



# DC Current Sensor Module BCDCS Series Datasheet

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## Introduction

This document describes BCDCS Series implementing detect overcurrent and sensing current to Voltage based on the “Texas Instruments INA301A3 IC”.

BCDCS Series is a 36-V common-mode, zero-drift topology, current-sensing amplifier that can be used in both low-side and high-side configurations. These specially-designed, current-sensing amplifiers are able to accurately measure voltages developed across current-sensing resistors (also known as current-shunt resistors) on common-mode voltages that far exceed the supply voltage powering the device.

Current can be measured on input voltage rails as high as 36 V, and the device can be powered from supply voltages as low as 2.7 V. The device can also withstand the full 36-V common-mode voltage at the input pins when the supply voltage is removed without causing damage.

There are 3 kinds of BCDCS Series but user can control MAX Sensing and Alert Current by replace resistor.

- BCDCS0108 : MAX 1A Sensing / 0.8A Alert
- BCDCS0540 : MAX 5A Sensing / 4A Alert
- BCDCS1080 : MAX 10A Sensing / 8A Alert

User can change alert current by control value of “Limit Res”. The current-limit threshold depending on value of “Limit Res”.

- Calculate the threshold limit-setting resistor

$$\text{Limit Res} = 62500 * \text{Alert Current} / \text{Max Current} (\Omega)$$

$$\text{Ex ) Max 5A / 4A Alert : Limit Res} = 50\text{k} (\Omega)$$

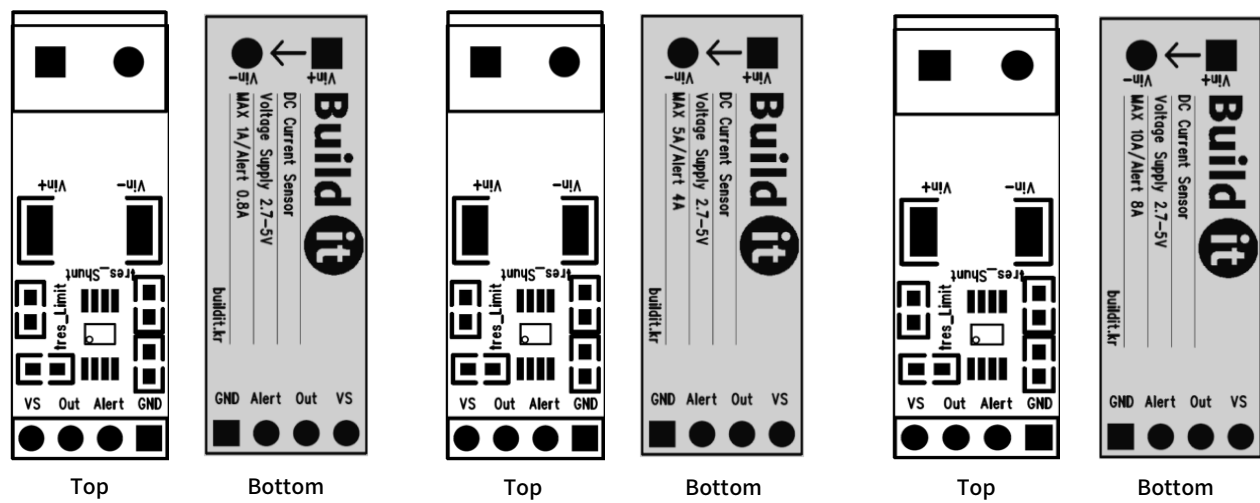
## Feature

- Wide Common-Mode Input Range: 0 V to 36 V
- Dual Output: Amplifier and Comparator Output
- High Accuracy Amplifier:
  - Gain Error: 0.2% (Max)
  - Gain Error Drift: 10 ppm/°C
- Available Amplifier Gain: 100 V/V
- Programmable Alert Threshold Set Through a Single Resistor (Limit Res)
- Total Alert Response Time: 1  $\mu$ s

## Specifications

Parameter	Min.	Typ.	Max.	Unit
Input Voltage Range	0		36	V
Input Supply Voltage	2.7		5.5	V
Gain		100		V/V
Gain error		0.11	0.2	%
Nonlinearity error			0.01	%
Bandwidth		450		kHz
Specified Range	-40		125	°C

Pin Out Description



PIN	Description
GND	Ground
Alert	Digital output_ Overlimit alert, Active-low, open-drain output
OUT	Analog output_ Output voltage
VS	Power supply, 2.7 Volt to 5.5 Volt
IN+	Analog input_ Connect to Supply side
IN-	Analog input_ Connect to load side

Dimensions

