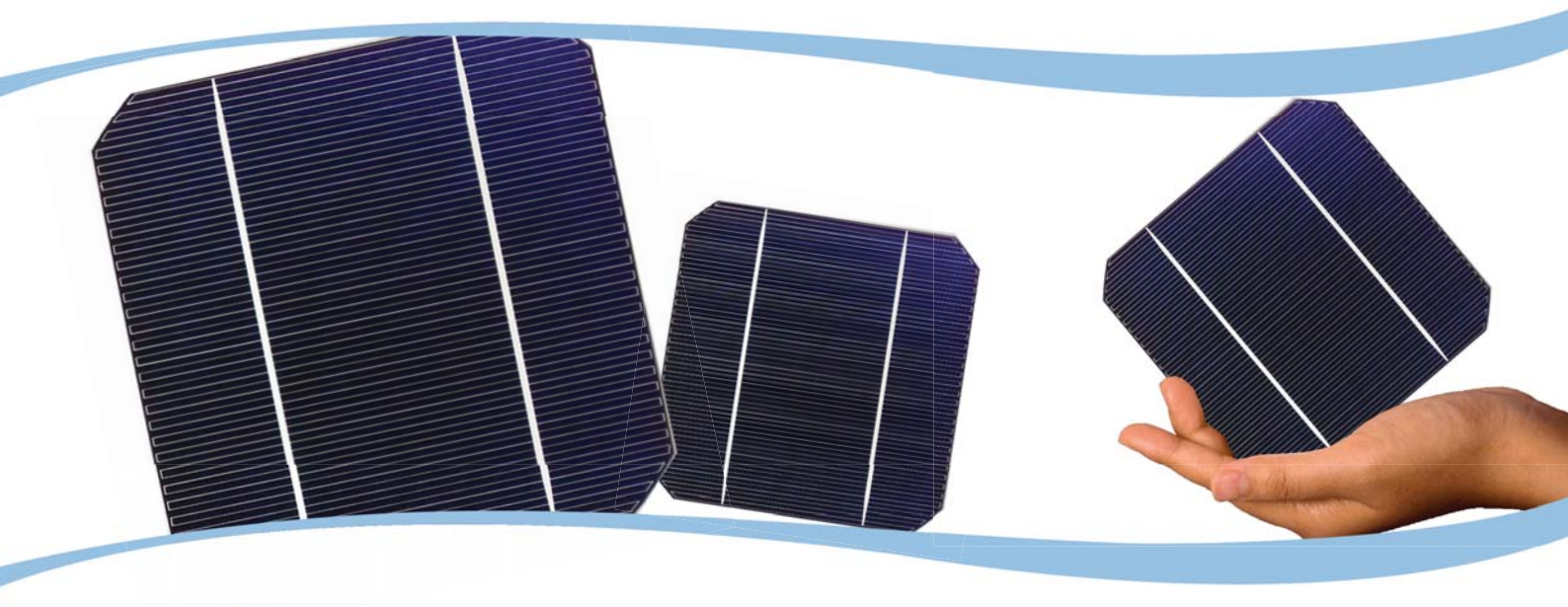

Blue Chip 2 BB - Mono

... if you expect efficiency of more than 18 %

- usage of **high quality wafer material enables superior product quality**
- **no LID - light induced degradation** due to high bulk resistivity wafer material
- **HAST*** (Highly accelerated stress test) on cell-level guarantees **low cell degradation** resulting in stable power output over **full module lifecycle**
- **low thermal coefficients** ensure high power output in operation
- **high shunt resistance** reduces likelihood of hot spot induced module delamination

156 mm monocrystalline silicium	
Dimensions	156 x 156 mm (± 0.5 mm) pseudo-square (200 mm ± 1.5 mm diagonale)
Thickness	180 µm (±30 µm) Silicium without metalization
Frontside	textured, silicium nitride anti-reflection coating
Front contacts (-)	2 mm Busbar (Silver)
Rear contacts (+)	4 mm Busbar (Silver), closed aluminium BSF, 3.5 mm solderable width
Dark reverse current	$I_{rev} \leq 1$ A @ - 12 V

Storage conditions

dust free, heat-sealed and at room temperatures with low humidity

Recommendations for processing

maximum of 24 cells per bypass-diode
tin-coated copper strings with SnPbAg-coating; 1.5 - 1.8 mm x 0.20

Production and quality control

consistent gentle handling, from the start of production to final packaging

100 % check of parallel resistance and reverse current

100 % check of optical errors

100 % electric classification of solar cells in accordance with IEC 60904-1, class A
solar simulation in accordance with IEC 60904-9

regular calibration against Fraunhofer ISE

Packaging

sorted by power and quality in boxes of 100 pieces as smallest unit

recyclable styrofoam packaging with anti-vibration layer

notification of product information by data label

packaging is ready for digital incoming inspection by using bar code reader

vacuum-packed

Intensity Dependance

Intensity W/m²	Umpp	Impp
1000	1.000	1.0
800	0.995	0.8
500	0.983	0.5
200	0.936	0.2

Table 1: Determination of the intensity dependance

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• High-Efficiency made in Austria

