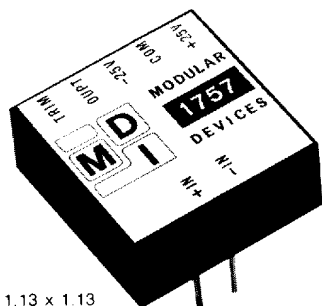


AUDIO OPERATIONAL AMPLIFIERS

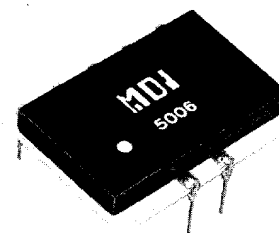
T-74-05-01

DISCRETE

HYBRID

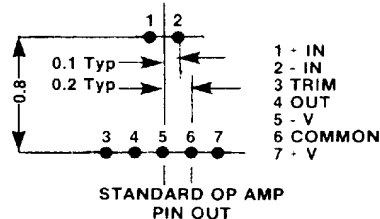
1.13 x 1.13
x .5

**MICROPHONE PREAMPLIFIERS
DIFFERENTIAL INPUT AMPLIFIERS
LINE and BOOSTER AMPLIFIERS
COMBINING, SUMMING AMPLIFIERS
EQUALIZED PREAMPLIFIERS
OSCILLATORS, FILTERS, EQUALIZERS**

1 x .8
x .25

PARAMETER	1757 (DISCRETE)	5004 (HYBRID)	5006 (HYBRID)
OPEN LOOP GAIN dB	100dB	100dB	130dB
INPUT NOISE 20 HZ-20KHZ	less than $0.7\mu v$	less than $0.5\mu v$	less than $0.15\mu v$
SMALL SIGNAL BW	40MHZ	10MHZ	25MHZ
LARGE SIGNAL BW	125KHZ	200KHZ	200KHZ
INPUT IMPEDANCE (DIFF.)	200K ohms	100K ohms	300M ohms
INPUT BIAS CURRENT	300NA	500NA	50NA
INPUT VOLTAGE OFFSET	5 MV Typical	0.5 MV max.	0.5MV max.
INPUT CURRENT OFFSET	150 NA Typical	20 NA Typical	30NA Typical
MIN. LOAD IMPEDANCE	100 ohms	100 ohms	100 ohms
MAX. OUTPUT POWER	+25dBm	+20dBm	+20dBm @ $\pm 16.5VDC$ Supply
MAX. OUTPUT VOLTAGE	± 20 volts pk	± 11 volts pk	± 11 volts pk
MAX. OUTPUT CURRENT	± 225 MA pk	± 150 MA pk	± 150 MA pk
DISTORTION	0.1% THD max.	0.1% THD max.	0.1% THD max. typ. <0.05
SLEW RATE	$10V/\mu$ sec	$13V/\mu$ sec	$10/\mu$ sec
COMMON MODE VOLTAGE	$\pm 10V$	$\pm 13V$	$\pm 10V$
COMMON MODE REJECTION	80dB	100dB	100dB
POWER SUPPLY VOLTAGE	$\pm 25VDC \pm 1\%$	$\pm 12, \pm 20VDC, \pm 15$ NOM	$\pm 12, \pm 18VDC, \pm 15$ NOM
QUIESCENT CURRENT	20-25 MA	6-10 MA NOM	8-15 MA NOM
FULL LOAD CURRENT	± 90 MA	± 50 MA	± 50 MA
OPERATING TEMP. RANGE	$0^\circ C$ to $70^\circ C$	$0^\circ C$ to $70^\circ C$	$0^\circ C$ to $70^\circ C$

FEATURES



Low Noise
High Supply V.
High Output
Short Circuit Protection

Extremely Low Noise | Ultra-Low Noise
Low Quiescent Current
Low Distortion, High Output
Short Circuit Protection
High Slew Rate



MODULAR AUDIO PRODUCTS

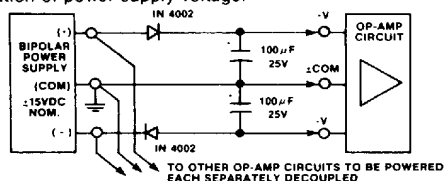
MODULAR DEVICES INC • BROOKHAVEN R&D PLAZA • ONE ROND ROAD • SHIRLEY, NEW YORK 11967

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TYPICAL AMPLIFIER CIRCUITS & SPECIFICATIONS

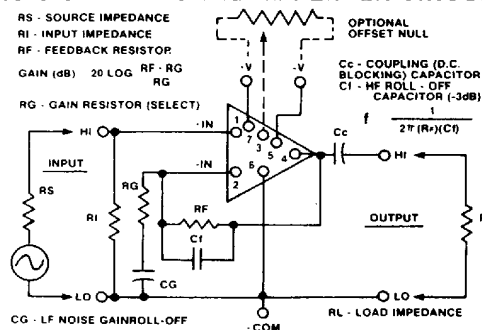
REVERSE POLARITY PROTECTION AND POWER SUPPLY DECOUPLING FOR OP-AMP CIRCUITS TO BE POWERED BY A COMMON SUPPLY

Decoupling prevents interaction between amplifiers due to current modulation of power supply voltage.

