



OP07C

VERY LOW OFFSET SINGLE BIPOLAR OPERATIONAL AMPLIFIER

- EXTREMELY LOW OFFSET : 150 μ V/ max.
- LOW INPUT BIAS CURRENT : 1.8nA
- LOW V_{io} DRIFT : 0.5 μ V/ $^{\circ}$ C
- ULTRA STABLE WITH TIME :
2 μ 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 μ V.

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

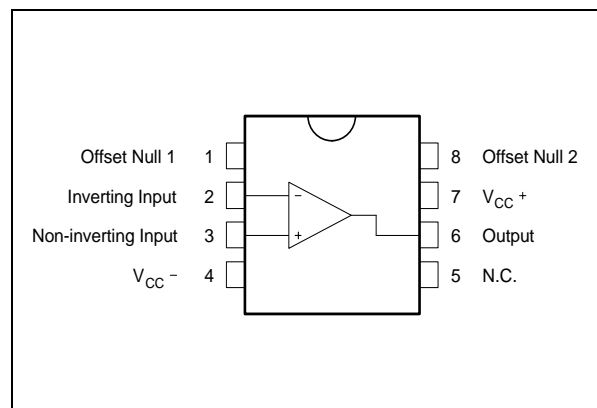
ORDER CODE

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

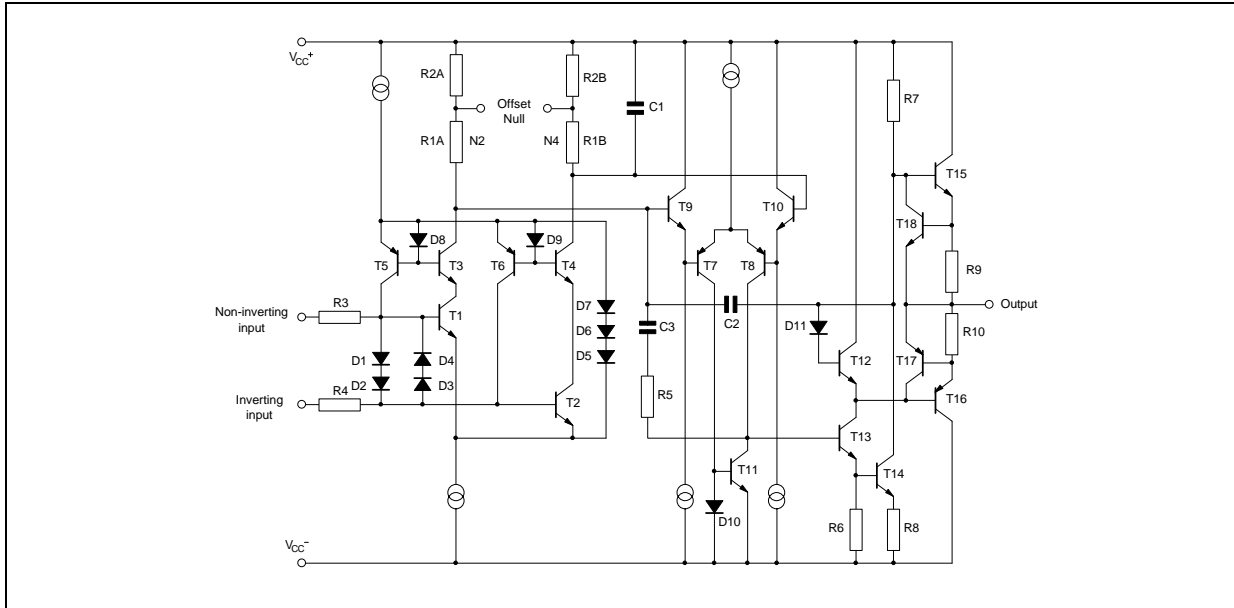
N = Dual in Line Package (DIP)