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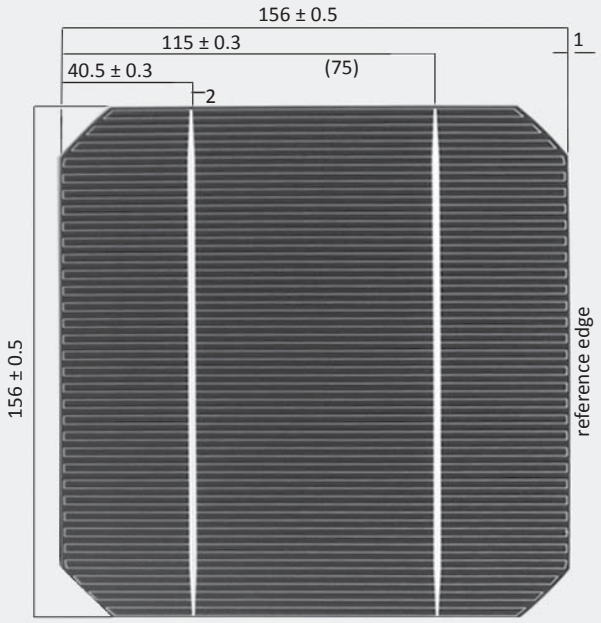
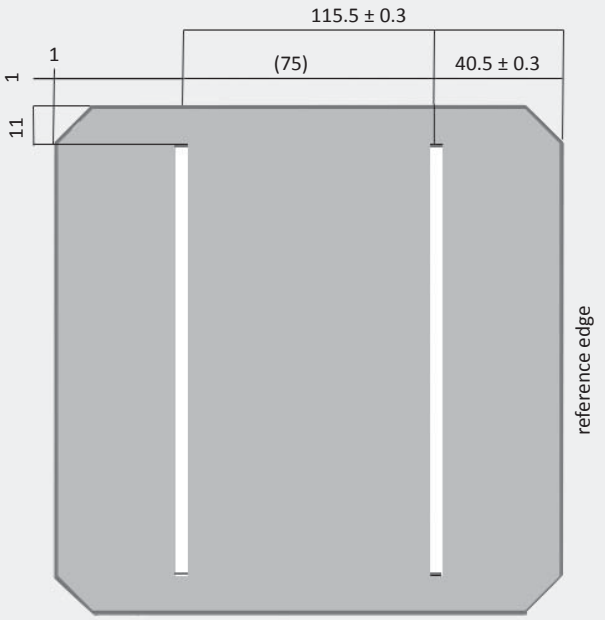
Cross section of solar cell

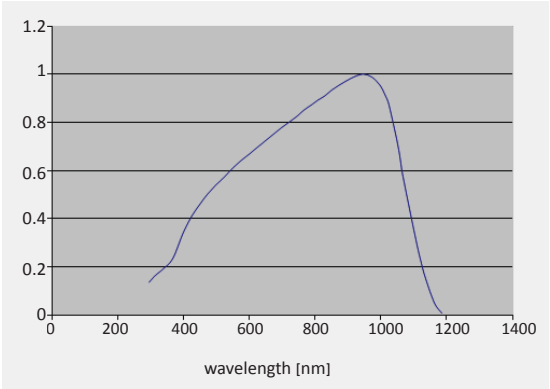


Drawing 1: Frontside



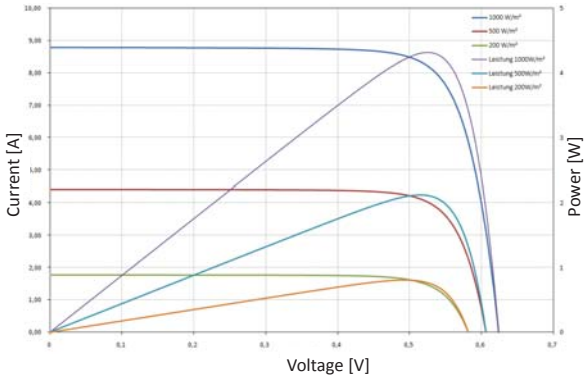
Drawing 2: Backside

Spectral response (SR)



Drawing 3: specral response of our monocrystalline solar cells

IV-Curve



Drawing 4:
IV-Curve of our cell with 4.31 W

Electrical properties at STC

Powerclass Pmpp**[W]	Efficiency [%]	Vmpp** [V]	Impp** [A]	Voc** [V]	Isc** [A]
4.38	18,3	0,525	8,343	0,633	8,902
4.32	18.1	0.522	8.276	0.621	8.710
4.26	17.8	0.520	8.193	0.618	8.679
4.20	17.6	0.519	8.093	0.615	8.634

Tk Isc [mA / K]: 3.67 • Tk Voc [mV / K]: - 2.08 • Tk Pmpp [mW / K]: - 17.70 • Tk Eta [% / K]: - 0.07 • Tk FF [% / K]: - 0.1

**

All electrical parameter are means from manufacturing data. July 2011
The data bear on a reference cell which is calibrated at Fraunhofer ISE in Freiburg. The adjustment of the measurement system results on the specified current from Fraunhofer ISE.

All electrical data measured under standard test conditions (STC): 1 000 W/m2, 25 °C, AM 1.5,P: ±1.5 % rel.

*

HAST - High Accelerated Stress Test is a very effective test procedure to the quality control of our solar cells.

All dimension data without tolerances are nominal values. Technical changes in the context of the production development as well as error and mistakes reserve. Responsible for contents and the organization: Blue Chip Energy GmbH - Marketing & Communications. July 2011