

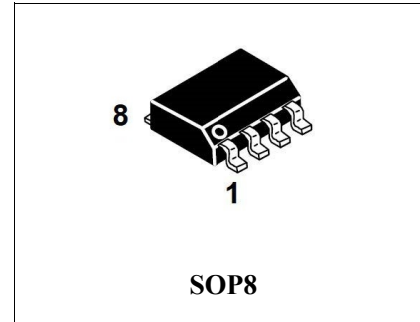
High Precision Operational Amplifiers

OP07C

Description

The OP07C is a high precision operational amplifier, offering low offset voltage and long-term stability. The low offset voltage ($150\mu\text{V}$, maximum) and high gain (up to 200V/mV) make OP07C well-suited in the applications related to instrumentation.

The differential input, including a wide input-voltage range ($\pm 13\text{V}$) and high CMRR (100dB), provides outstanding linearity and gain precision in high loop gain circuit.



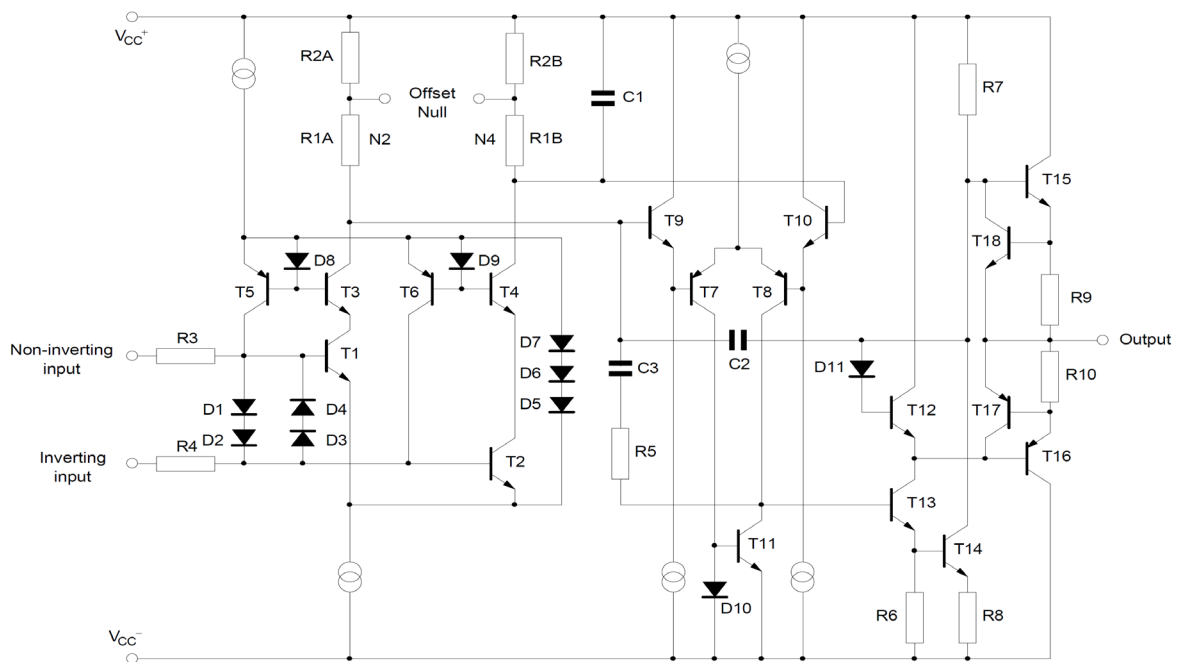
Features

- Low Offset Voltage: $150\mu\text{V}$ (max)
- Low Offset Current: $I_{io}=1.3\text{nA}$ (Typ)
- Wide Input-Voltage Range: $\pm 3\text{V}$ to $\pm 20\text{V}$
- High CMRR: 100dB (min)

