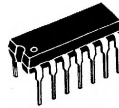# MC1710C

. . . designed for use in level detection, low-level sensing, and memory applications.
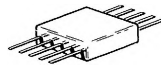
CASE 72 (TO-91) "F" SUFFIX	CASE 93 (TO-116) "P" SUFFIX	Lead 4 connected to case CASE 96 (TO-99) "G" SUFFIX

Typical Amplifier Features:

- Differential Input Characteristics:
  Input Offset Voltage = 1.5 mV
  Offset Voltage Drift = 5.0 μV/°C

- Fast Response Time — 40 ns

- Output Compatible with All Saturating Logic Forms
  V_{out} = +3.2 V to –0.5 V typical

- Low Output Impedance — 200 ohms

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

Rating	Symbol	Value	Unit
Power Supply Voltage	V^+ V^-	+14 -7.0	Vdc Vdc
Differential Input Signal	V_{in}	±5.0	Volts
Common Mode Input Swing	CMV_{in}	±7.0	Volts
Peak Load Current	I_L	10	mA

Power Dissipation (package limitation)
Metal Can
  Derate above 25°C
Flat Package
  Derate above 25°C
Plastic Package
  Derate above 25°C
	P_D	
		680
		4.6
		500
		3.3
		400
		3.3
			
			mW
			mW/°C
			mW
			mW/°C
			mW
			mW/°C

Operating Temperature Range*	T_A	0 to +75	°C

Storage Temperature Range
  Metal Can and Flat Package
  Plastic Package
	T_{stg}	
		-65 to +150
		-65 to +125
			°C

*For full temperature range (-55°C to + 125°C) and characteristic curves, see MC1710 data sheet.
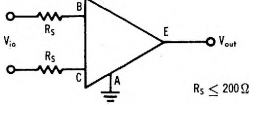
CIRCUIT SCHEMATIC
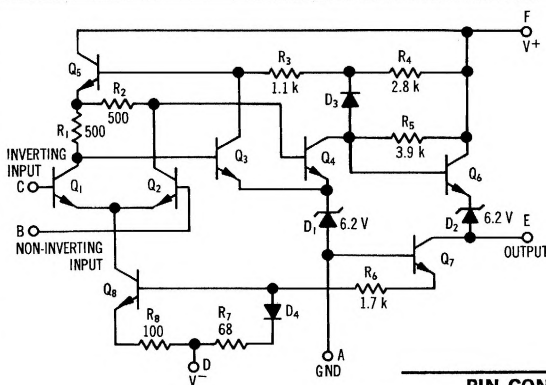
EQUIVALENT CIRCUIT
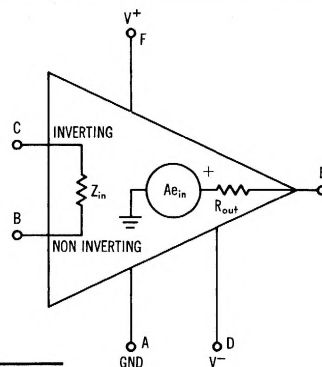
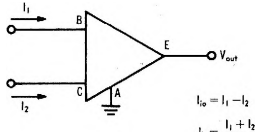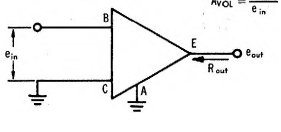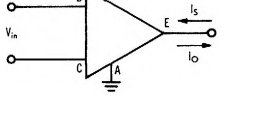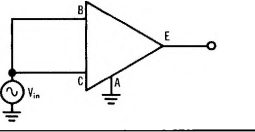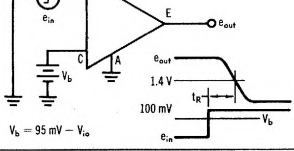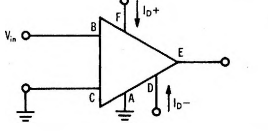
PIN CONNECTIONS						
Schematic	A	B	C	D	E	F
"G" Package	1	2	3	4	7	8
"F" Package	1	2	3	5	6	8
"P" Package	2	3	4	6	9	11

MC1710C (continued)

ELECTRICAL CHARACTERISTICS (V^+ = +12 Vdc, V^- = −6 Vdc, T_A = 25°C unless otherwise noted)

Characteristic Definitions	Characteristic	Symbol	Min	Typ	Max	Unit
$R_S \leq 200\,\Omega$	Input Offset Voltage V_{out} = 1.4 Vdc, T_A = 25°C V_{out} = 1.5 Vdc, T_A = 0°C V_{out} = 1.2 Vdc, T_A = +70°C	V_{io}	- - -	1.5 - -	5.0 6.5 6.5	mVdc
	Temperature Coefficient of Input Offset Voltage	TC_{Vio}	-	5.0	-	μV/°C
$I_{io} = I_1 - I_2$ $I_b = \dfrac{I_1 + I_2}{2}$	Input Offset Current V_{out} = 1.4 Vdc, T_A = 25°C V_{out} = 1.5 Vdc, T_A = 0°C V_{out} = 1.2 Vdc, T_A = +70°C	I_{io}	- - -	1.0 - -	5.0 7.5 7.5	μAdc
	Input Bias Current V_{out} = 1.4 Vdc, T_A = 25°C V_{out} = 1.5 Vdc, T_A = 0°C V_{out} = 1.2 Vdc, T_A = +70°C	I_b	- - -	15 25 -	25 40 40	μAdc
$A_{VOL} = \dfrac{e_{out}}{e_{in}}$	Voltage Gain T_A = 25°C T_A = 0 to +70°C	A_{VOL}	1000 800	1500 -	- -	V/V
	Output Resistance	R_{out}	-	200	-	ohms
	Differential Voltage Range	V_{in}	±5.0	-	-	Vdc
	Positive Output Voltage $V_{in} \geq 5.0$ mV, $0 \leq I_o \leq 0.5$ mA	V_{OH}	2.5	3.2	4.0	Vdc
	Negative Output Voltage $V_{in} \geq -5.0$ mV	V_{OL}	-1.0	-0.5	0	Vdc
	Output Sink Current $V_{in} \geq -5.0$ mV, $V_{out} \geq 0$ T_A = 25°C T_A = 0°C	I_S	 1.6 0.5	 2.5 -	 - -	mAdc
	Input Common Mode Range V^- = -7.0 Vdc	CMV_{in}	±5.0	-	-	Volts
	Common Mode Rejection Ratio $R_S \leq 200\,\Omega$	CM_{rej}	70	100	-	dB
V_b = 95 mV − V_{io} 1.4 V 100 mV	Propagation Delay Time For Positive and Negative Going Input Pulse	t_{pd}	-	40	-	ns
	Power Supply Current $V_{out} \leq 0$ Vdc	$I_D{}^+$ $I_D{}^-$	- -	6.4 5.5	9.0 7.0	mAdc
	Power Consumption		-	110	150	mW