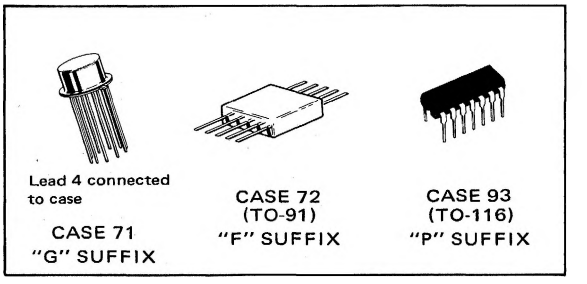
MC1430
MC1431

. . . designed for use as a summing amplifier, integrator, or amplifier with operating characteristics as a function of the external feedback components.



Typical Amplifier Features:

- High Open Loop Gain – A_{VOL} = 74 dB typical
- Large Output Voltage Swing – Typically ±5.0 V @ ±6.0 V Supply
- Low Output Impedance – Z_{out} = 25 ohms typical
- High Slew Rate – Typically 4.5 V/μs

MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Power Supply Voltage	V^+	+8	Vdc
Power Supply Voltage	V^-	-8	Vdc
Differential Input Signal	V_{in}	±5	Volts
Load Current	I_L	10	mA
Power Dissipation (Package Limitation)	P_D		
Metal Can Derate above 25°C		680 4.6	mW mW/°C
Flat Package Derate above 25°C		500 3.3	mW mW/°C
Plastic Package Derate above 25°C		400 3.3	mW mW/°C
Operating Temperature Range*	T_A	0 to +75	°C
Storage Temperature Range Metal Can and Flat Package Plastic Package	T_{stg}	 -55 to +150 -55 to +125	°C

*For full temperature range (-55°C to +125°C) see MC1530-MC1531 data sheet.

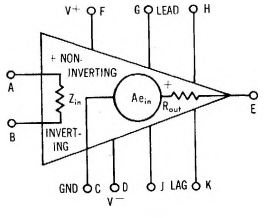


FIGURE 1 - EQUIVALENT CIRCUIT BOTH TYPES

PIN CONNECTIONS										
Schematic	A	B	C	D	E	F	G	H	J	K
"F" & "G" Pkgs.	1	2	3	4	5	6	7	8	9	10
"P" Package	4	6	8	7	11	12	13	14	1	2

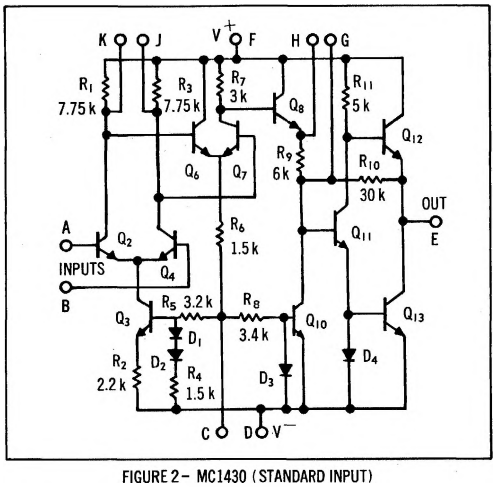


FIGURE 2 – MC1430 (STANDARD INPUT)

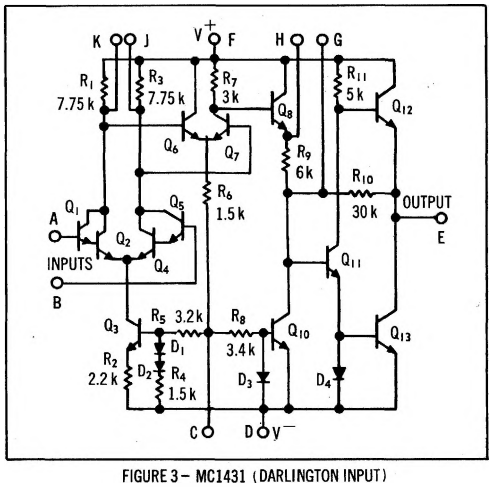
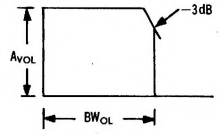
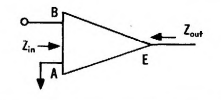
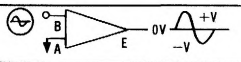
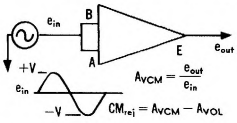
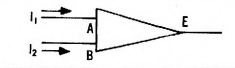
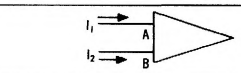
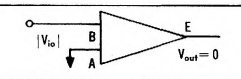


