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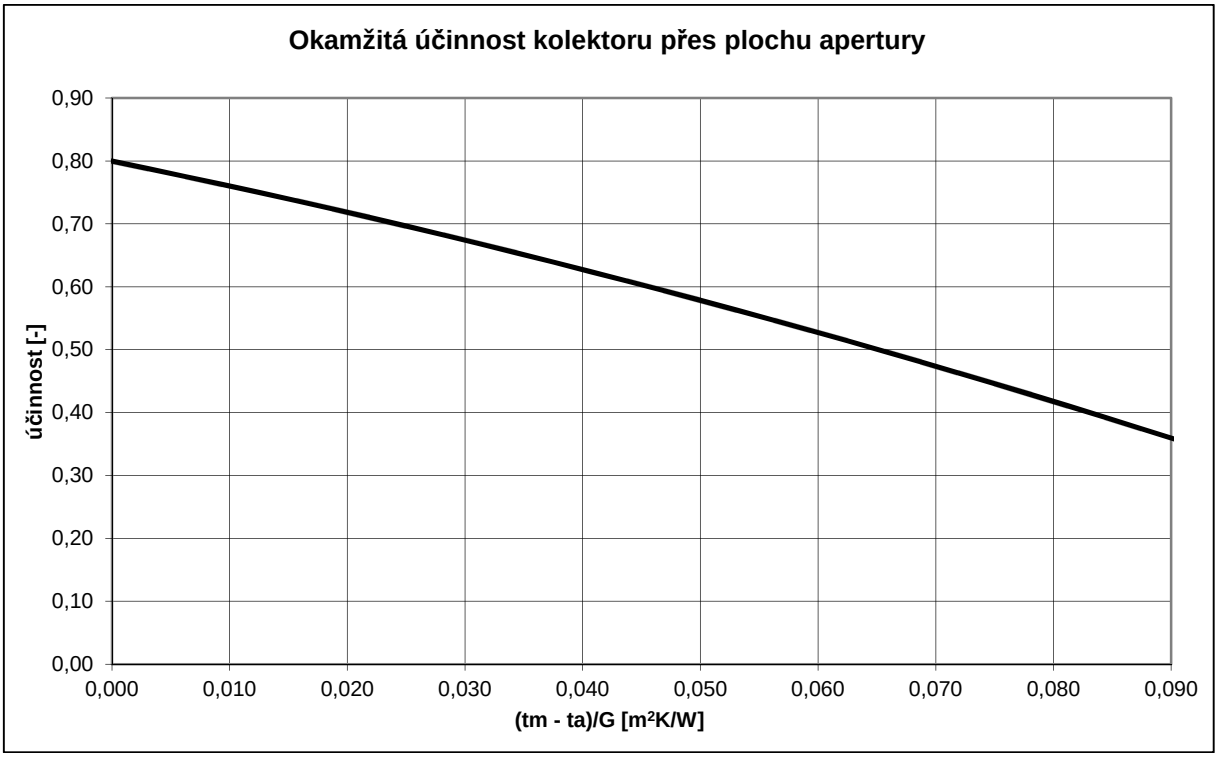
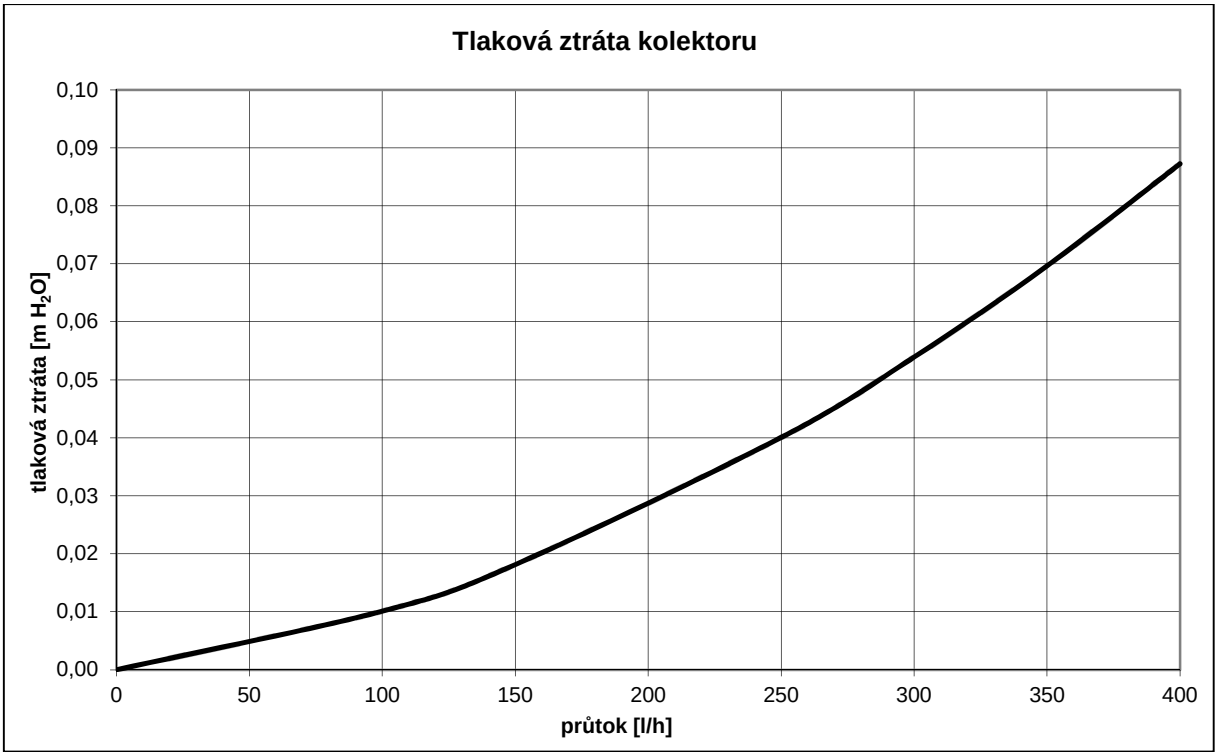
KPC1+ TECHNICKÝ LIST v1.1_03/2015

