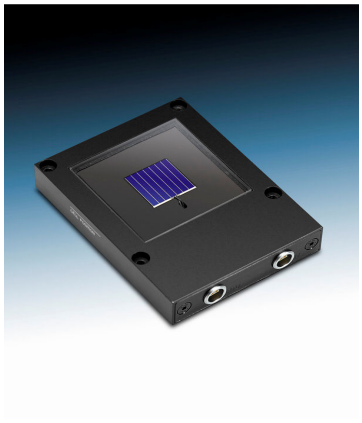
SOLAR ENERGY

VLSI Standards Incorporated

Solar Reference Cells

LET YOUR ACCURACY SHINE! THE SOLAR REFERENCE CELL FROM VLSI STANDARDS IS DESIGNED FOR CALIBRATING THE IRRADIANCE OF SOLAR SIMULATORS USED FOR TESTING SOLAR CELLS AND MODULES.

Pictured on the left is the SRC-1000-TC-QZ Solar Reference Cell with Certificate of Calibration and Cable Set. On the right is a close-up view of the SRC-1000-RTD-QZ.



PRODUCT DESCRIPTION

The Solar Reference Cells consist of a 20 mm x 20 mm monocrystalline silicon Photovoltaic Cell encased in a 92 mm x 70 mm x 16 mm metal enclosure with a protective quartz window and a temperature sensor. The temperature sensor can be selected as either a Type K thermocouple or a 100 Ω platinum Resistance Temperature Detector (RTD).

The Solar Reference Cells come with a Certificate of Calibration and compatible set of connecting cables. The following parameters of the reference cell are certified: I_{sc}, I_{max}, V_{oc}, V_{max}, P_{max}, Area, Fill Factor and Efficiency. The certification is accredited by NIST to the ISO-17025 standard and is traceable both to the National Renewable Energy Laboratory (NREL), and to the International System of Units (SI).

Optional temperature dependence measurement of I_{sc}, V_{oc} and efficiency between 20 deg C and 30 deg C is also available.

PRODUCT SPECIFICATIONS

- **Photovoltaic material:** monocrystalline silicon
- **Photovoltaic device dimensions:** 20 mm x 20 mm
- **Window material, choose from:** Quartz, KG1, KG2, KG5, RG610
- **Enclosure material:** anodized aluminum
- **Enclosure Dimensions:** 92mm x 70mm x 16 mm
- **Temperature sensor:** 100 Ω Pt RTD or Type K thermocouple
- **Current – voltage connector:** LEMO ERA.0S.304.CLT
- **Temperature connector:** LEMO ERA.0S.304.CLT (for RTD) or Omega SMPW-K-F (for thermocouple)
- **Cable Set:** Compatible for use with corresponding current-voltage and temperature sensor connectors.
- **Calibration irradiance:** 1000 W/m² (1 sun)
- **Operating current:** Less then 200 mA
- **Operating temperature:** 10°C – 40°C

Revision SRC 100108A
Specifications subject to change.

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SRC Solar Reference Cell

Application:	Solar Simulator Calibration, Solar Cell Calibration
Equipment:	Solar Simulators
Solar Cell Material:	Monocrystalline Silicon
Traceability:	Accredited by NIST to the ISO-17025 standard Traceable to both the National Renewable Energy Laboratory (NREL), and to the International System of Units (SI).

Models/Options	Description (all include compatible cable sets)
SRC-1000-TC-QZ	Solar Reference Cell, with **quartz** window and type K **thermocouple** temperature sensor. NREL / NVLAP Accredited Certificate of Calibration including certified values of I_{sc}, I_{max}, V_{oc}, V_{max}, P_{max}, Area, Spectral Response, Fill Factor and Efficiency.
SRC-1000-TC-KG1	Solar Reference Cell, with **KG1** window and type K **thermocouple** temperature sensor. NREL / NVLAP Accredited Certificate of Calibration including certified values of I_{sc}, I_{max}, V_{oc}, V_{max}, P_{max}, Area, Spectral Response, Fill Factor and Efficiency.
SRC-1000-TC-KG2	Solar Reference Cell, with **KG2** window and type K **thermocouple** temperature sensor. NREL / NVLAP Accredited Certificate of Calibration including certified values of I_{sc}, I_{max}, V_{oc}, V_{max}, P_{max}, Area, Spectral Response, Fill Factor and Efficiency.
SRC-1000-TC-KG5	Solar Reference Cell, with **KG5** window and type K **thermocouple** temperature sensor. NREL / NVLAP Accredited Certificate of Calibration including certified values of I_{sc}, I_{max}, V_{oc}, V_{max}, P_{max}, Area, Spectral Response, Fill Factor and Efficiency.
SRC-1000-TC-RG610	Solar Reference Cell, with **RG610** window and type K **thermocouple** temperature sensor. NREL / NVLAP Accredited Certificate of Calibration including certified values of I_{sc}, I_{max}, V_{oc}, V_{max}, P_{max}, Area, Spectral Response, Fill Factor and Efficiency.
SRC-1000-RTD-QZ	Solar Reference Cell, with **quartz** window and 100 ohm Pt **RTD** temperature sensor. NREL / NVLAP Accredited Certificate of Calibration including certified values of I_{sc}, I_{max}, V_{oc}, V_{max}, P_{max}, Area, Spectral Response, Fill Factor and Efficiency.
SRC-1000-RTD-KG1	Solar Reference Cell, with **KG1** window and and 100 ohm Pt **RTD** temperature sensor. NREL / NVLAP Accredited Certificate of Calibration including certified values of I_{sc}, I_{max}, V_{oc}, V_{max}, P_{max}, Area, Spectral Response, Fill Factor and Efficiency.
SRC-1000-RTD-KG2	Solar Reference Cell, with **KG2** window and 100 ohm Pt **RTD** temperature sensor. NREL / NVLAP Accredited Certificate of Calibration including certified values of I_{sc}, I_{max}, V_{oc}, V_{max}, P_{max}, Area, Spectral Response, Fill Factor and Efficiency.
SRC-1000-RTD-KG5	Solar Reference Cell, with **KG5** window and 100 ohm Pt **RTD** temperature sensor. NREL / NVLAP Accredited Certificate of Calibration including certified values of I_{sc}, I_{max}, V_{oc}, V_{max}, P_{max}, Area, Spectral Response, Fill Factor and Efficiency.
SRC-1000-RTD-RG610	Solar Reference Cell, with **RG610** window and 100 ohm Pt **RTD** temperature sensor. NREL / NVLAP Accredited Certificate of Calibration including certified values of I_{sc}, I_{max}, V_{oc}, V_{max}, P_{max}, Area, Spectral Response, Fill Factor and Efficiency.

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