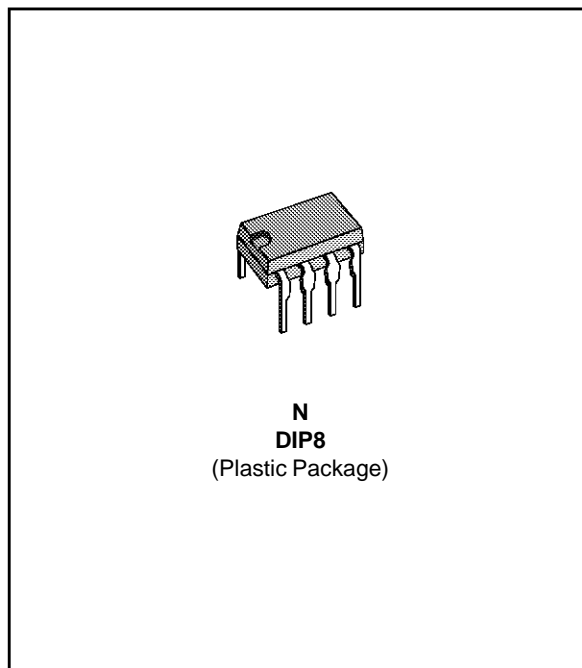


**VERY LOW OFFSET
SINGLE BIPOLAR OPERATIONAL AMPLIFIERS**

- EXTREMELY LOW OFFSET : 150 μ V MAX
- LOW INPUT BIAS CURRENT : 1.8nA
- LOW V_{io} DRIFT : 0.5 μ V/ $^{\circ}$ C
- WIDE SUPPLY VOLTAGE RANGE :
 $\pm 3V$ to $\pm 22V$



DESCRIPTION

The OP07C is a very high precision op amp with an offset voltage maximum of 150 μ V.

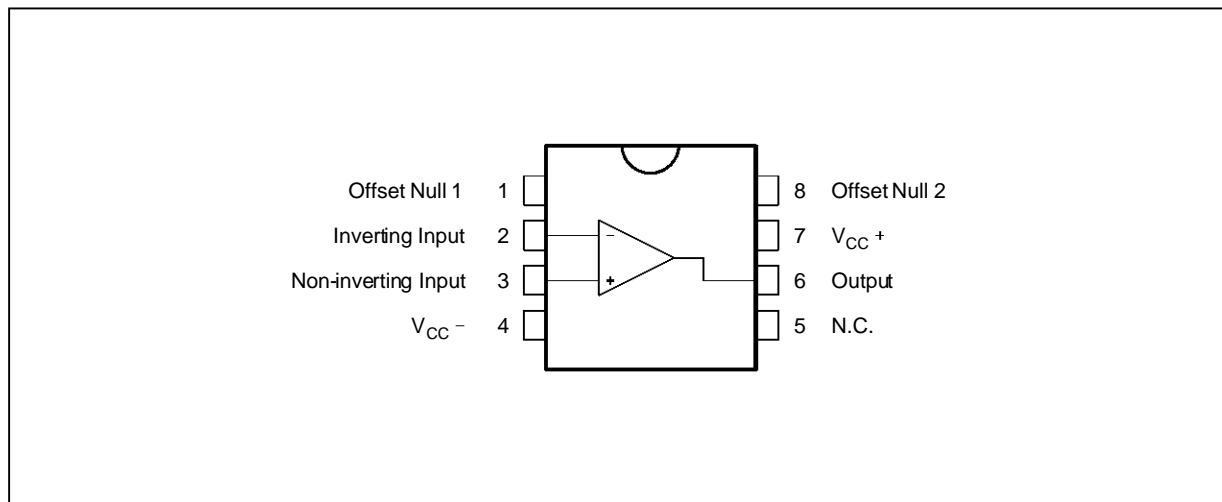
Offering also low input current (1.8nA) and high gain (400V/mV), the OP07C is particularly suitable for instrumentation applications.

