INTERSIL

741
Operational Amplifier

GENERAL DESCRIPTION

The 741 and 741C are general purpose operational amplifiers which feature improved performance over industry standards like the LM709. They are direct, plug-in replacements for the 709C, LM201, MC1439 and 748 in most applications.

The offset voltage and offset current are guaranteed over the entire common mode range. The amplifiers also offer many features which make their application nearly foolproof: overload protection on the input and output, no latch-up when the common mode range is exceeded, as well as freedom from oscillations.

The 741C is identical to the 741 except that the 741C has its performance guaranteed over a 0°C to 70°C temperature range, instead of −55°C to 125°C.

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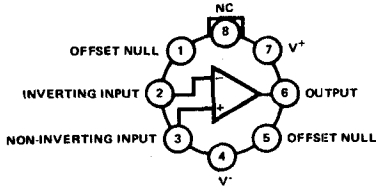
PIN CONFIGURATIONS

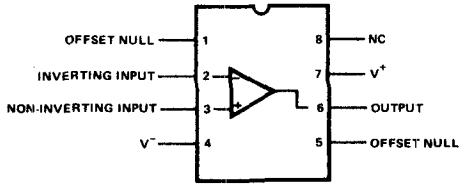
METAL CAN
(outline dwg TO-99)



TOP VIEW

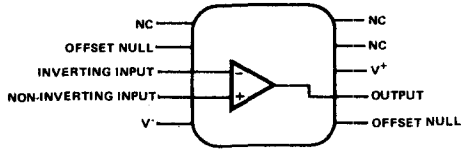
NOTE: PIN 4 CONNECTED TO CASE

8 PIN MINIDIP
(outline dwg PA)

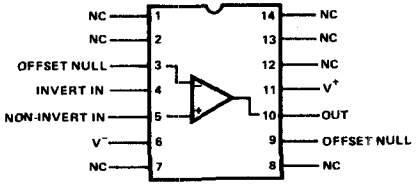


NOTE: PIN 4 CONNECTED TO BOTTOM OF PACKAGE

10 PIN FLATPACK
(outline dwg FB)



14 PIN DIP
(outline dwg, JD, PD)



ORDERING INFORMATION

	TO-99 CAN	8-PIN MINIDIP	14 PIN PLASTIC	14 PIN CERDIP	10 PIN FLATPACK
LM741 LM741C	LM741H LM741CH	LM741CN	LM741CN-14	LM741J LM741CJ	LM741CJ
μA741 μA741C	μA741HM μA741HC	μA741TC	μA741PC	μA741DM μA741DC	μA741FM
AD741 AD741C	AD741H AD741CH	AD741CN			
ICL741 ICL741C	ICL741MTY ICL741CTY	ICL741CPA	ICL741CPD	ICL741MJD ICL741CJD	ICL741MFB

ABSOLUTE MAXIMUM RATINGS

Supply Voltage 741	±22V
741C	±18V
Power Dissipation (Note 1)	500 mW
Differential Input Voltage	±30V
Input Voltage (Note 2)	±15V
Output Short Circuit Duration	Indefinite
Operating Temperature Range 741	−55°C to 125°C
741C	0°C to 70°C
Storage Temperature Range	−65°C to 150°C
Lead Temperature (Soldering, 10 sec)	300°C

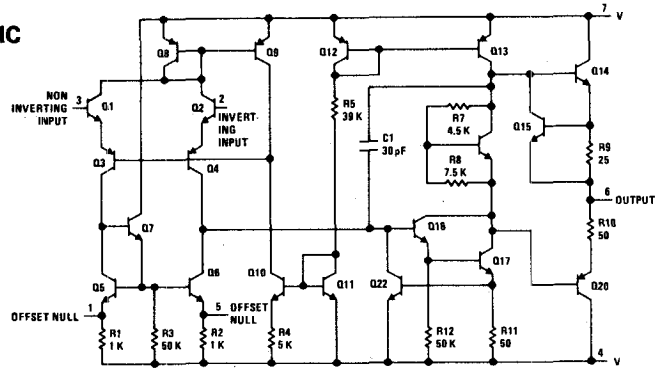
NOTE: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent device failure. These are stress ratings only and functional operation of the devices at these or any other conditions above those indicated in the operation sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may cause device failures.

ELECTRICAL CHARACTERISTICS (Note 3)

PARAMETER	CONDITIONS	741			741C			UNITS
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
Input Offset Voltage	T_A = 25°C, R_S < 10 kΩ		1.0	5.0		1.0	6.0	mV
Input Offset Current	T_A = 25°C		30	200		30	200	nA
Input Bias Current	T_A = 25°C		200	500		200	500	nA
Input Resistance	T_A = 25°C	0.3	1.0		0.3	1.0		MΩ
Supply Current	T_A = 25°C, V_S = ±15V		1.7	2.8		1.7	2.8	mA
Large Signal Voltage Gain	T_A = 25°C, V_S = ±15V V_{OUT} = ±10V, R_L > 2 kΩ	50	160		25	160		v/mV
Input Offset Voltage	R_S < 10 kΩ			6.0			7.5	mV
Input Offset Current				500			300	nA
Input Bias Current				1.5			0.8	μA
Large Signal Voltage Gain	V_S = ±15V, V_{OUT} = ±10V R_L > 2 kΩ	25			15			V/mV
Output Voltage Swing	V_S = ±15V, R_L = 10 kΩ	±12	±14		±12	±14		V
	R_L = 2 kΩ	±10	±13		±10	±13		V
Input Voltage Range	V_S = ±15V	±12			±12			V
Common Mode Rejection Ratio	R_S < 10 kΩ	70	90		70	90		dB
Supply Voltage Rejection Ratio	R_S < 10 kΩ	77	96		77	96		dB

Note 1: The maximum junction temperature of the 741 if 150°C, while that of the 741C is 100°C. For operating at elevated temperatures, devices in the TO-5 package must be derated based on a thermal resistance of 150°C/W, junction to case.
Note 2: For supply voltages less than ±15V, the absolute maximum input voltage is equal to the supply voltage.
Note 3: These specifications apply for V_S = ±15V and -55°C ≤ T_{Ak} ≤ 125°C, unless otherwise specified. With the 741C, however, all specifications are limited to 0°C ≤ T_A ≤ 70°C and V_S = ±15V.

EQUIVALENT SCHEMATIC



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