



Precision Core Constant Current Source Reference

This small, embeddable constant current source reference gives low drift accuracy, protection, and filtering to ensure that the device under test (or D.U.T.) such as semiconductors, diodes, LEDs, sensor excitation, IC, and other loads can be characterized or calibrated with high accuracy. The constant current source reference can have a variable equivalent load of up to 5 kilohms and a variable voltage input of 15 to 30 volts. By setting the voltage input from power supply and load resistance, the current source reference can be set from 4 to 12.5 mA.

Benefits of the CCS

- Low current drift ($< \pm 0.03\%$) at one hour at 75 deg Fahrenheit
- Set 4 to 12.5 mA constant current
- Stable, repeatable current delivery
- 15-30 VDC input
- Short circuit protection
- Reverse voltage protection
- Overvoltage protection up to 45 VDC
- ESD protection
- Small size

• Easy Integration

The constant current source reference uses all voltage input dynamically (not a fixed voltage output). This is designed to deliver stable and reliable performance once it reaches thermal equilibrium, providing consistent output that engineers can depend on during extended operation. It restabilizes to consistent behavior even when the constant current source is moved by hand or temporarily disturbed by other means. This reduces long-term drift and minimizing the need for frequent recalibration. Its repeatable

performance ensures that the same conditions produce the same results, which is critical for validation, testing, and quality assurance processes. Over a few hours, the current output remains smooth and predictable, supporting applications that require continuous operation without instability or unexpected large variation. The constant current source gives low drift to (D.U.T.) such as semiconductors, diodes, LEDs, sensor excitation, IC and other loads.

Applications

- Silicon, Schottky, and Zener diode characterization
- Temperature coefficient measurements
- LED binning
- Temperature drift measurements
- Transistor junction testing
- RTD Excitation
- Sensor Excitation
- Semiconductor test fixtures
- Fixed bias source for every channel
- Op-amp input bias current studies
- Precision reference evaluation
- Current mirror characterization
- Analog IC testing

ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings†

Operating Voltage.....	10-50 VDC
Junction Temperature.....	-40°C to +85°C
Storage Temperature.....	-40°C to +80°C

† **Notice:** Going above the limits listed in “Absolute Maximum Ratings” may cause permanent damage to the device. It is not recommended to be at or above “Absolute Maximum Ratings” for this device. Keeping device at or above maximum rating for extended periods of time may affect the device’s reliability.

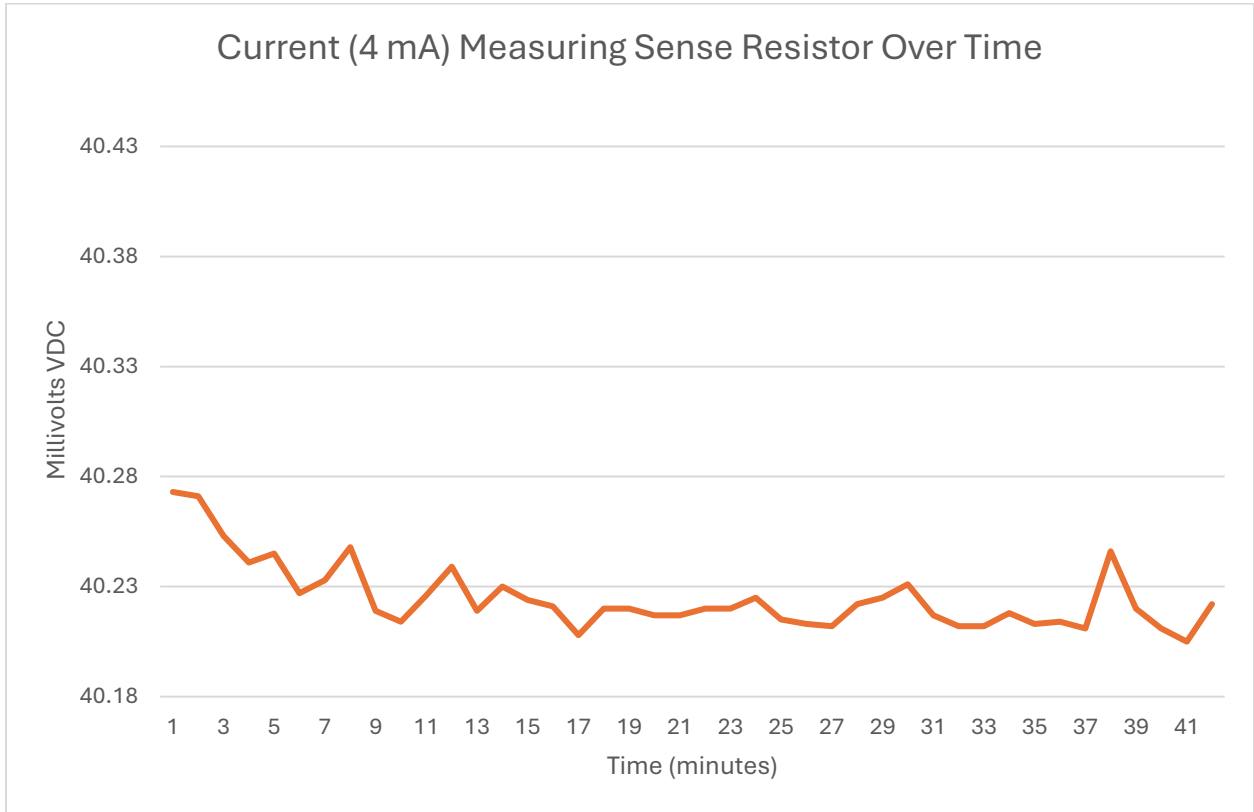
DC ELECTRICAL CHARACTERISTICS

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Voltage Supply Input	DC	15	25	30	VDC