Rozměry a váhy	
výška x šířka x tloušťka	2030 x 1030 x 92 mm
stavební šířka	1080 mm
celková plocha	2,09 m^2
plocha apertury	1,92 m^2
plocha absorbéru	1,92 m^2
hmotnost bez kapaliny	42 kg
Zasklení	
materiál	kalené prizmatické sklo
tloušťka	4 mm
Absorbér	
materiál	hliník, tl. 0,5mm
povrchová úprava	Alanod Mirosol
konstrukční typ	lyrový, laserově svařovaný
materiál připojovacích trubek	měď
rozměr připojovacích trubek	4 x Ø 22 mm × 0,7 mm
materiál trubek absorbéru	měď
rozměr trubek absorbéru	9 x Ø 8 mm × 0,5 mm
maximální pracovní tlak	10 bar
maximální pracovní teplota	120°C
stagnační teplota	157°C
teplonosná kapalina	vodní roztok propylenglykolu, 1,37 l
doporučený průtok	60 – 120 l/h
Tepelná izolace	
materiál izolace	minerální vlna
tloušťka izolace	40 mm
Rám	
materiál rámu	hliníková slitina
barva rámu	RAL 7039
zadní plech	plech pozinkovaný, tl. 0,5 mm
Okamžitá účinnost na plochu apertury / absorberu	
η_{0a}	0,80 / 0,80
a_{1a}	3,85 / 3,85 W/m^2K
a_{2a}	0,0145 / 0,0145 W/m^2K^2