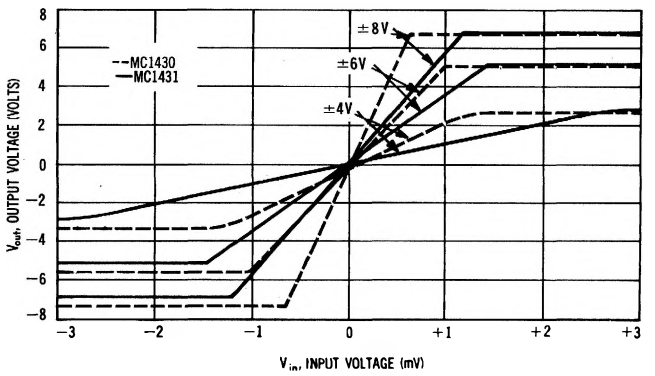
FIGURE 3 – MC1431 (DARLINGTON INPUT)

ELECTRICAL CHARACTERISTICS ($V^+ = +6$ Vdc, $V^- = -6$ Vdc, $T_A = 25°C$ unless otherwise noted)

Characteristic Definitions*	Characteristic		Symbol	Min	Typ	Max	Unit
	Open Loop Voltage Gain	MC1430	A_{VOL}	69	74	—	dB
		MC1431		62	71	—	dB
		MC1430		3000	5000	—	V/V
		MC1431		1500	3500	—	V/V
	Open Loop Bandwidth (no roll-off capacitance)	MC1430	BW_{OL}	1.0	1.2	—	MHz
		MC1431		0.15	0.4	—	
	Output Impedance (f = 20 Hz)	MC1430, MC1431	Z_{out}	—	25	50	ohms
	Input Impedance (f = 20 Hz)	MC1430	Z_{in}	5k	15k	—	ohms
		MC1431		300k	600k	—	
	Output Voltage Swing (1000 ohm Load)	MC1430, MC1431	V_{out}	±4.0	±5.0	—	V_{peak}
	Input Common Mode Voltage Swing	MC1430	CMV_{in}	±2.0	±2.5	—	V_{peak}
		MC1431		±2.0	±2.2	—	
	Common Mode Rejection Ratio	MC1430	CM_{rej}	65	75	—	dB
		MC1431		60	75	—	
	Input Bias Current $\left(I_b = \frac{I_1 + I_2}{2}\right)$	MC1430	I_b	—	5	15	μA
		MC1431		—	0.1	0.3	
	Input Offset Current $I_{io} = I_1 - I_2$	MC1430	I_{io}	—	0.4	4	μA
		MC1431		—	0.01	0.1	
	Input Offset Voltage	MC1430	$\|V_{io}\|$	—	2	10	mV
		MC1431		—	5	15	
	DC Power Dissipation (Power Supply = ±6 V, V_{out} = 0)		P_D	—	110	150	mW
	Input Offset Voltage		$\|V_{io}\|$				mV
	+75°C	MC1430		—	3.0	12.0	
	0°C			—	3.0	11.0	
	+75°C	MC1431		—	6.0	18.0	
	0°C			—	6.0	16.5	

*All definitions imply linear operation (V_{io} = 0)

FIGURE 4 — NORMALIZED DC OPEN LOOP TRANSFER CHARACTERISTICS



RECOMMENDED OPERATING CONDITIONS

1. For High Slew Rate use Circuit A, Figure 9
2. For Minimum Noise use Circuit B, Figure 9
3. For operational stability Power Supply decoupling should be employed at all times.
4. Self Biasing network used to hold output voltage less than ±1 volt dc (quiescent)

