SGS-THOMSON MICROELECTRONICS

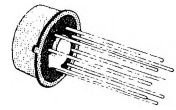
L6495

HIGH SPEED OPERATIONAL AMPLIFIER

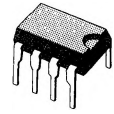
ADVANCE DATA

- SUITABLE FOR VIDEO APPLICATIONS
- SLEW RATE 150 V/us (AV = 20 dB AND I_{set} = 100 µA)
- UNITY GAIN BANDWIDTH (45 MHz TYP)
- LARGE SIGNAL BANDWIDTH (20 MHz TYP)
- LOW NOISE (5 nV/ √Hz)
- LOW OFFSET VOLTAGE
- PROGRAMMABLE OUTPUT PEAK CURRENT
- NO EXTERNAL COMPENSATION FOR AV = 20 dB OR HIGHER

TO-99 (8 Pins)



MINIDIP
(plastic)



ORDER CODES : L6495 (TO99)
L6495 DP (MINIDIP)

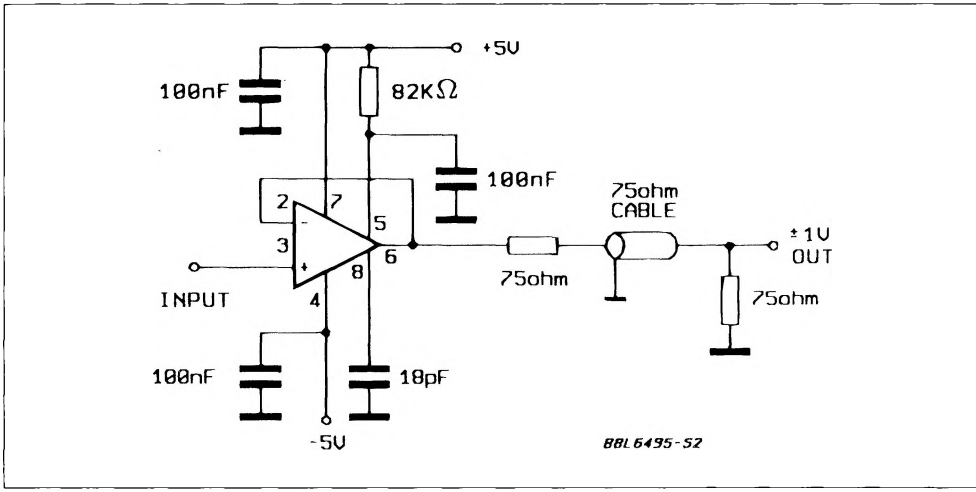
DESCRIPTION

The L6495 is a high performance monolithic operational amplifier with wideband and high slew rate. The frequency compensation is built into the chip for closed loop gain higher than 20 dB.

Large gain bandwidth product and high slew rate make the L6495 ideally suited for wideband signal amplification or switching, in vidéo gain blocks, line driver circuitry, driving capacitive loads and generally for all high frequency applications.

The L6495 is available in both minidip and metal can 8 pin.

BLOCK DIAGRAM



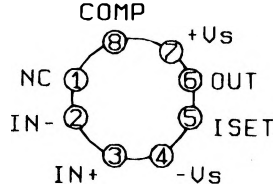
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V_s	Supply Voltage		± 10	V
V_{is}	Differential Input Voltage		± 7	V
V_i	Input Voltage		$-V_s - 0.5$ $+V_s + 0.5$	V V
I_o	Output Current		±100	mA
T_{op}	Operating Temperature		0 to 70	°C
P_{tot}	Power Dissipation at T_{amb} = 70 °C	Minidip T0-99	600 500	mW mW
T_j	Junction Temperature		– 55 to 150	°C
T_{stg}	Storage Temperature		– 55 to 125	°C

THERMAL DATA

			T0-99	Minidip
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-amb	Max	155 °C/W	120 °C/W

CONNECTION DIAGRAMS



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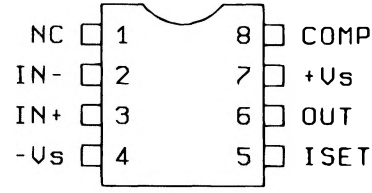


88L6495-C2

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C ; V_s = ± 5 V ; I_{set} = 100 µA ; unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_s	Supply Voltage		± 3	± 5	± 9	V
I_s	Supply Current	NO LOAD		10	12	mA
I_b	Input Bias Current			8	10	µA
R_{in}	Input Resistance	A_V = 20 dB		100		KΩ
C_{in}	Input Capacitance	A_V = 20 dB		5		pF
V_{os}	Offset Voltage			2	5	mV
$\frac{\Delta V_{os}}{\Delta T}$	Average Offset Voltage Drift	0 to 70 °C		10	30	µV/°C
I_{os}	Offset Current				1	µA
VCM	Common Mode Voltage Range			± 3		V
G_v	Open Loop Voltage Gain	ΔV_o = 5 V ; R_L = 2 KΩ		72		dB
B	Large Signal Bandwidth	A_V = 20 dB (*)		20		MHz
GBW	Gain Bandwidth Product	A_V = 0 dB C_{comp} = 18 pF ;	30	45		MHz
e_N	Equivalent Input Noise Voltage	1 KHz to 500 KHz		5		nV/VHz
V_o	Output Voltage Swing	R_L = 2 KΩ		± 4		V
I_o	Output Current		± 20	± 30		mA
R_o	Output Resistance	Open Loop		30		Ω
S_R	Slew Rate	A_V = 20 dB	100	150		V/µs
S_R	Slew Rate	C_{comp} = 18 pF A_V = 0 dB		40		V/µs
CMRR	Common Mode Reject. Ratio		70			dB
SVR + RATIO	Power Supply Rejection (positive supply)		70			dB
SVR – RATIO	Power Supply Rejection (negative supply)		60			dB
t_r	Rise Time	A_V = 20 dB		20		ns

(*) Test circuit of Fig. 4.