testováno dle EN 12975:2006



Výkon kolektoru KPC1+ v nulovém bodě při osvitu G=1000 W/m^2 je **1536 W**



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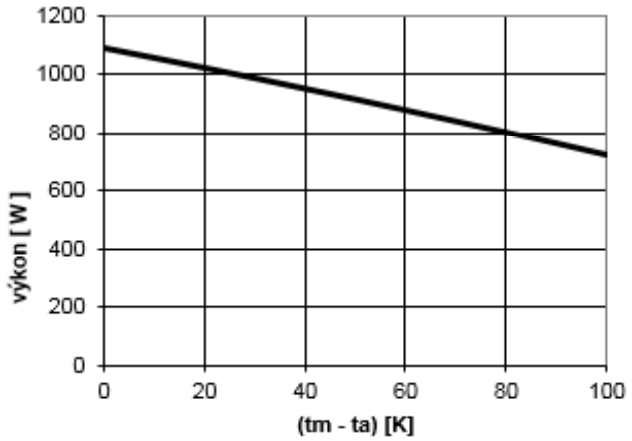
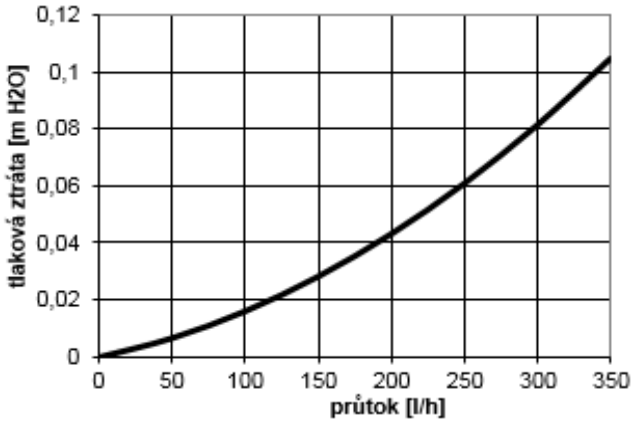
Solární kolektor KTU 15

Graf okamžitého výkonu kolektoru při osvitu 1000 W/m²



Graf tlakové ztráty kolektoru



Objednací kód	7 127

Rozměry a váhy	
výška x šířka x tloušťka	1970 x 1350 x 141 mm
stavební šířka	1430 mm
celková plocha	2,66 m^2
plocha apertury	1,49 m^2
plocha absorbéru	1,22 m^2
hmotnost bez kapaliny	60 kg

Zasklení	
materiál	borosilikátové sklo
tloušťka	1,8 mm

Absorbér	
materiál	borosilikátové sklo
povrchová úprava	AIN/AI-N/AI-N/AI-N/AI-N
konstrukční typ	trubicový, vakuový
materiál připojovacích trubek	měď
rozměr připojovacích trubek	4 x Ø 22 mm × 1 mm
materiál trubek absorbéru	měď
rozměr trubek absorbéru	15 x Ø 8 mm × 0,5 mm
maximální pracovní tlak	6 bar
maximální pracovní teplota	120 ℃
stagnační teplota	309,9 ℃
teplonosná kapalina	vodní roztok propylenglykolu (2,4 l)
doporučený průtok	60 – 120 l/h

Tepelná izolace	
materiál izolace	minerální vlna
tloušťka izolace	20 mm

Rám	
materiál rámu	hliníková slitina + ocel AISI 304 SS
barva rámu	stříbrná
materiál skříně	ocel AISI 304 SS, tl. 0,8 mm

Okamžitá účinnost na absorbér / aperturu / celk. plochu			
η_{0a} [-]	0,894	0,733	0,41
a_{1a} [W/m^2K]	2,730	2,237	1,252
a_{2a} [W/m^2K^2]	0,0031	0,0025	0,0014

Maximální výkon kolektoru při osvitu 1000 W/m^2	
Q_{max}	1090 W

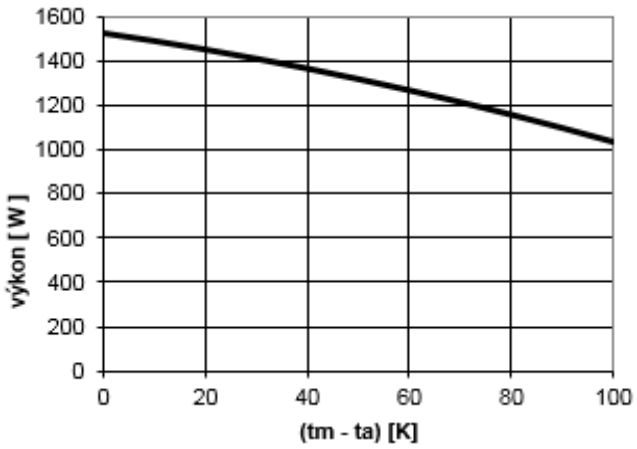
Modifikátor úhlu dopadu	
$K_{\Theta\ 50°}$	0,96