ORDER CODES

| Part Number | Temperature Range | Package |
|-------------|-------------------------------------|----------|
| | | N |
| OP07C | -40 $^{\circ}$ C, +105 $^{\circ}$ C | • |

OP07C-01.TBL

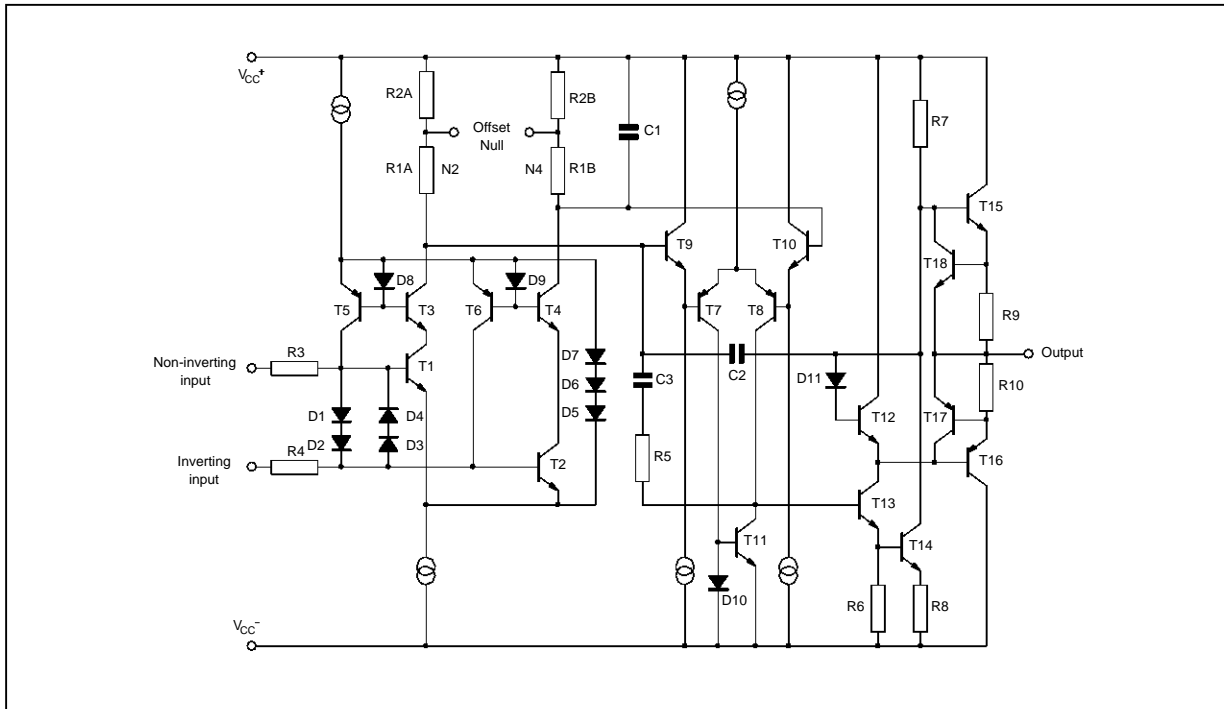
PIN CONNECTIONS (top view)



OP07C-01.EPS

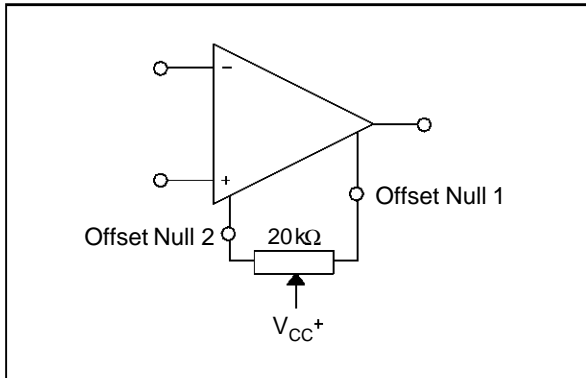
OP07C

SCHEMATIC DIAGRAM



OP07C-02.EPS

INPUT OFFSET VOLTAGE NULLING CIRCUIT



OP07C-03.EPS

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|------------|----------------------------|-------------|-------------|
| V_{CC} | Supply Voltage | ± 22 | V |
| V_{id} | Differential Input Voltage | ± 30 | V |
| V_i | Input Voltage | ± 22 | V |
| T_{oper} | Operating Temperature | -40 to +105 | $^{\circ}C$ |
| T_{stg} | Storage Temperature | -65 to +150 | $^{\circ}C$ |