TEMPERATURE SPECIFICATIONS

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Junction Temperature		-30	25	75	°C
Maximum Junction Temperature		-40	-	85	°C
Storage Temperature		-35	-	75	°C

Test Results of Precision Core Constant Current Source Reference at 4 mA and at 75-degree Fahrenheit:



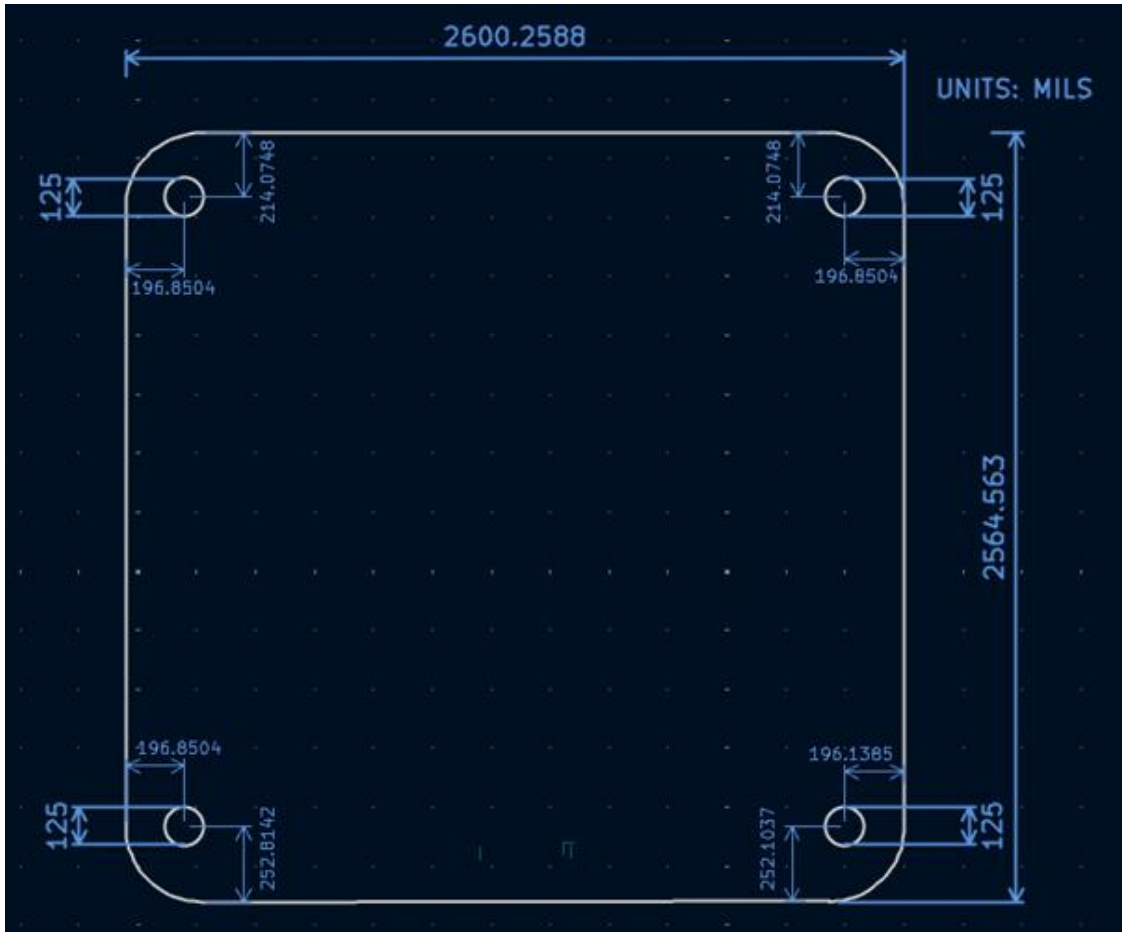
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Testing Precision Core Constant Current Source Reference. Average Current is			4.0 mA
5212026			
Power Supply Voltage:	15 VDC		
Sense Resistor:	10.12 Ohms		
Load Resistor:	100 Ohms		
Time (minutes)	mVDC		Legend:
0	40.273		Good Reading
1	40.271		Very Good Reading
2	40.253		
3	40.241		
4	40.245		
5	40.227		
7	40.233		
8	40.248		
9	40.219		
10	40.214		
11	40.226		
12	40.239		
13	40.219		
14	40.23		
15	40.224		
16	40.221		
17	40.208		
18	40.22		
19	40.22		
20	40.217		
21	40.217		
22	40.22		
23	40.22		
24	40.225		
25	40.215		
26	40.213		
27	40.212		
28	40.222		
29	40.225		
30	40.231		
31	40.217		
32	40.212		
33	40.212		
34	40.218		
35	40.213		
36	40.214		
37	40.211		
38	40.246		
39	40.22		
40	40.211		
41	40.205		
42	40.222		

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Dimensions of the Board

NOTICE: This is the dimensions of the Precision Core Constant Current Source Reference in mils. Do not torque the four Philip head screws to much or will cause current drift on the printed circuit board.



To the best of our knowledge, the referenced product in this datasheet is RoHS compliant per the component manufacturers' documentation. Printed circuit board made in the U.S.A.

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APPENDIX: REVISION HISTORY

REV	DATE	DESCRIPTION	PAGE NUMBER
A	06/2026	INITIAL RELEASE	ALL
B	06/19/2026	ADDED TIME AND DEGREE FOR CURRENT DRIFT	1

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