Tepelná kapacita	
C	26,6 J/kg

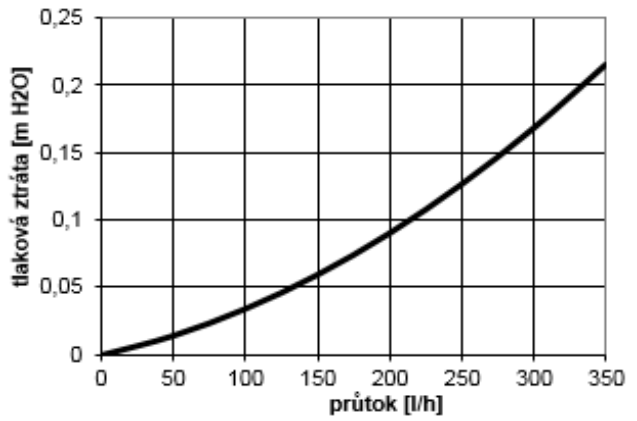
Testováno podle ČSN EN ISO 9806

Solární kolektor KTU 9R2

Graf okamžitého výkonu kolektoru při osvitu 1000 W/m²



Graf tlakové ztráty kolektoru



Objednací kód	7 342

Rozměry a váhy	
výška x šířka x tloušťka	1970 x 1350 x 141 mm
stavební šířka	1430 mm
celková plocha	2,66 m^2
plocha apertury	2,15 m^2
plocha absorbéru	0,73 m^2
hmotnost bez kapaliny	44 kg

Zasklení	
materiál	borosilikátové sklo
tloušťka	1,8 mm

Absorbér	
materiál	borosilikátové sklo
povrchová úprava	AIN/AI-N/AI-N/AI-N/AI-N
konstrukční typ	trubicový, vakuový s reflektorem
materiál připojovacích trubek	měď
rozměr připojovacích trubek	4 x Ø 22 mm × 1 mm
materiál trubek absorbéru	měď
rozměr trubek absorbéru	9 x Ø 8 mm × 0,5 mm
maximální pracovní tlak	6 bar
maximální pracovní teplota	120 ℃
stagnační teplota	255 ℃
teplonosná kapalina	vodní roztok propylenglykolu (1,37 l)
doporučený průtok	60 – 120 l/h

Tepelná izolace	
materiál izolace	minerální vlna
tloušťka izolace	20 mm

Rám	
materiál rámu	hliníková slitina + ocel AISI 304 SS
barva rámu	stříbrná
materiál skříně	ocel AISI 304 SS, tl. 0,8 mm

Okamžitá účinnost na absorbér / aperturu / celk. plochu			
η_{0a} [-]	2,085	0,708	0,572
a_{1a} [W/m^2K]	4,620	1,570	1,260
a_{2a} [W/m^2K^2]	0,019	0,007	0,0057

Maximální výkon kolektoru při osvitu 1000 W/m²	
Q_{max}	1522 W

Modifikátor úhlu dopadu	
$K_{\Theta\ 50°}$	0,92

Tepelná kapacita	
C	27,4 J/kg

Testováno podle ČSN EN ISO 9806

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Smart Systems
for Solar Power

IBC SOLAR

IBC EcoLine – For particulary stable output

IBC MonoSol 255 CS Black, 260 CS Black, 265 CS Black

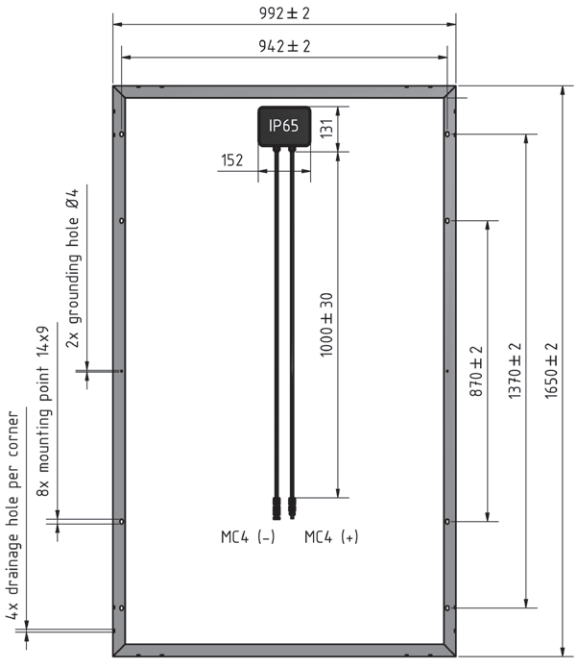
Solar modules made by monocrystalline silicon

Regardless of whether it is used on detached houses, the roofs of industrial properties or on open spaces, tried and tested IBC MonoSol CS Black photovoltaic modules are suitable for any application requiring a high quality, efficiency and profitability. Continuous quality assurance and process audits during production guarantee a particularly long service life of the modules with a maximum of output, efficiency and reliability. Thanks to the anti-reflective coating on the front glass panels, these modules capture even more light to be more efficient and produce optimum yields.
IBC MonoSol CS Black modules live up to maximum aesthetic demands. These completely black modules with black cell, black frame and black foil visually integrate on any roof and are even suitable for listed buildings.