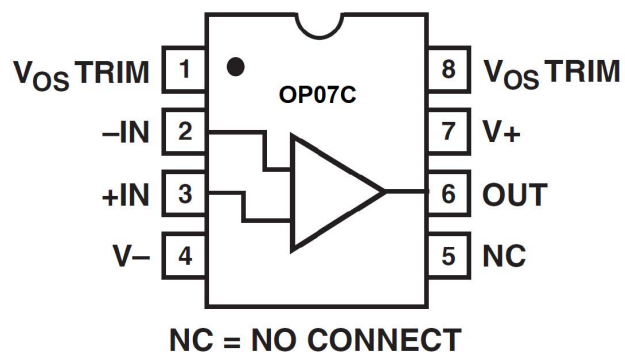
Applications

- Instrumentation
- Precision Filters
- Sensors and Controls

Functional Block Diagram



Pin Configuration



Absolute Maximum Ratings (Note 1)

Parameter	Symbol	Value	Unit
Power Supply Voltage	V_{CC}	± 20	V
Differential Input Voltage	V_{ID}	± 30	V
Input Voltage	V_I	± 18	V
Operating Temperature	T_{OPR}	-10 to 85	$^{\circ}C$
Storage Temperature Range	T_{STG}	-40 to 150	$^{\circ}C$

Note 1: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device under these conditions is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

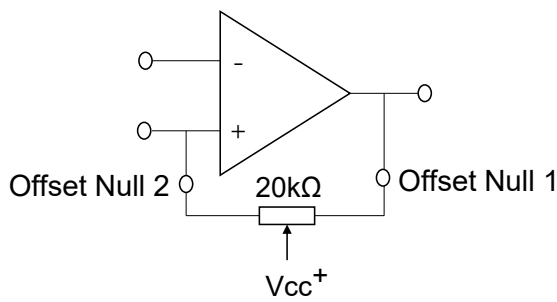
ELECTRICAL CHARACTERISTICS

$V_{CC}=\pm 15V$, $GND=0$, $T_A=25^{\circ}C$ unless otherwise specified.

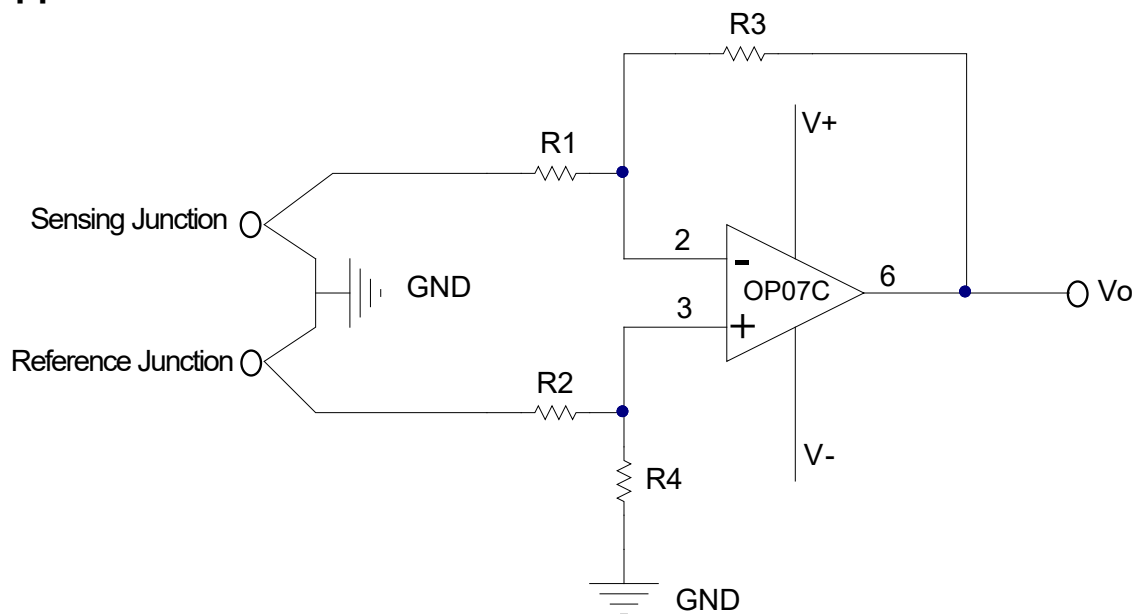
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage	V_{IO}	$T_A=25^{\circ}C$			150	μV
		$0^{\circ}C < T_A < 70^{\circ}C$			250	
Input Bias Current (Note 2)	I_{BIAS}	I_{IN+} or I_{IN-} , $V_{CM}=0V$			28	nA
Input Offset Current	I_{IO}	$I_{IN+}-I_{IN-}$, $V_{CM}=0V$			8	nA
Peak Output Voltage	V_{OM}	$R_L=10K\Omega$	± 12			V
		$R_L=2K\Omega$	± 11.5			
Supply Current	I_{CC}	$I_{out}=0A$		3.8	6	mA
		$0^{\circ}C < T_A < 70^{\circ}C$			7	
		$V_{CC}=\pm 3V$		1	3	
Large Signal Voltage Gain	G_V	$V_{CC}=\pm 15V$, $R_L=2k\Omega$, $V_O=\pm 10V$	100			V/mV
Common Mode Rejection Ratio	CMRR		100			dB
Power Supply Rejection Ratio	PSRR		90			dB
Gain Bandwidth Product	GBP	$R_L=2k\Omega$, $C_L=100pF$, $f=100kHz$		0.5		MHZ
Input Common Voltage	V_{ICM}		± 13	± 13.5		V
Temperature coefficient of input offset voltage	DV_{IO}				1.8	$\mu V/^{\circ}C$

