



**OP07C**

## VERY LOW OFFSET SINGLE BIPOLAR OPERATIONAL AMPLIFIER

- EXTREMELY LOW OFFSET : 150 $\mu$ V/ max.
- LOW INPUT BIAS CURRENT : 1.8nA
- LOW  $V_{i0}$  DRIFT : 0.5 $\mu$ V/ $^{\circ}$ C
- ULTRA STABLE WITH TIME :  
2 $\mu$ V/month max.
- WIDE SUPPLY VOLTAGE RANGE :  
 $\pm$ 3V to  $\pm$ 22V

### DESCRIPTION

The OP07 is a very high precision op amp with an offset voltage maximum of 150 $\mu$ V.

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

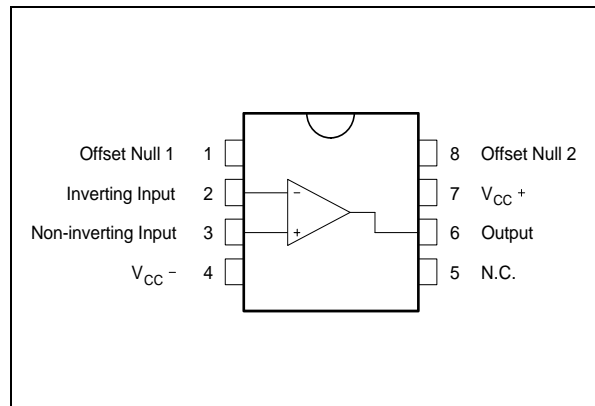
### ORDER CODE

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

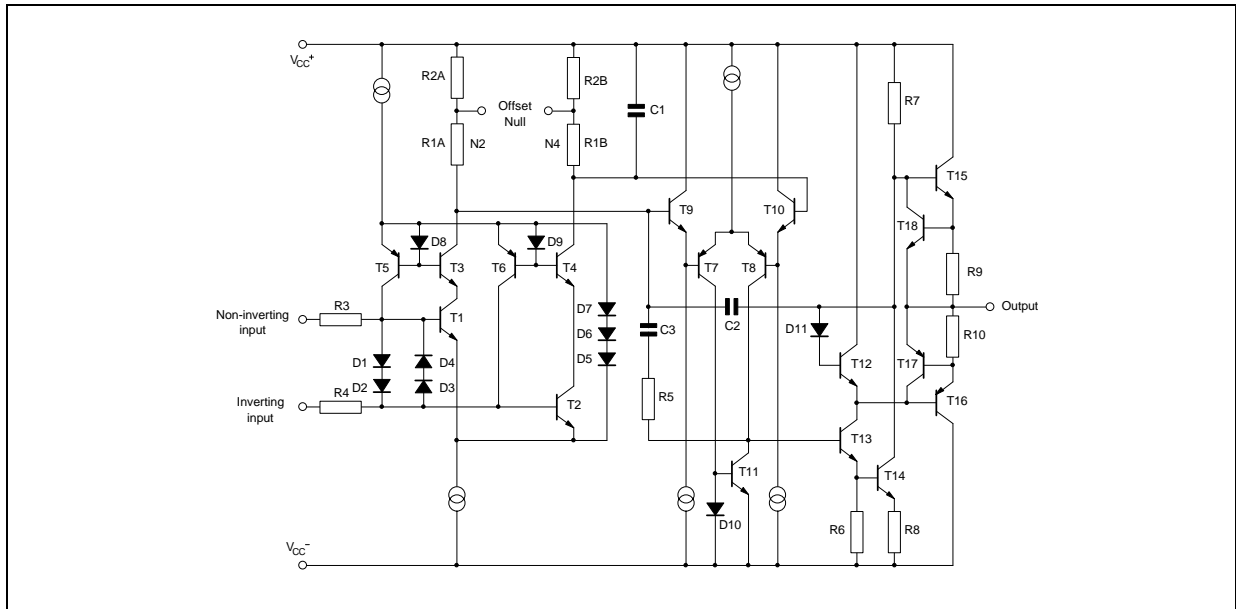
N = Dual in Line Package (DIP)



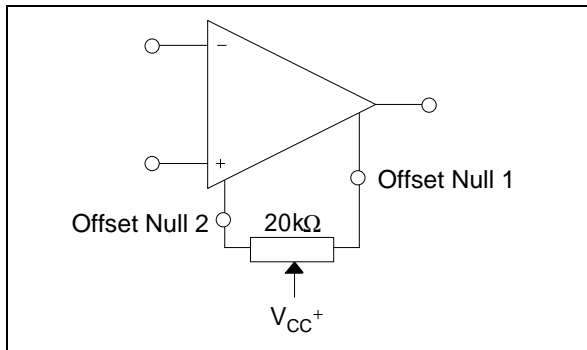
### PIN CONNECTIONS (top view)