OP07C-02.TBL

ELECTRICAL CHARACTERISTICS $V_{CC} = \pm 15V$, $T_{amb} = +25^{\circ}C$ (unless otherwise specified)

| Symbol | Parameter | Min. | Typ. | Max. | Unit |
|-----------|---|------------------------------------|------------------------------------|--------------------|------------------------|
| V_{io} | Input Offset Voltage $0^{\circ}C \leq T_{amb} \leq +70^{\circ}C$ | | 60 | 150 250 | μV |
| | Long Term Input Offset Voltage Stability - (note 1) | | 0.4 | 2 | $\mu V/Mo$ |
| DV_{io} | Input Offset Voltage Drift | | 0.5 | 1.8 | $\mu V/^{\circ}C$ |
| I_{io} | Input Offset Current $0^{\circ}C \leq T_{amb} \leq +70^{\circ}C$ | | 0.8 | 6 8 | nA |
| DI_{io} | Input Offset Current Drift | | 15 | 50 | $pA/^{\circ}C$ |
| I_{ib} | Input Bias Current $0^{\circ}C \leq T_{amb} \leq +70^{\circ}C$ | | 1.8 | 7 9 | nA |
| DI_{ib} | Input Bias Current Drift | | 15 | 50 | $pA/^{\circ}C$ |
| R_o | Open Loop Output Resistance | | 60 | | Ω |
| R_{id} | Differential Input Resistance | | 33 | | $M\Omega$ |
| R_{ic} | Common Mode Input Resistance | | 120 | | $G\Omega$ |
| V_{icm} | Input Common Mode Voltage Range $0^{\circ}C \leq T_{amb} \leq +70^{\circ}C$ | ± 13 ± 13 | ± 13.5 | | V |
| CMR | Common Mode Rejection Ratio ($V_i = V_{icm \text{ min}}$) $0^{\circ}C \leq T_{amb} \leq +70^{\circ}C$ | 100 97 | 120 | | dB |
| SVR | Supply Voltage Rejection Ratio ($V_{CC} = \pm 3$ to $\pm 18V$) $0^{\circ}C \leq T_{amb} \leq +70^{\circ}C$ | 90 86 | 104 | | dB |
| A_{vd} | Large Signal Voltage Gain $V_{CC} = \pm 15$, $R_L = 2k\Omega$, $V_O = \pm 10V$, $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$ $V_{CC} = \pm 3V$, $R_L = 500\Omega$, $V_O = \pm 0.5V$ | 120 100 100 | 400 400 | | V/mV |
| V_{opp} | Output Voltage Swing $R_L = 10k\Omega$ $R_L = 2k\Omega$ $R_L = 1k\Omega$ $R_L = 2k\Omega$ $0^{\circ}C \leq T_{amb} \leq +70^{\circ}C$ | ± 12 ± 11.5 ± 11 | ± 13 ± 12.8 ± 12 | | V |
| SR | Slew Rate ($R_L = 2k\Omega$, $C_L = 100pF$) | | 0.17 | | $V/\mu S$ |
| GBP | Gain Bandwidth Product ($R_L = 2k\Omega$, $C_L = 100pF$, $f = 100kHz$) | | 0.5 | | MHz |
| I_{CC} | Supply Current - (no load) $0^{\circ}C \leq T_{amb} \leq +70^{\circ}C$ $V_{CC} = \pm 3V$ | | 2.7 0.67 | 5 1.3 | mA |
| e_n | Equivalent Input Noise Voltage $f = 10Hz$ $f = 100Hz$ $f = 1kHz$ | | 11 10.5 10 | 20 13.5 11.5 | $\frac{nV}{\sqrt{Hz}}$ |
| i_n | Equivalent Input Noise Current $f = 10Hz$ $f = 100Hz$ $f = 1kHz$ | | 0.3 0.2 0.1 | 0.9 0.3 0.2 | $\frac{pA}{\sqrt{Hz}}$ |