Note 2: The direction of the input current is out of the IC due to the PNP input stage. This current is essentially constant, independent of the state of the output so no loading change exists on the input lines.

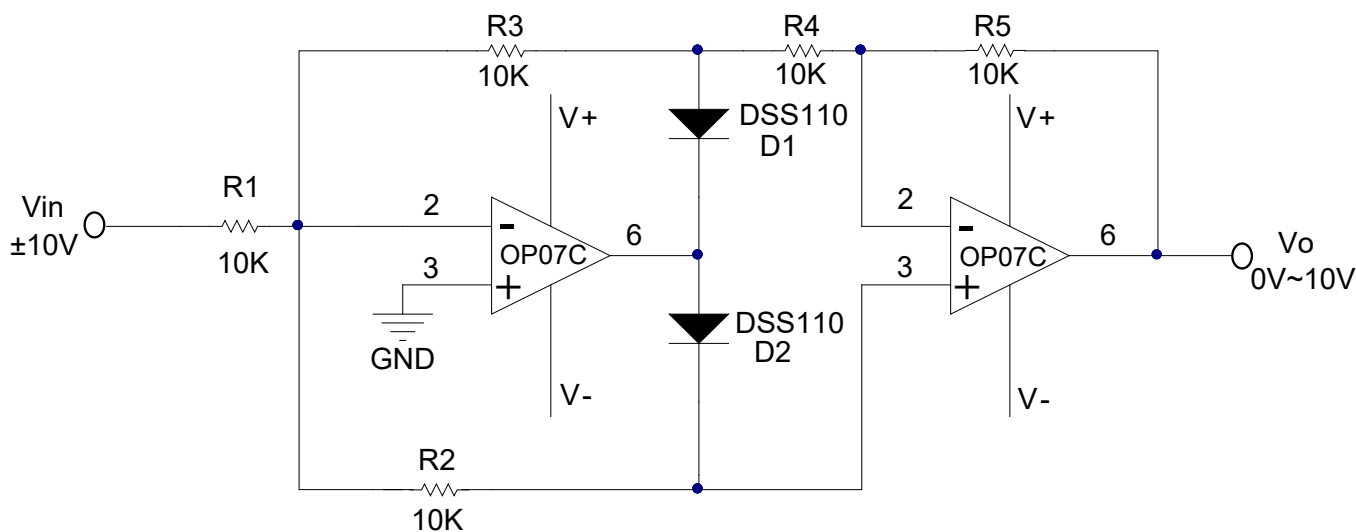
Input Offset-Voltage Null Circuit



Typical Application

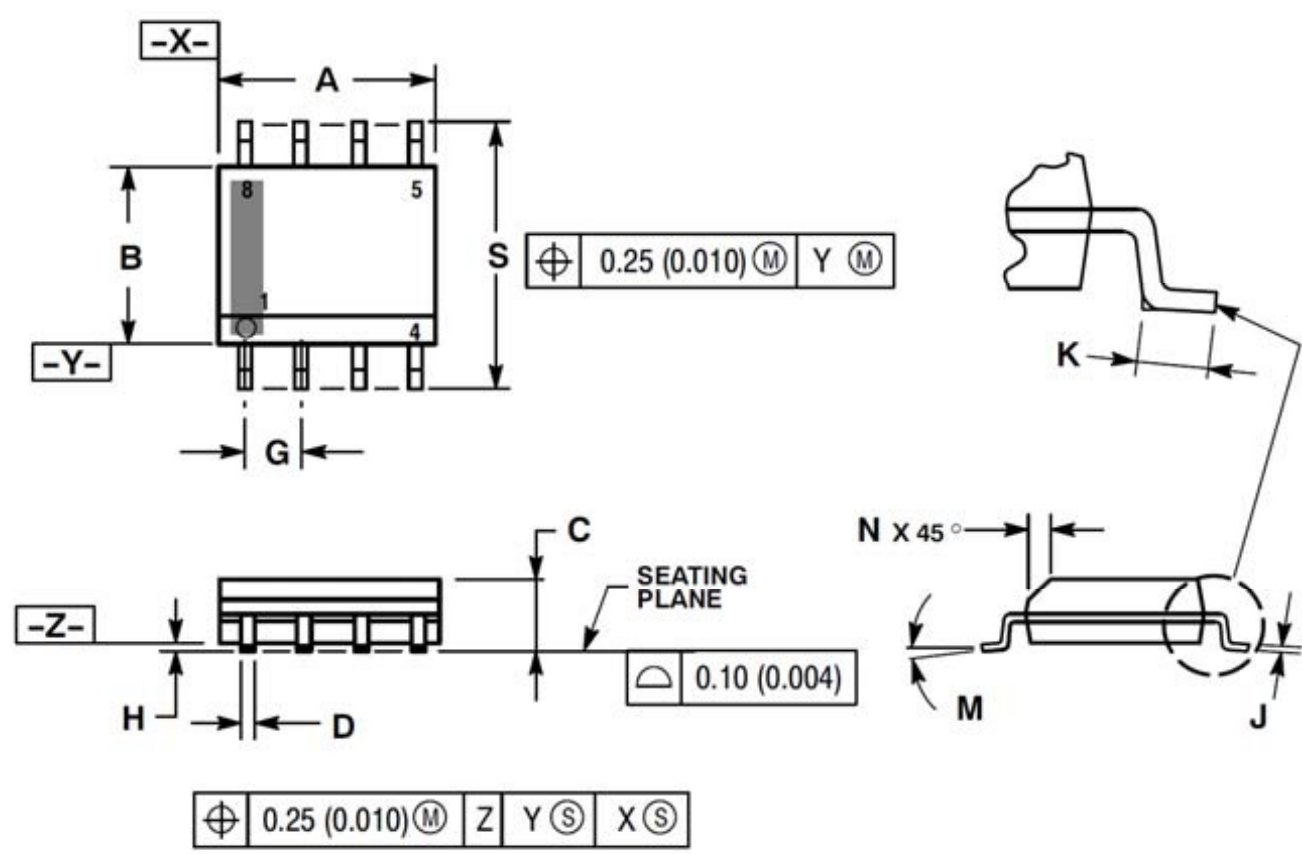


Circuit1. High stability thermocouple amplification



Circuit2. Precision absolute value circuit

SOP8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.80	5.00	0.189	0.197
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.053	0.069
D	0.33	0.51	0.013	0.020
G	1.27 BSC		0.050 BSC	
H	0.10	0.25	0.004	0.010
J	0.19	0.25	0.007	0.010
K	0.40	1.27	0.016	0.050
K	2.92	3.43	0.115	0.135
M	0°	8°	0°	8°
N	0.25	0.50	0.010	0.020
S	5.80	6.20	0.228	0.244

NOTICE

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