**SCHEMATIC DIAGRAM**



**INPUT OFFSET VOLTAGE NULLING CIRCUIT**



**ABSOLUTE MAXIMUM RATINGS**

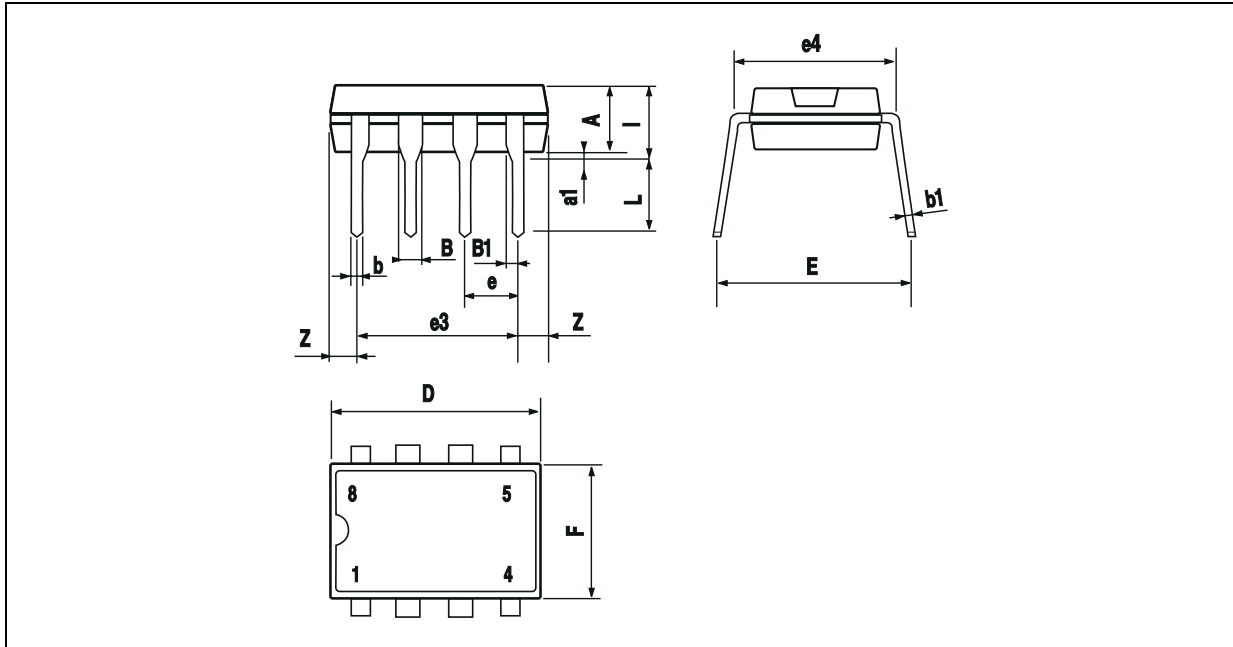
Symbol	Parameter	Value	Unit
$V_{CC}$	Supply Voltage	$\pm 22$	V
$V_{id}$	Differential Input Voltage	$\pm 30$	V
$V_i$	Input Voltage	$\pm 22$	V
$T_{oper}$	Operating Temperature	-40 to +105	°C
$T_{stg}$	Storage Temperature	-65 to +150	°C

**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 $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$		60	150 250	$\mu V$
	Long Term Input Offset - Voltage Stability - note <sup>1)</sup>		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 ( $V_{ic} = 0V$ ) $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$		0.8	6 7	nA
$DI_{io}$	Input Offset Current Drift		15	50	$pA/^{\circ}C$
$DI_{ib}$	Input Bias Current Drift		15	50	$pA/^{\circ}C$
$R_o$	Open Loop Output Resistance		60		$\Omega$
$R_{id}$	Differential Input Resistance		33		$M\Omega$
$R_{ic}$	Common Mode Input Resistance		120		$G\Omega$
$V_{icm}$	Input Common Mode Voltage Range $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$	$\pm 13$ $\pm 13$	$\pm 13.5$		V
CMR	Common-mode Rejection Ratio ( $V_{ic} = V_{icm \text{ min.}}$ ) $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$	100 97	120		dB
SVR	Supply Voltage Rejection Ratio ( $V_{CC} = \pm 3$ to $\pm 18V$ ) $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$	90 86	104		dB
$A_{vd}$	Large Signal Voltage Gain $V_{CC} = \pm 15$ , $R_L = 2k\Omega$ , $V_O = \pm 10V$ $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$ $V_{CC} = \pm 3$ , $R_L = 500\Omega$ , $V_O = \pm 0.5V$	120 100 100	400 400		V/mV
$V_{opp}$	Output Voltage Swing $R_L = 10k\Omega$ $R_L = 2k\Omega$ $R_L = 1k\Omega$ $R_L = 2k\Omega$ $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$	$\pm 12$ $\pm 11.5$  $\pm 11$	$\pm 13$ $\pm 12.8$ $\pm 12$		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 $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$ $V_{CC} = \pm 3V$		2.7 0.67	5 6 1.3	mA
$e_n$	Equivalent Input Noise Voltage $f = 10kHz$ $f = 100Hz$ $f = 1kHz$		11 10.5 10	20 13.5 11.5	$\frac{nV}{\sqrt{Hz}}$
$i_n$	Equivalent Input Noise Current $f = 10kHz$ $f = 100Hz$ $f = 1kHz$		0.3 0.2 0.1	0.9 0.3 0.2	$\frac{pA}{\sqrt{Hz}}$

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.

**PACKAGE MECHANICAL DATA**  
8 PINS - PLASTIC DIP



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

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