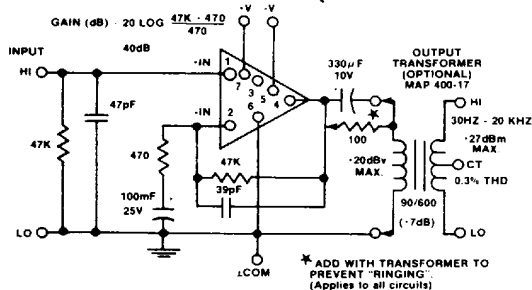


Diodes protect amplifier from accidental application of reversed polarity and provide small voltage drop (approx. .7V) required for decoupling.

BASIC OPERATIONAL AMPLIFIER CIRCUIT



LINE/BOOSTER AMPLIFIER (47 DB GAIN MAX.)

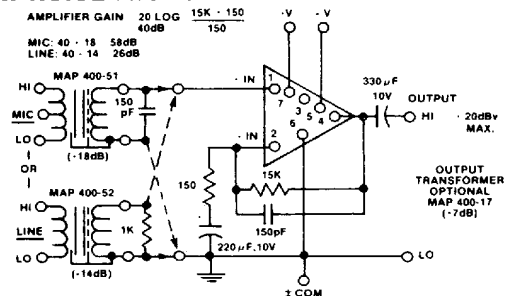


SPECIFICATIONS

Frequency Response ± 0.25 dB, 20Hz-20KHz, Unbalanced
Equivalent Input Noise -134dBm, 20Hz-20KHz
Distortion: Unbalanced 0.1% THD Max. @ +20dBm, 20Hz-20KHz
Signal Source Impedance 0 to 1K ohms
Input Impedance 47K ohms
Output Impedance 60 ohms Max.
Load Impedance 600 ohms Min.
Max. Input Level +20dBm
Gain, Max 40dB, 47dB w/Transformer
Power Requirements ± 15 to ± 20 VDC @ 65mA Max.

Circuit Equivalent to MAP IMPAC Series PC Card Model 4006 Line Amplifier. (With 5006 Amplifier)

LOW NOISE MICROPHONE PREAMPLIFIER OR BRIDGING LINE/BOOSTER AMPLIFIER

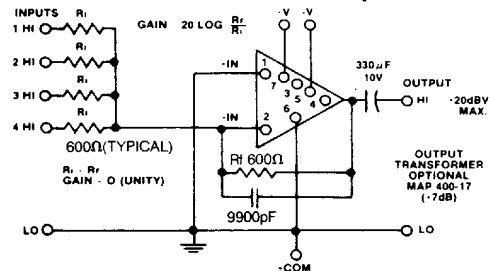


SPECIFICATIONS

	Mic Preamp.	Line Amp.
Frequency Response	± 0.5 dB, 20Hz-20KHz	-99dBm (Output)
Noise	-139dBm E.I.N.	w/40dB Gain
Distortion	0.1% THD Max. @ +20dBm	0 to 1K ohms
Signal Source Impedance	100 to 250 ohms	10K ohms
Input Impedance	10 x source	60 ohms Max.
Output Impedance	60 ohms Max.	600 ohms Min.
Load Impedance	600 ohms Min.	+20dBm
Max. Input Level	-10dBm	26dB
Gain, Max.	58dB	
Power Requirements	± 15 to ± 20 VDC @ 65mA Max.	

Circuits Equivalent to MAP IMPAC Series PC Cards: Model 4003 Mic Preamplifier & Model 4004 Bridging Line Amplifier. (With 5006 Amplifier)

LOSSLESS ACTIVE COMBINING (SUMMING) AMPLIFIER

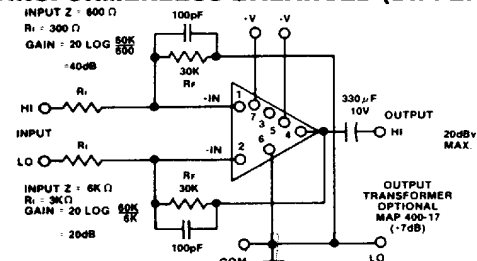


SPECIFICATIONS

Frequency Response ± 0.25 dB, 20Hz-20KHz
Equivalent Input Noise -134dBm, 20Hz-20KHz, 10 Inputs
Distortion 0.1% THD Max. @ +20dBm
Signal Source Impedance 0 to 1K ohms
Input Impedance Determined by RI
Output Impedance 60 ohms Max.
Load Impedance 600 ohms Min.
Max. Input Level +20dBV (1 Input)
Gain Determined by RI/RF
Power Requirements ± 15 to ± 20 VDC @ 65mA Max.

Circuit Similar to MAP IMPAC Series PC Card Model 4006 in Combining Amplifier Configuration.

TRANSFORMERLESS BALANCED (DIFFERENTIAL) INPUT LINE/BOOSTER AMPLIFIER



SPECIFICATIONS

Frequency Response ± 0.25 dB, 20Hz-20KHz
Distortion 0.1% THD Max. @ +20dBm
Signal Source Impedance 600 ohms Typical
Input Impedance Equal to 2 x RI
Output Impedance 60 ohms
Load Impedance 600 ohms Min.
Gain Determined by RF/RI
Power Requirements ± 15 to ± 20 VDC @ 65mA Max.

Circuit Similar to MAP IMPAC Series PC Card Model 4006 in Differential Input Configuration.