ANALOG SYSTEMS

MZ-320

HEX CURRENT BOOSTER
AND LINE DRIVER

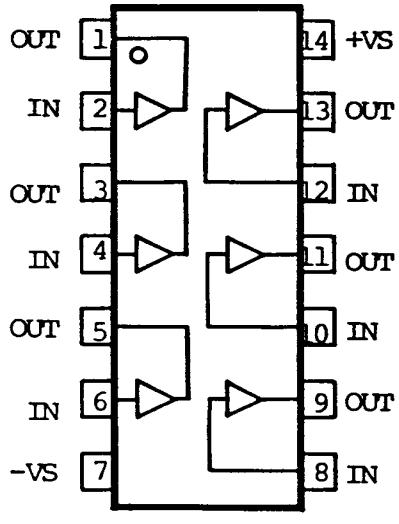
FEATURES

±1200 V/uS SLEW RATE
25MHZ BANDWIDTH
±12 Volts at ±60mA OUTPUT SWING
6 INDEPENDENT SECTIONS
UNITY, NON-INVERTING GAIN

APPLICATIONS

OP AMP CURRENT BOOSTERS
LINEAR LINE DRIVERS
IMPEDANCE BUFFERS
VOLTAGE FOLLOWERS

FUNCTIONAL DIAGRAM



Order Part Number MZ-320-CP
Epoxy molded 14 pin DIP.

GENERAL DESCRIPTION

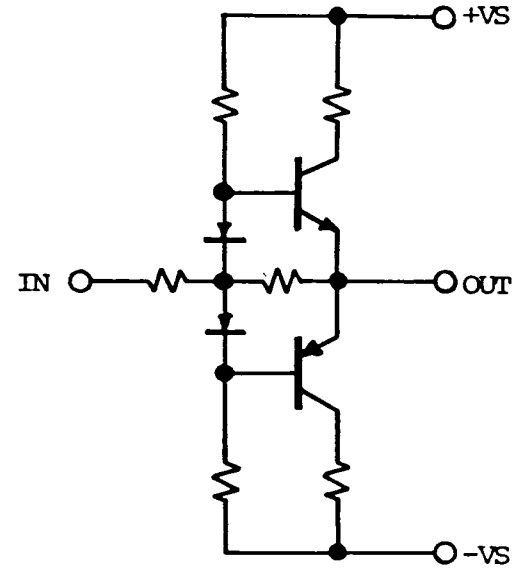
MZ-320 is a linear emitter follower with six identical sections. by design, there is no cross-over distortion for smaller signals and light loads. When used as a current booster, the operational amplifier should have a unity gain frequency below 25MHz.

All sections of the MZ-320 are identical and may be paralleled for greater output current. More than two sections in parallel is not recommended, due to package dissipation limits.

The output has limited protection against short circuit conditions to common.

SIMPLIFIED SCHEMATIC

EACH SECTION:



ELECTRICAL CHARACTERISTICS

MZ-320

ABSOLUTE MAXIMUM RATINGS

Supply Voltage (between +V and −V terminals)	36 Volts
Input Voltage	±VS
Power Dissipation	600 Milliwatts
Operating Temperature Range	0° C to +70° C
Storage Temperature Range	−65° C to +150° C
Lead Temperature (Soldering, 10 seconds)	+300° C

MZ 320

SPECIFICATIONS at ±VS = ±15 Volts, TA = +25° C

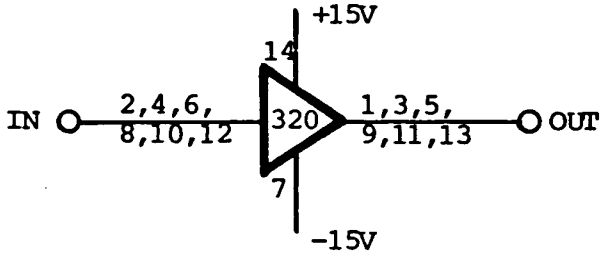
	Min	Typ	Max	Units
INPUT				
Offset Voltage - no load		±200	±400	Millivolts
Offset Voltage - 200 Ω load[1]		±1000	±1500	Millivolts
Bias Current - no load		±60	±150	Microamps
Bias Current - 200 Ω load[2]		±2.0	±6.0	Milliamps
Resistance - no load		±60	±150	Microamps
Resistance - 200 Ω load[3]		±2.0	±6.0	Milliamps
Capacitance		9.0		pF
VOLTAGE GAIN				
No load[4]	0.96	0.98		—
500 ohm load[4]	0.85	0.90		—
DYNAMIC RESPONSE				
Slew Rate	±1000	±1200		V/μSec
Bandwidth	20	25		MHz
Settling Time to 0.1%		55	70	nS
Propagation Delay[5]		3.5	4.0	nS
Non-Linearity - 10 kΩ load		0.7	1.5	% F.S.
OUTPUT				
Voltage Swing - 10 kΩ load	±11.0	±13.0		Volts
Voltage Swing - 200 Ω load	±8.0	±12.0		Volts
Load Current Limit[6]	±40	±60		Milliamps
Full Power Bandwidth	16	19		MHz
Dynamic Resistance		2.0		Ohms
POWER SUPPLY				
Current[7]		±1.0	±3.0	Milliamps
Device Dissipation[7]		30	90	Milliwatts
Minimum Voltage		±2.0		Volts

Notes:
[1]Measured at ±10 Volts input.
[2]Measured at ±50 mA output load.
[3]Dynamic Resistance
[4]Measured at ±10 Volts output.
[5]Measured as time between +5 Volt input and +5 Volt output on a +10 Volt step function.
[6]Available current at ±10 Volts.
[7]Power is quiescent for all 6 sections.

