
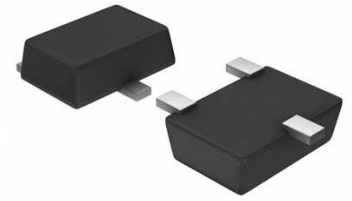


**SP Amp Current Sense Amp Single R-R O/P 5.5V Automotive 6-Pin SOT-23 T/R**

<b>Manufacturer:</b>	<a href="#">Texas Instruments, Inc</a>
<b>Package/Case:</b>	SOT23-6
<b>Product Type:</b>	Amplifier ICs
<b>RoHS:</b>	RoHS Compliant/Lead free 
<b>Lifecycle:</b>	Active



Images are for reference only

[Inquiry](#)

## General Description

The INA181-Q1, INA2181-Q1, and INA4181-Q1 (INAx181-Q1) current sense amplifiers are designed for cost-optimized applications. These devices are part of a family of bidirectional, current-sense amplifiers (also called current-shunt monitors) that sense voltage drops across current-sense resistors at common-mode voltages from  $-0.2\text{ V}$  to  $+26\text{ V}$ , independent of the supply voltage. The INAx181-Q1 family integrates a matched resistor gain network in four, fixed-gain device options:  $20\text{ V/V}$ ,  $50\text{ V/V}$ ,  $100\text{ V/V}$ , or  $200\text{ V/V}$ . This matched gain resistor network minimizes gain error and reduces the temperature drift. These devices operate from a single  $2.7\text{-V}$  to  $5.5\text{-V}$  power supply. The single-channel INA181-Q1 draws a maximum supply current of  $260\text{ }\mu\text{A}$ ; whereas, the dual-channel INA2181-Q1 draws a maximum supply current of  $500\text{ }\mu\text{A}$ , and the quad-channel INA4181-Q1 draws a maximum supply current of  $900\text{ }\mu\text{A}$ . The INA181-Q1 is available in a 6-pin, SOT-23 package. The INA2181-Q1 is available in a 10-pin, VSSOP package. The INA4181-Q1 is available in a 20-pin, TSSOP package. All device options are specified over the extended operating temperature range of  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ .

## Key Features

AEC-Q100 qualified for automotive applications  
Temperature grade 1:  $-40^{\circ}\text{C} \leq T_A \leq +125^{\circ}\text{C}$

HBM ESD classification level 2

CDM ESD classification level C6

Functional Safety-Capable  
Documentation available to aid functional safety system design

Common-mode range ( $V_{CM}$ ):  $-0.2\text{ V to }+26\text{ V}$

High bandwidth: 350 kHz (A1 devices)

Offset voltage:  
 $\pm 150\ \mu\text{V}$  (maximum) at  $V_{CM} = 0\text{ V}$

$\pm 500\ \mu\text{V}$  (maximum) at  $V_{CM} = 12\text{ V}$

Output slew rate: 2 V/ $\mu\text{s}$

Bidirectional current-sensing capability

Accuracy:  
 $\pm 1\%$  gain error (maximum)

1- $\mu\text{V}/^{\circ}\text{C}$  offset drift (maximum)

Gain options:  
20 V/V (A1 devices)

50 V/V (A2 devices)

100 V/V (A3 devices)

200 V/V (A4 devices)

Quiescent current: 260  $\mu\text{A}$  maximum (INA181-Q1)

## Recommended For You

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### INA823DT

Texas Instruments, Inc

SOP8

### INA333AIDRGR

Texas Instruments, Inc

SON-8

### INA101AM

Texas Instruments, Inc

CAN10

### INA141UA

Texas Instruments, Inc

SOP8

### INA111AP

Texas Instruments, Inc

DIP8

### INA101AG

Texas Instruments, Inc

DIP

**INA116UA**

Texas Instruments, Inc  
SOP16

**INA333AIDRGT**

Texas Instruments, Inc  
SON8

**INA101SM**

Texas Instruments, Inc  
CAN10

**INA129PA**

Texas Instruments, Inc  
DIP8

**INA101CM**

Texas Instruments, Inc  
CAN10

**INA141PA**

Texas Instruments, Inc  
DIP

**TLV2254IN**

Texas Instruments, Inc  
DIP-14

**TLV2464IN**

Texas Instruments, Inc  
DIP14

**INA2126UA**

Texas Instruments, Inc  
SOP16