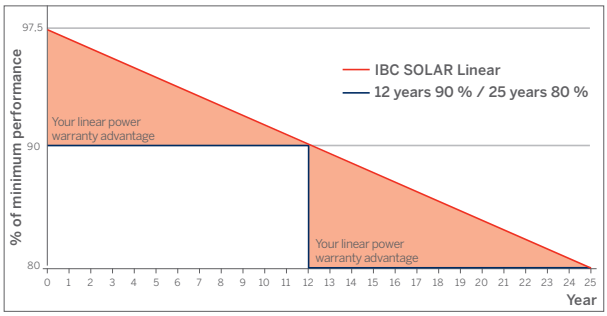
Highlights:

- 10-year product warranty*
- 25 years linear power warranty*
- Positive power tolerance –0/+5 Wp
- Highly effective with low-iron photovoltaic glass and anti-reflective coating (thickness 3.2 mm)
- Sturdy hollow-chamber frame
- Tested according IEC 61215 for snow loads up to 5400 Pa (ca. 550 kg/m^2)
- IEC 61730, application class A for system voltages up to 1000 V, protection class II
- Produced in facilities certified as per ISO 9001, ISO 14001 and OHSAS 18001
- Regular product/process/quality assurance audits in production
- Quality tested by IBC SOLAR in own laboratory with climate chambers and flasher with integrated electroluminescence measurement

CE



Progression of the power warranty



TECHNICAL DATA

IBC MonoSol	255 CS Black	260 CS Black	265 CS Black
STC Power Pmax (Wp)	255	260	265
STC Nominal Voltage Umpp (V)	30.73	31.07	31.4
STC Nominal Current Impp (A)	8.30	8.37	8.44
STC Open Circuit Voltage Uoc (V)	38.32	38.44	38.54
STC Short Circuit Current Isc (A)	8.87	8.93	8.99
800 W/m² NOCT AM 1.5 Power Pmax (Wp)	183.07	186.81	190.55
800 W/m² NOCT AM 1.5 Nominal Voltage Umpp (V)	27.95	28.14	28.33
800 W/m² NOCT AM 1.5 Open Circuit Voltage Uoc (V)	35.66	36.16	36.68
800 W/m² NOCT AM 1.5 Short Circuit Current Isc (A)	6.85	6.89	6.93
Rel. efficiency reduction @ 200 W/m² (%)	3.42	2.81	2.18
Tempcoeff Isc (%/°C)	+0.034	+0.041	+0.041
Tempcoeff Uoc (mV/°C)	–137	–138	–138
Tempcoeff Pmpp (%/°C)	–0.47	–0.493	–0.493
Module Efficiency (%)	15.6	15.9	16.2
NOCT (°C)	46	46	46
Max. System Voltage (V)	1000	1000	1000
Max. Reverse Current Ir (A)	20	20	20
Current value String fuse (A)	15	15	15
Fuse protection from parallel strings	4	4	4
Length (mm)	1650	1650	1650
Width (mm)	992	992	992
Height (mm)	45	45	45
Weight (kg)	19.5	19.5	19.5
Article number	2003800012	2003800014	2003800015

2015-01-16

Presented by:

* The linear power warranty is only valid for installations within Europe and Japan. For further information, please refer to the corresponding product and power warranty in accordance with the version of the full warranty conditions received from your specialized IBC SOLAR partner at the time of installation. This warranty is valid only when the product is installed in accordance with the applicable installation instructions. Electrical values under standard test conditions: 1000 W/m²; 25 °C, AM 1.5. 800 W/m², NOCT. Specifications according EN 60904-3 (STC). All datas according DIN EN 50380. Subject to modifications that represent progress.

