.3	3	μA
IBIAS	Input bias current			5	20	μA
	Input noise voltage	BW 1kHz to 10MHz		4		nV/√Hz
V _{IN}	Input voltage range		± 1.0			V
CMRR	Common-mode rejection ratio	V _{CM} ± 1V, f < 100kHz V _{CM} ± 1V, f = 5MHz	60	93 87		dB dB
PSRR	Supply voltage rejection ratio	$\Delta V_{\rm S} = \pm 0.5 V$	50	85		dB
	Channel separation	$V_{OUT} = 1V_{P,P}$; f = 100kHz (output referenced) R _L = 1k Ω	65	70		dB
V _{OS}	Output offset voltage gain select pins open	R _L = ∞ R _L = ∞		0.5 0.25	1.5 0.75	V V
V _{CM}	Output common-mode voltage	$R_L = \infty$	2.4	3.1	3.4	v
VOUT	Output differential voltage swing	$R_L = 2k\Omega$	3.0	4.0		v
R _{OUT}	Output resistance			20		Ω
lcc	Power supply current (total for both sides)	R _L = ∞		35	44	mA

NE5592

DC ELECTRICAL CHARACTERISTICS $V_{SS} = \pm 6V$, $V_{CM} \approx 0$, $0^{\circ}C \leq T_A \leq 70^{\circ}C$, unless otherwise specified. Recommended operating supply voltage is $V_S = \pm 6.0V$, and gain select pins are connected together.

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			
			Min	Тур	Max	UNITS
AVOL	Differential voltage gain	$R_L = 2k\Omega$, $V_{OUT} = 3V_{P.P}$	350	430	600	V/V
R _{IN}	Input resistance		1	11		kΩ
los	Input offset current				5	μA
IBIAS	Input bias current				30	μA
VIN	Input voltage range		± 1.0			v
CMRR	Common-mode rejection ratio	$V_{CM} \pm 1V$, f < 100kHz R _S = ϕ	55			dB
PSRR	Supply voltage rejection ratio	$\Delta V_{S} = \pm 0.5 V$	50			dB
	Channel separation	$V_{OUT} = 1V_{P.P}$; f = 100kHz (output referenced) $R_L = 1k\Omega$		70		dB
V _{OS}	Output offset voltage gain select pins connected together gain select pins open	R _L = ∞ R _L = ∞			1.5 1.0	v v
Vout	Output differential voltage swing	$R_{L} = 2k\Omega$	2.8			v
Icc	Power supply current (total for both sides)	R _L = ∞			47	mA

AC ELECTRICAL CHARACTERISTICS $T_A \approx \pm 25^{\circ}C$, $V_{SS} = \pm 6V$, $V_{CM} = 0$, unless otherwise specified. Recommended operating supply voltage $V_S = \pm 6.0V$. Gain select pins connected together.

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			
			Min	Тур	Max	UNITS
BW	Bandwidth	V _{OUT} = 1V _{P.P}		25		MHz
t _R	Rise time			15	20	ns
t _{PD}	Propagation delay	V _{OUT} = 1V _{P-P}		7.5	12	ns

Product Specification

NE5592

TYPICAL PERFORMANCE CHARACTERISTICS



NE5592

TYPICAL PERFORMANCE CHARACTERISTICS (Continued)



NE5592