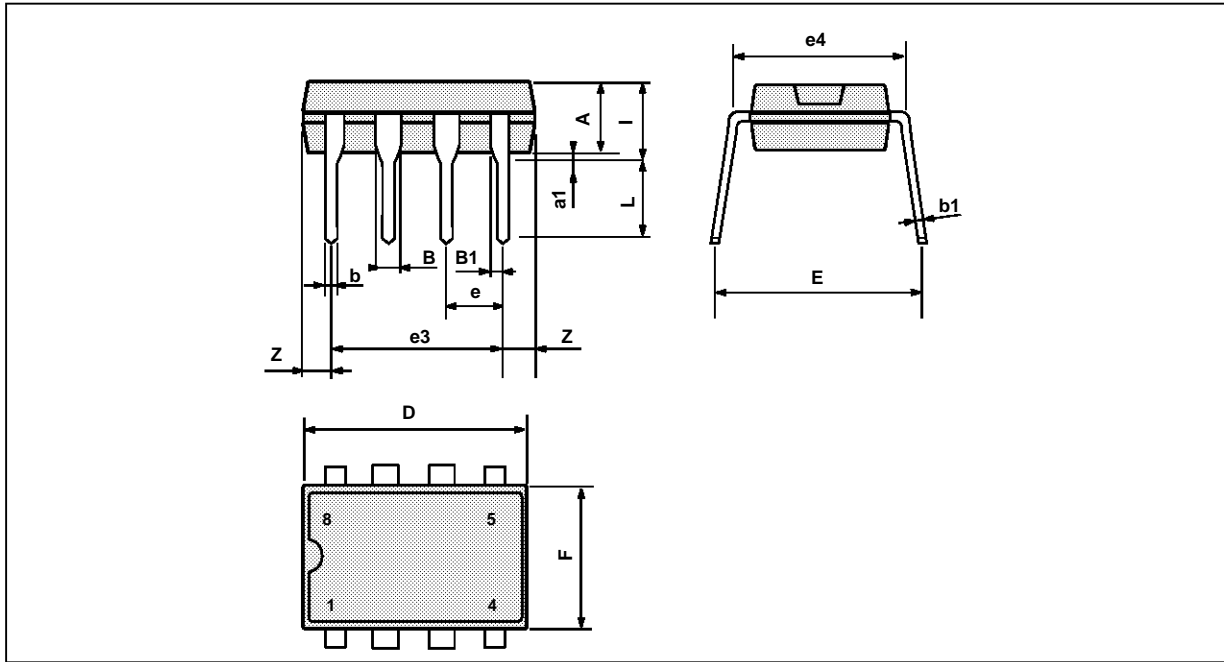
OP07C-03.TBL

Note 1: 1. Long Term Input Offset Voltage Stability refers to the average trend line of V_{io} vs time over extended periods after the first 30 days of operation.

OP07C

PACKAGE MECHANICAL DATA

8 PINS - PLASTIC DIP



PM-DIP8.EPS

| Dimensions | Millimeters | | | Inches | | |
|------------|-------------|------|-------|--------|-------|-------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | | 3.32 | | | 0.131 | |
| a1 | 0.51 | | | 0.020 | | |
| B | 1.15 | | 1.65 | 0.045 | | 0.065 |
| b | 0.356 | | 0.55 | 0.014 | | 0.022 |
| b1 | 0.204 | | 0.304 | 0.008 | | 0.012 |
| D | | | 10.92 | | | 0.430 |
| E | 7.95 | | 9.75 | 0.313 | | 0.384 |
| e | | 2.54 | | | 0.100 | |
| e3 | | 7.62 | | | 0.300 | |
| e4 | | 7.62 | | | 0.300 | |
| F | | | 6.6 | | | 0.260 |
| i | | | 5.08 | | | 0.200 |
| L | 3.18 | | 3.81 | 0.125 | | 0.150 |
| Z | | | 1.52 | | | 0.060 |

DIP8.TBL

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