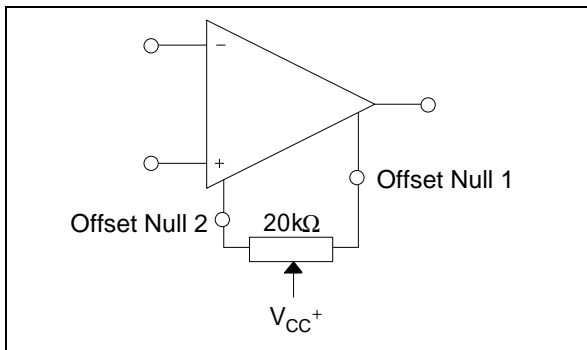
PIN CONNECTIONS (top view)



SCHEMATIC DIAGRAM



INPUT OFFSET VOLTAGE NULLING CIRCUIT



ABSOLUTE MAXIMUM RATINGS

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

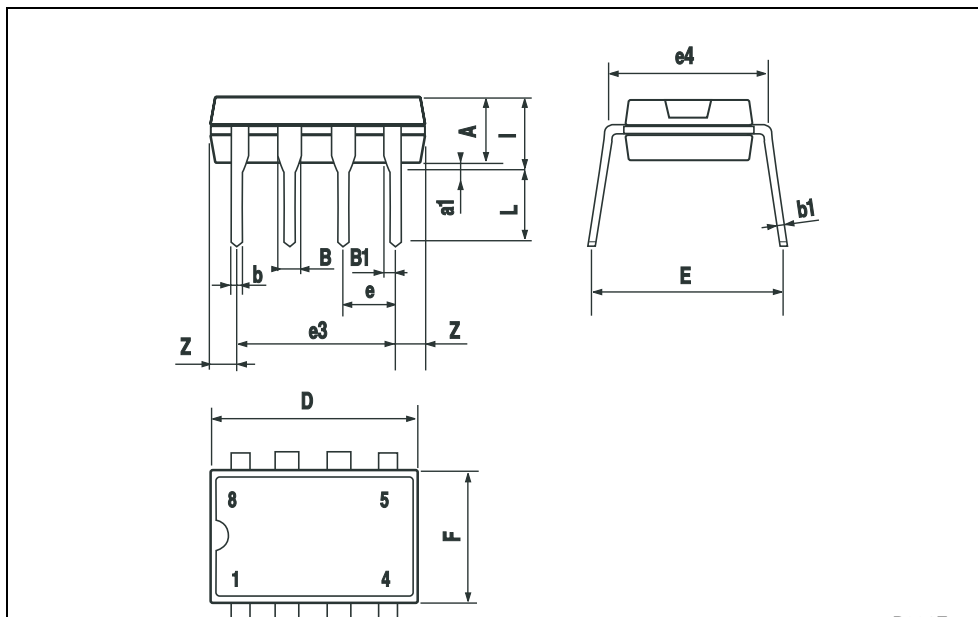
ELECTRICAL CHARACTERISTICS
 $V_{CC} = \pm 15V$, $T_{amb} = 25^{\circ}C$ (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{io}	Input Offset Voltage $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$		60	150 250	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 ($V_{ic} = 0V$) $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$		0.8	6 7	nA
DI_{io}	Input Offset Current Drift		15	50	$pA/^{\circ}C$
I_{ib}	Input Bias Current $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$		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 $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$	± 13 ± 13	± 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 $R_L = 10k\Omega$ $R_L = 2k\Omega$ $R_L = 1k\Omega$ $R_L = 2k\Omega$ $0^{\circ}C \leq T_{amb} \leq +105^{\circ}C$	± 12 ± 11.5 ± 11	± 13 ± 12.8 ± 12		V
SR	Slew Rate ($R_L = 2k\Omega$, $C_L = 100pF$)		0.17		V/ μs
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

Plastic DIP-8 MECHANICAL DATA						
DIM.	mm.			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		3.3			0.130	
a1	0.7			0.028		
B	1.39		1.65	0.055		0.065
B1	0.91		1.04	0.036		0.041
b		0.5			0.020	
b1	0.38		0.5	0.015		0.020
D			9.8			0.386
E		8.8			0.346	
e		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			7.1			0.280
I			4.8			0.189
L		3.3			0.130	
Z	0.44		1.6	0.017		0.063



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