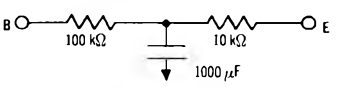
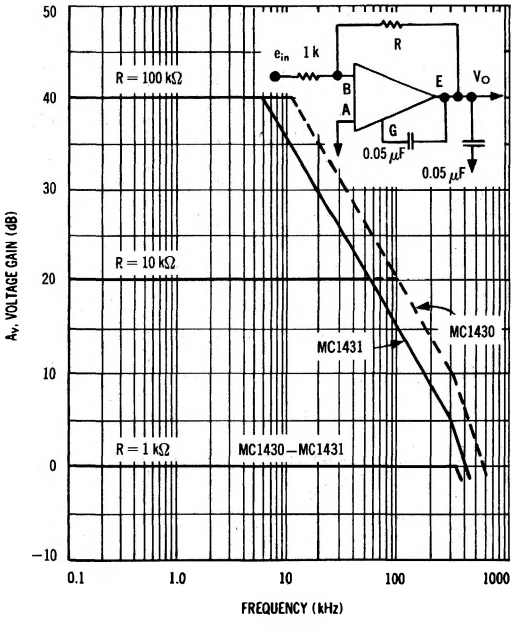


FIGURE 5 — VOLTAGE GAIN versus FREQUENCY

(Rolloff Applied To Output Amplifier)



(Rolloff Applied To Input Differential Amplifier)

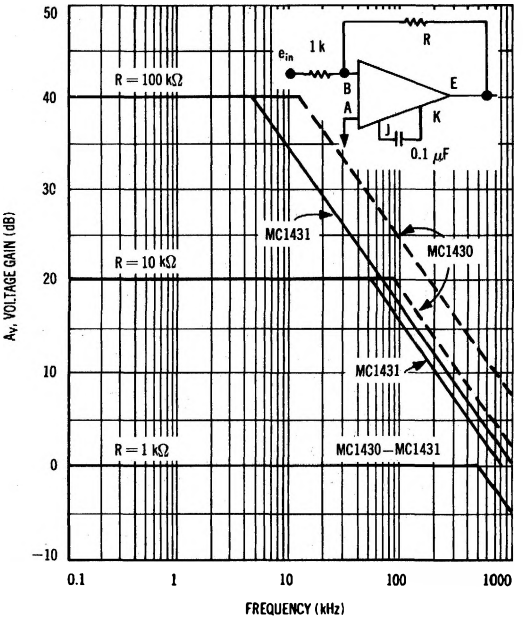


FIGURE 6 — OPEN LOOP VOLTAGE GAIN versus FREQUENCY

(Rolloff Applied To Input Differential Amplifier)