Smart Systems
for Solar Power

IBC SOLAR

IBC EcoLine – For particulary stable output

IBC PolySol 250 CS, 255 CS, 260 CS

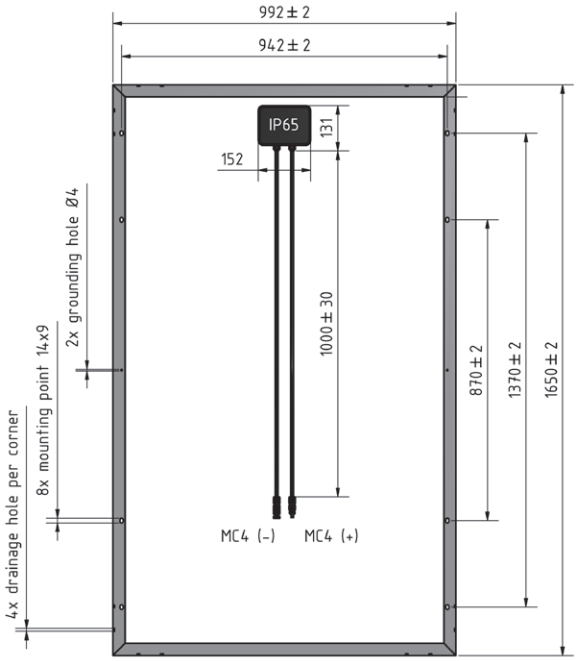
Solar modules made by polycrystalline silicon

Whether for single family homes, industrial roofs or open spaces – the trusted solar modules IBC PolySol CS are perfectly suited for anyone placing high demands on quality and cost efficiency. IBC SOLAR defines the most stringent specifications for components, ensuring you the best results. Thanks to the modules' positive power tolerance and linear performance guarantee, you'll benefit from high output and returns.
Thanks to the anti-reflective coating on the front glass panels, these modules capture even more light to be more efficient and produce optimum yields.

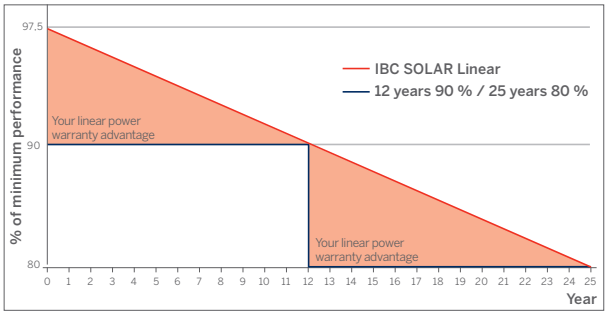
Highlights:

- 10-year product warranty*
- 25 years power warranty*
- Positive power tolerance: –0/+5 Wp
- Highly effective with low-iron photovoltaic glass and anti-reflective coating (3.2 mm)
- Tested according IEC 61215 for snow loads up to 5400 Pa (ca. 550 kg/m^2)
- IEC 61730, application class A for system voltages up to 1000 V, protection class II
- Produced in ISO 9001 and ISO 14001 certified factories
- 100% end control with individual registration of the electrical characteristics
- Quality tested by IBC SOLAR in own laboratory with climate chambers and flasher with integrated electroluminescence measurement

CE



Progression of the power warranty



TECHNICAL DATA

IBC PolySol	250 CS	255 CS	260 CS
STC Power Pmax (Wp)	250	255	260
STC Nominal Voltage Umpp (V)	30.4	30.9	31.1
STC Nominal Current Impp (A)	8.23	8.25	8.37
STC Open circuit voltage Uoc (V)	37.6	37.8	38.1
STC Short circuit current Isc (A)	8.81	8.83	8.98
800 W/m² NOCT AM 1.5 Power Pmax (Wp)	183.07	186.77	190.64
800 W/m² NOCT AM 1.5 Nominal Voltage Umpp (V)	27.78	27.96	28.16
800 W/m² NOCT AM 1.5 Open Circuit Voltage Uoc (V)	35.05	35.57	36.04
800 W/m² NOCT AM 1.5 Short Circuit Current Isc (A)	6.92	6.96	7.00
Rel. efficiency reduction @ 200 W/m² (%)	3.9	4.23	4.29
Tempcoeff Isc (%/°C)	+0.064	+0.064	+0.064
Tempcoeff Uoc (mV/°C)	–117.7	–120.7	–121.7
Tempcoeff Pmpp (%/°C)	–0.43	–0.43	–0.43
Module Efficiency (%)	15.3	15.6	15.9
NOCT (°C)	48	48	48
Max. System Voltage (V)	1000	1000	1000
Max. Reverse Current Ir (A)	20	20	20
Current value String fuse (A)	15	15	15
Fuse protection from parallel strings	4	4	4
Height (mm)	45	45	45
Weight (kg)	20.5	20.5	20.5
Article number	2203800007	2203800005	2203800006 2203800008