Figure 1 : Output Current vs. I_{set}.

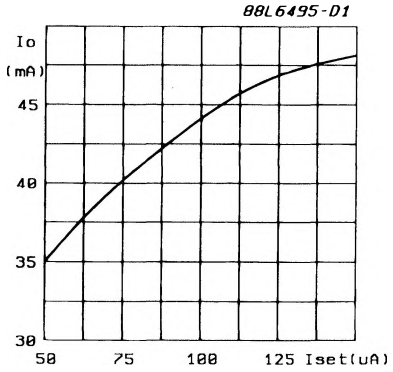


Figure 2 : Non Inverting Amplifier Configuration (AV = 20 dB).

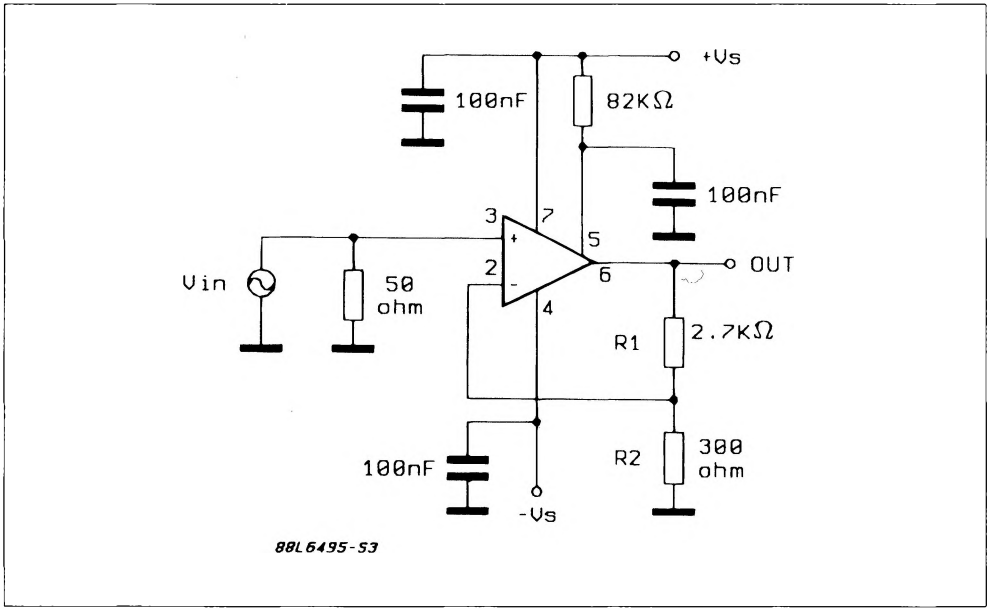
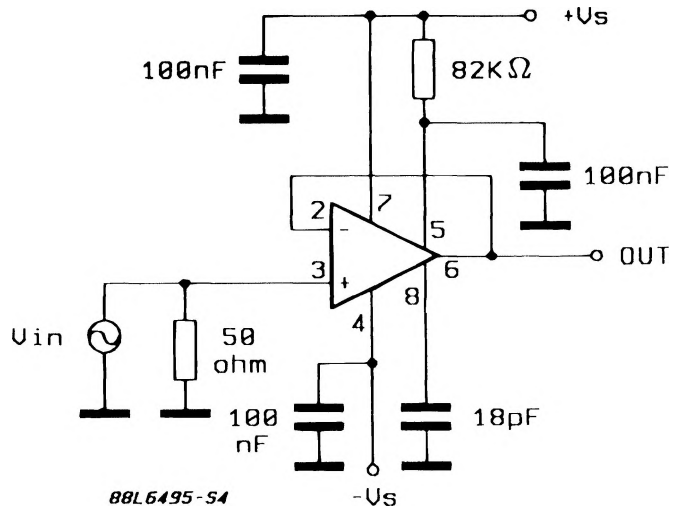


Figure 3 : Buffer Configuration (AV = 0 dB).



An external compensation capacitor at pin 8 is needed if the loop gain of the operational amplifier is less then 8.

Figure 4 : Bandwidth Test Circuit (closed loop gain of the L6495 = 20 dB).

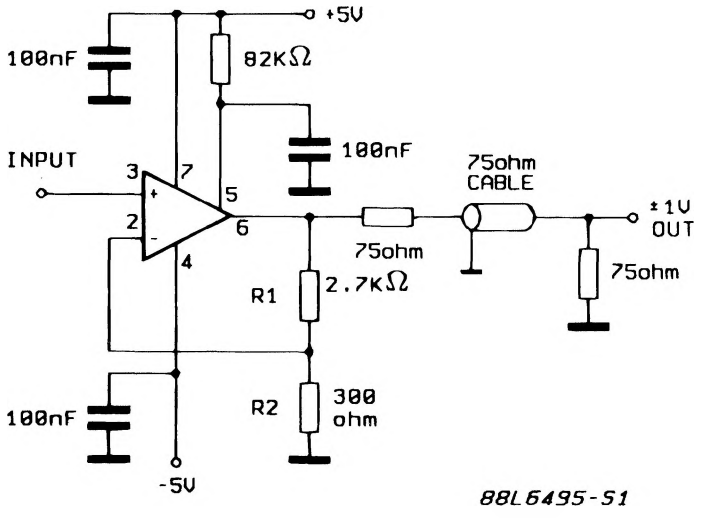


Figure 5 : Bandwidth Test Circuit (closed loop gain of the L6495 = 0 dB).