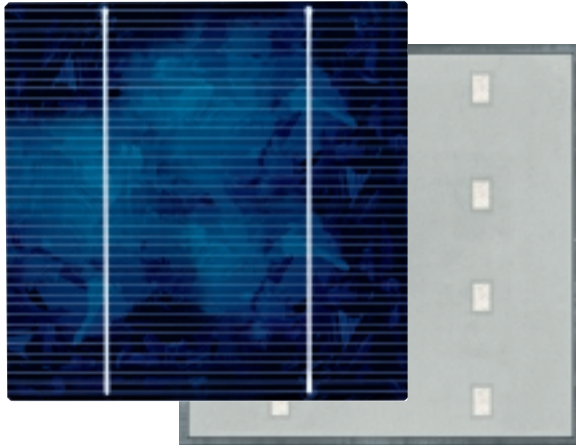


MAIN-Solar Cell



MAIN-Cell 100 mm x 100 mm (front and backside view)

- High efficiency > 15%
- High resistance against breakage during module production
- Reverse voltage check of every cell
- Precise matching of cells in narrow current classes
- Highest energy yield and best long time experience in modules
- Uniform dark blue appearance



The unique RWE SCHOTT Solar cell process achieves the highest efficiencies in large-scale multi-crystalline cell production



Maximum packing factor and mono-crystalline look for high performance modules

MAIN solar cells offer essential advantages to the module manufacturer:

Performance in Modules

- Long duration electrical performance stability
- High light spectrum sensitivity and energy output
- High current output due to fine finger design (high conductance with reduced shadowing)
- Least power deviation of modules ensured by precise matching of cells, sorted 100% in narrow current classes at constant test voltage

Application in Modules

- Cell suitable for lead free soldering
- Reliable stringing due to easily solderable low resistance busbars on the front side and 8 large solder pads on the back side
- Front surface compatible with all commercially applied photovoltaic encapsulants due to proprietary Silicon Nitride AR Coating

Appearance

- Distinctive look in modules due to slightly textured surface and uniformly dark blue, shiny appearance

The Technology

MAIN-Cells (Multi-crystalline Advanced Industrial Cells) are high efficiency silicon cells made of multi-crystalline wafers.

The wafers are converted into solar cells using proprietary cell technology of RWE SCHOTT Solar. The production features several state of the art process steps and is widely recognized as the most advanced cell line in the world.

The MAIN-Cells have proven to be easy to handle, aesthetically attractive and extremely reliable – important attributes for the core component of a PV module. MAIN-Cells of RWE SCHOTT Solar meet and exceed all requirements for current and future industrial module production.

Design and Mechanical Data



Principal Material	Multi-crystalline Silicon
External Dimensions	100 mm x 100 mm ± 1.0 mm
Cell Thickness	~ 300 µm
Type of Contacts	Front: 2 full length silver busbars Back: 2 x 4 rectangular silver contacts
Polarity	Front: negative Back: positive
Anti-reflection Coating	Silicon Nitride

Electrical data



		MAIN1026	MAIN1027	MAIN1028	MAIN1029	MAIN1030
Test Voltage	V_{ld} (mV)	500	500	500	500	500
Avg. Open Circuit Voltage	V_{oc} (mV)	592	597	603	609	613
Current at Test Voltage	I_{Vld} (A)	2.6 - 2.7	2.7 - 2.8	2.8 - 2.9	2.9 - 3.0	3.0 - 3.1
Avg. Short Circuit Current	I_{sc} (A)	3.10	3.17	3.23	3.28	3.31
Avg. Power*	P_{Vld} (Wp)	1.33	1.38	1.43	1.47	1.51
Avg. Efficiency	η_{mpp} (%)	13.5	13.9	14.3	14.7	15.1

Standard Test Conditions (STC): Light Spectrum AM 1.5 G; Irradiation Density $E = 100 \text{ mW/cm}^2$; Cell Temperature $T_c = 25 \text{ }^\circ\text{C}$;

Accuracy: P_{Vld} , I_{sc} , I_{Vld} : ± 3%; V_{oc} : ± 2%; I_{ld} : load condition

* Valid for cells, power increase under encapsulated conditions subject to cell interconnector losses and encapsulation gain.

Cell temperature coefficients



Power	$T_K (P_{mpp})$ (%/K)	- 0.4	$P_{mpp}(T) = P_{mpp}(25 \text{ }^\circ\text{C}) * (1 + \Delta T * T_K)$ $P_{mpp}(25 \text{ }^\circ\text{C}) \triangleq P_{Vld}(25 \text{ }^\circ\text{C})$
Open-circuit voltage	$T_K (V_{oc})$ (mV/K)	- 2.0	$V_{oc}(T) = V_{oc}(25 \text{ }^\circ\text{C}) + \Delta T * T_K$
Short-circuit current	$T_K (I_{sc})$ (mA/K)	+ 3.0	$I_{sc}(T) = I_{sc}(25 \text{ }^\circ\text{C}) + \Delta T * T_K$

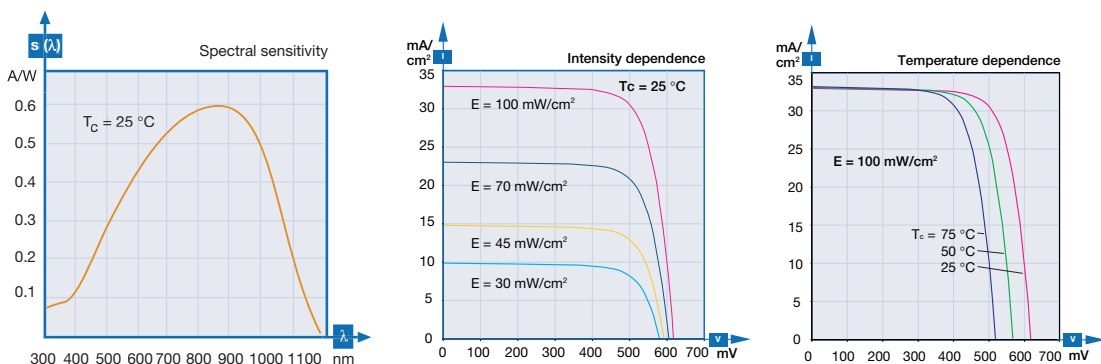
Accuracy between 25 °C – 75 °C: P_{mpp} , I_{sc} : ± 3%; V_{oc} : ± 2%

Limits



Operating Temperature	- 50 °C to + 80 °C
Storage in original packing	- 60 °C to + 50 °C (Humidity ≤ 55%)
Solder	Soft Solder Sn, 2% to 4% Ag

Electrical Curves



In the current / voltage graphs above, the current is shown per unit of cell area.
The absolute values are obtained by multiplying the cell area with the relevant current values.
RWE SCHOTT Solar reserves the right to change product specification without prior notice.

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