2014-08-01

Presented by:

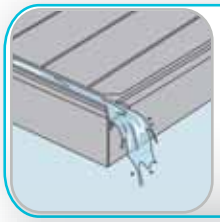
* The linear power warranty is only valid for installations within Europe and Japan. For further information, please refer to the corresponding product and power warranty in accordance with the version of the full warranty conditions received from your specialized IBC SOLAR partner at the time of installation. This warranty is valid only when the product is installed in accordance with the applicable installation instructions. Electrical values under standard test conditions: 1000 W/m²; 25°C, AM 1.5. 800 W/m², NOCT. Specifications according EN 60904-3 (STC). All datas according DIN EN 50380. Subject to modifications that represent progress.

Panasonic

HIT® photovoltaic module

HIT-N245
HIT-N240

EN

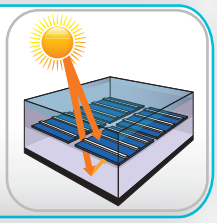


Water drainage frame

- Rain water is drained off the module surface.
- This avoids not only water accumulation, but also water stains after drying.
- Even in low-angle installations, water drainage corners keep the module clean.

Power from both sides

- HIT® cells generate solar electricity simultaneously on the front and on the back side.
- This additional amount of light is combined with the light taken up by the front side of the module.



Vertically integrated factory

- Efficient production flow improves product quality as entire process from wafer to cell is done at the same location.
- No risk of damage of individual components during transportation between factories.

19.4%*

194 W/m²

* For N245

HIT® cell technology

The HIT® solar cell is made of a thin monocrystalline silicon wafer surrounded by ultra-thin amorphous silicon layers. This product offers the industry's leading performance and value, using state-of-the-art manufacturing techniques. The development of the HIT® solar cell was supported in part by the New Energy and Industrial Technology Development Organization (NEDO).

Quality

Panasonic is truly committed to quality since it began developing and manufacturing solar PV technology in 1975. Our long track record is supported by our claim-rate of only 0.0036% in our European factory in Dorog, Hungary (as of September 2013).

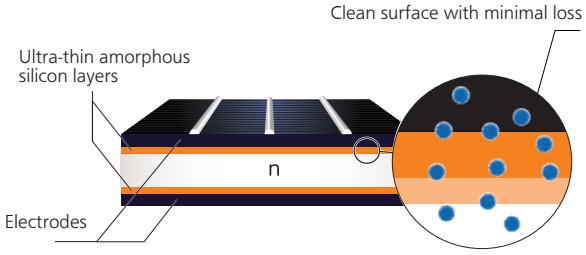
Special features

HIT® solar modules are 100% emission free, have no moving parts and produce no noise. The dimensions of the HIT® modules enable a space saving installation and the achievement of maximum output power possible on a given roof area.

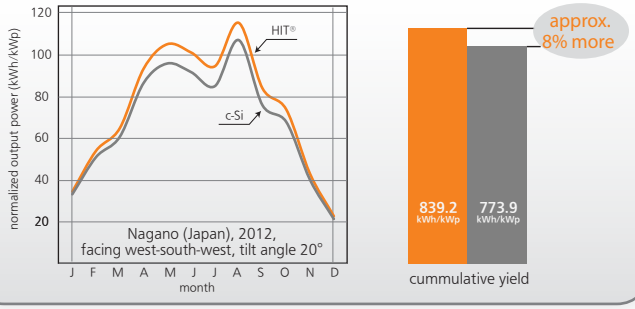
High performance at high temperatures

With its very low temperature coefficient of only -0.29%/°C, the HIT® solar cell can maintain a higher efficiency than a conventional crystalline silicon solar cell, even at high temperatures.

HIT® solar cell structure



Yield comparison



HIT®
Photovoltaic Module

"HIT" is a registered trademark of Panasonic Group.