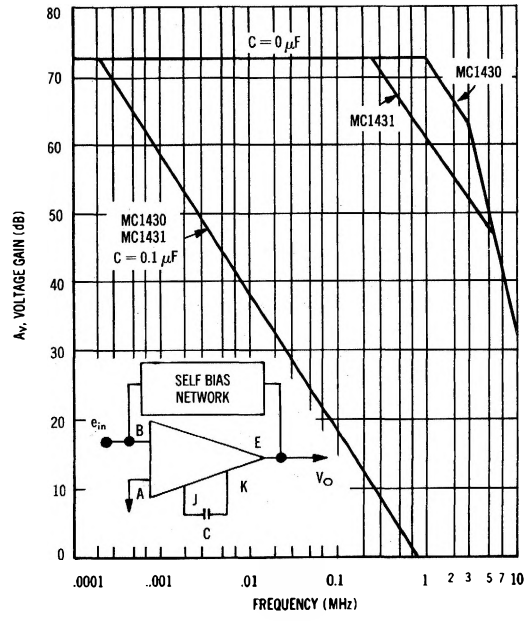


FIGURE 7 — VOLTAGE GAIN versus MINIMUM ROLLOFF CAPACITANCE

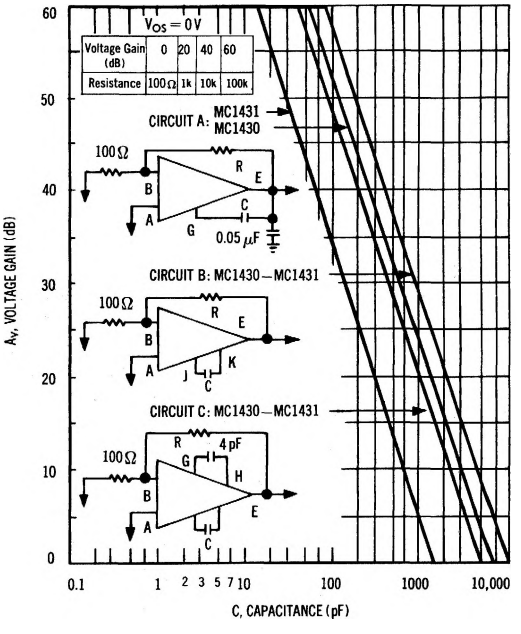


FIGURE 8 — MAXIMUM OUTPUT VOLTAGE SWING versus FREQUENCY

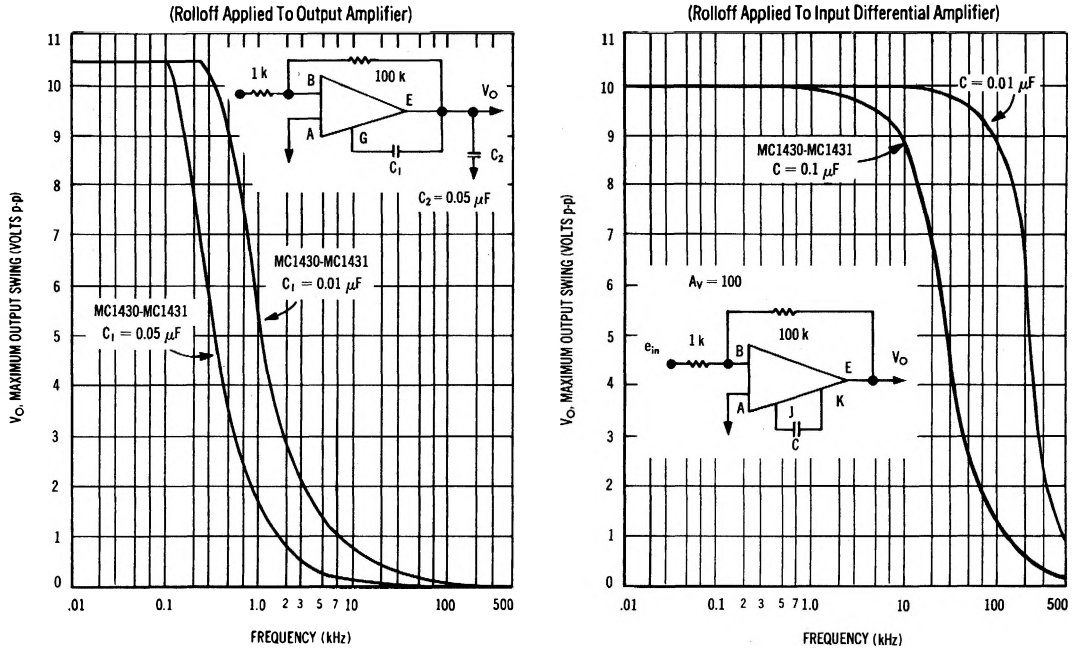


FIGURE 9 — SLEW RATE versus ROLLOFF CAPACITANCE

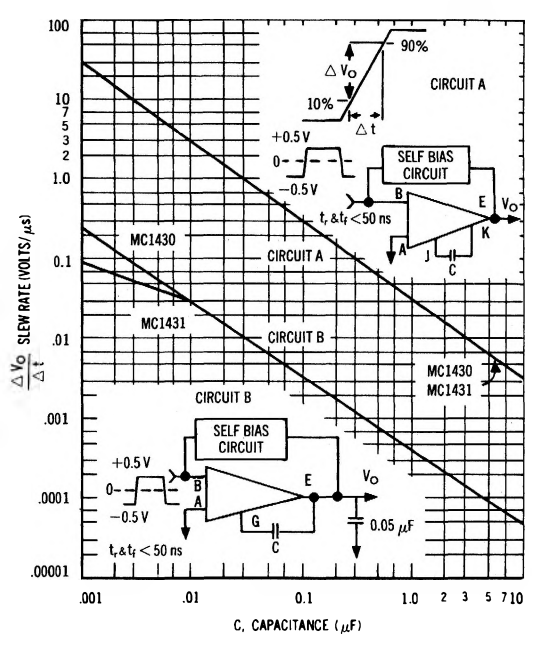


FIGURE 10 — OPEN LOOP VOLTAGE GAIN