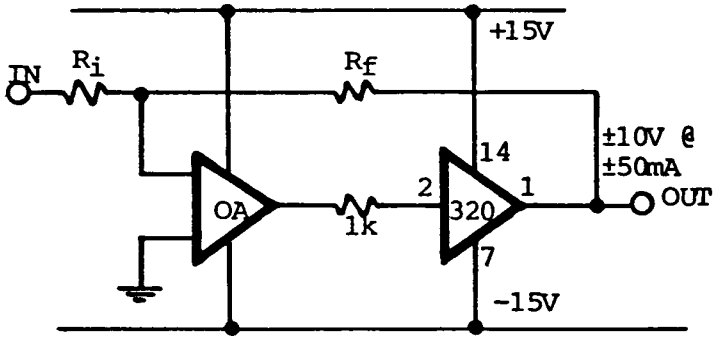
TYPICAL CIRCUITS AND APPLICATIONS

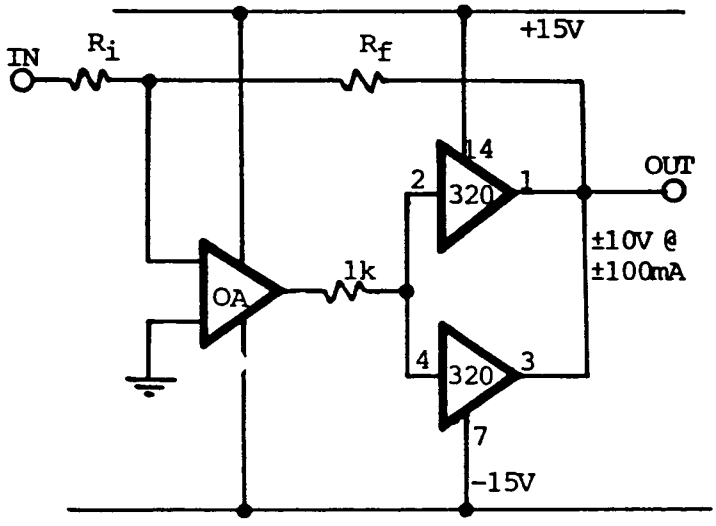
Although the MZ-320 is a relatively simple unity gain, emitter-follower type current booster and line driver, there are some application guidelines which should be observed. Monolithic construction provides six sections that are essentially identical. Paralleling sections can increase output current capability, to a point.

A single section is connected as follows:



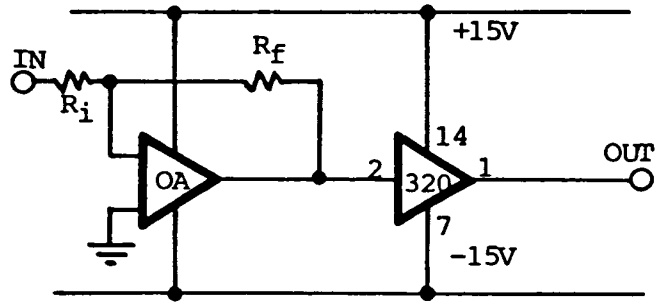
Typical applications are for use as a current booster inside the loop of an operational amplifier. This is shown below, along with the option of paralleling two sections for double the output current. Paralleling more than two sections results in diminishing increase in output current, due to limitations in metalization and internal dissipation.



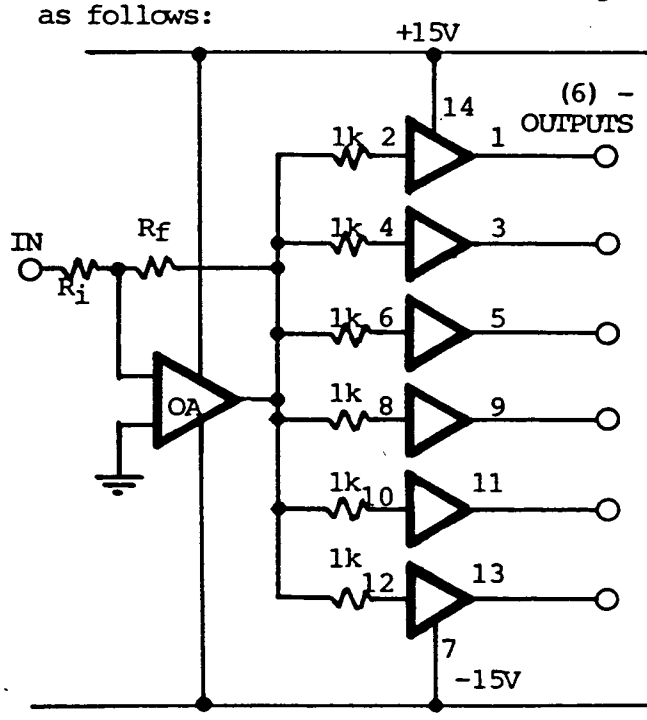


There is a 1k resistor between the output of the operational amplifier and the input of MZ-320. This is optional, but tends to reduce a tendency for oscillation in the op amp output stage. It also provides current limiting at the input under fast slew rate conditions.

An alternate application of MZ-320 is that of a line driver for analog or digital signals. In this case, the line driver is not included inside an operational amplifier feedback loop.



In a data distribution system such as a video distribution amplifier, multiple sections of the MZ-320 can be easily used as follows:



The six seperate outputs have approximately 20dB isolation from a short circuit condition on any one output. Further isolation results if a series resistor at the MZ-320 output(s) is used to source terminate a line.