Model	Cell efficiency	Module efficiency	Output/m²
N245	22.0%	19.4%	194 W/m²
N240	21.6%	19.0%	190 W/m²

Electrical and Mechanical Characteristics
N245, N240

EN

Electrical data (at STC)

	VBHN245SJ25	VBHN240SJ25
Max. power (Pmax) [W]	245	240
Max. power voltage (Vmp) [V]	44.3	43.6
Max. power current (Imp) [A]	5.54	5.51
Open circuit voltage (Voc) [V]	53.0	52.4
Short circuit current (Isc) [A]	5.86	5.85
Max. over current rating [A]	15	
Production tolerance power [%]	+10/-5*	
Max. system voltage [V]	1000	

Note: Standard Test Conditions: Air mass 1.5; Irradiance = 1000W/m²; cell temp. 25°C
* All modules measured by Panasonic facilities have an output with positive tolerance.

Temperature characteristics

Temperature (NOCT) [°C]	44.0	44.0
Temp. coefficient of Pmax [%/°C]	-0.29	-0.29
Temp. coefficient of Voc [V/°C]	-0.133	-0.131
Temp. coefficient of Isc [mA/°C]	1.76	1.76

At NOCT (Normal Operating Conditions)

Max. power (Pmax) [W]	187.4	183.2
Max. power voltage (Vmp) [V]	42.5	41.7
Max. power current (Imp) [A]	4.41	4.39
Open circuit voltage (Voc) [V]	50.3	49.7
Short circuit current (Isc) [A]	4.71	4.71

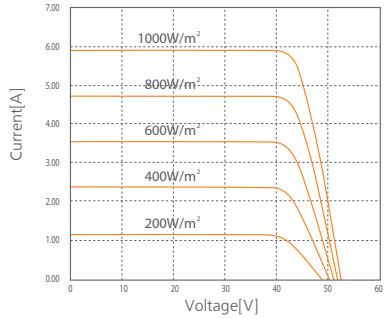
Note: Nominal Operating Cell Temp.: Air mass 1.5; Irradiance = 800W/m²;
Air temperature 20°C; wind speed 1 m/s

At low irradiance (20%)

Max. power (Pmax) [W]	47.0	45.9
Max. power voltage (Vmp) [V]	43.2	42.2
Max. power current (Imp) [A]	1.09	1.09
Open circuit voltage (Voc) [V]	49.6	49.0
Short circuit current (Isc) [A]	1.17	1.17

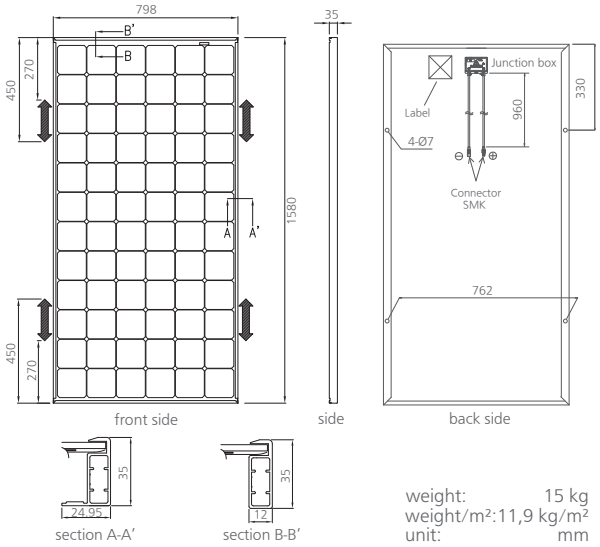
Note: Low irradiance: Air mass 1.5; Irradiance = 200W/m²; cell temp. = 25°C

Dependence on irradiance



Reference data for model VBHN245SJ25 (Cell temperature: 25°C)

Dimensions and weight



weight: 15 kg
weight/m²:11,9 kg/m²
unit: mm

Guarantee

Power output: 10 years (90% of Pmin), 25 years (80% of Pmin)
Product workmanship: 10 years (based on guarantee document)

Materials

Cell material: 5 inch HIT® cells
Glass material: AR coated tempered glass
Frame materials: Black anodized aluminium
Connectors type: SMK

Certificates

IEC61215
IEC61730-1
IEC61730-2

Electrical Protection Class II

Member of

Please consult your local dealer for more information.

⚠ CAUTION! Please read the installation manual carefully before using the products.

Used electrical and electronic products must not be mixed with general household waste. For proper treatment, recovery and recycling of old products, please take them to applicable collection points in accordance with your national legislation.

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SANYO Component Europe GmbH

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81829 Munich, Germany
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