

Powerful performance – high stability.

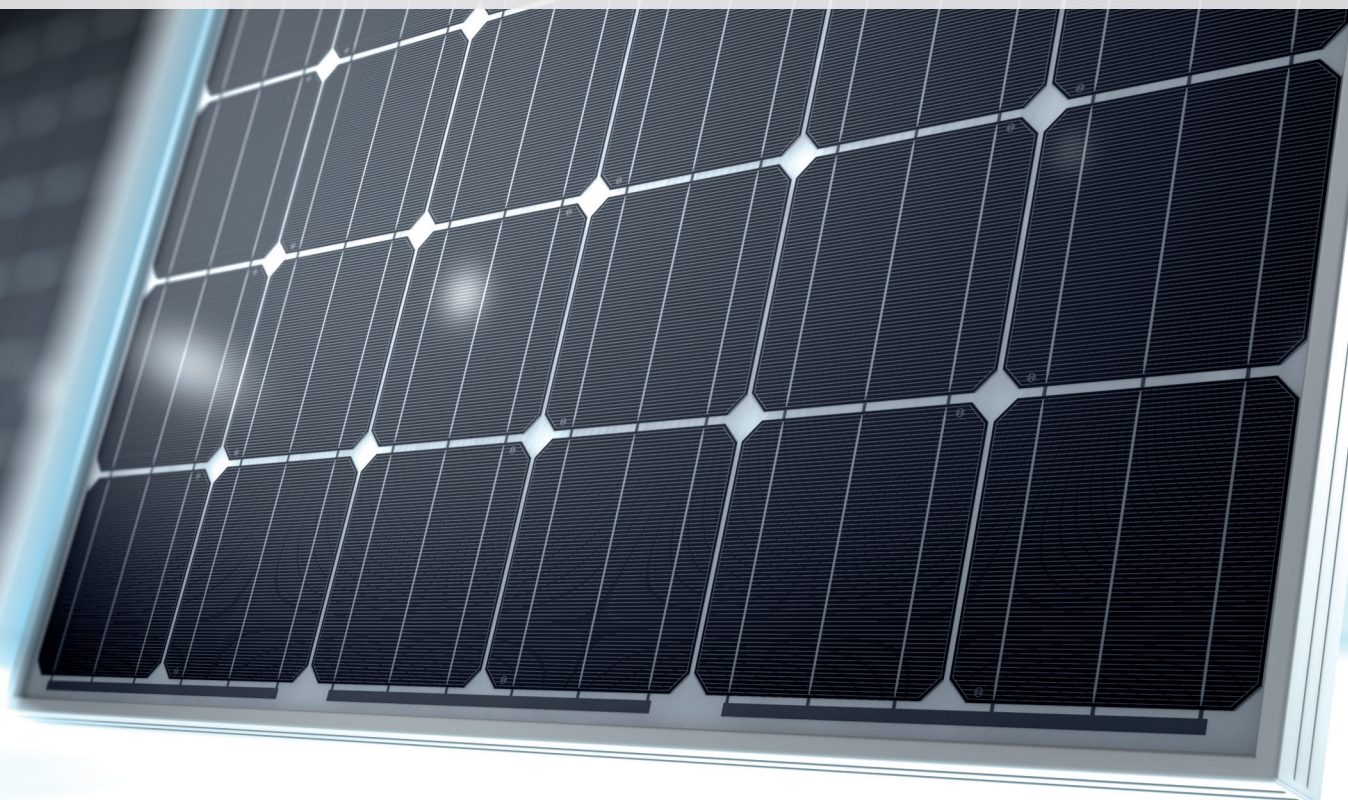
Bosch Solar Module c-Si M 60

EU30117

High-quality – high-performance – reliable.
Solar modules from Bosch Solar Energy.



BOSCH



Our crystalline solar modules offer impressive features including:

- ▶ Excellent quality assured through use of the best European-standard components
- ▶ Excellent processing and long-term stability right along the value-added chain
- ▶ Higher specific yields due to positive power sorting
- ▶ Simple and secure installation with dovetailed Bosch Solar Rack products

Our certificates – quality stamped in writing

Bosch Solar Energy modules go through strict quality tests during the different stages of production according to international standards.



- Qualified, IEC 61215
- Safety tested, IEC 61730
- Salt corrosion resistance tested
- Ammonia resistance tested
- Periodic inspection



Quality

Salt corrosion resistance tested
Ammonia resistance tested



Product features

Performance sorting $-0/+4.99$ Wp
Temperature coefficient $P_{mpp} -0.46\%$ K



Value chain

Crystal – Wafer – Cell – Module



Components

Structured frontglass, MC4,
Bosch Solar Cell M 3BB C3 1200



Warranty

10 years product and
25 years performance guarantee
(90% up to 10 years, 80% up to 25 years)



Power classes

225 – 245 Wp

Length [x]	Width [y]	Height [z]	Weight	Junction box	Plug connector type	Cable [l]	Front glass surface
1660.0	990.0	50.0	21	Spelsberg	MC4	-800 +1200	Structured
x, y, l in mm, ±2; z in mm, ±0.3; weight in kg ±0.5							

Crystalline solar module	
Performance classes	225 Wp, 230 Wp, 235 Wp, 240 Wp, 245 Wp
Performance sorting	-0/+4.99 Wp
Structure	Glass-foil laminate ▶ Anodized aluminum frame ▶ Junction box (IP 65) with 3 bypass diodes ▶ Weather-resistant back sheet (white)
Cells	60x monocrystalline solar cells in 156 mm x 156 mm format
Mechanical load	5400 Pa superimposed load, 2400 Pa suction load, in accordance with IEC 61215 (extended test)

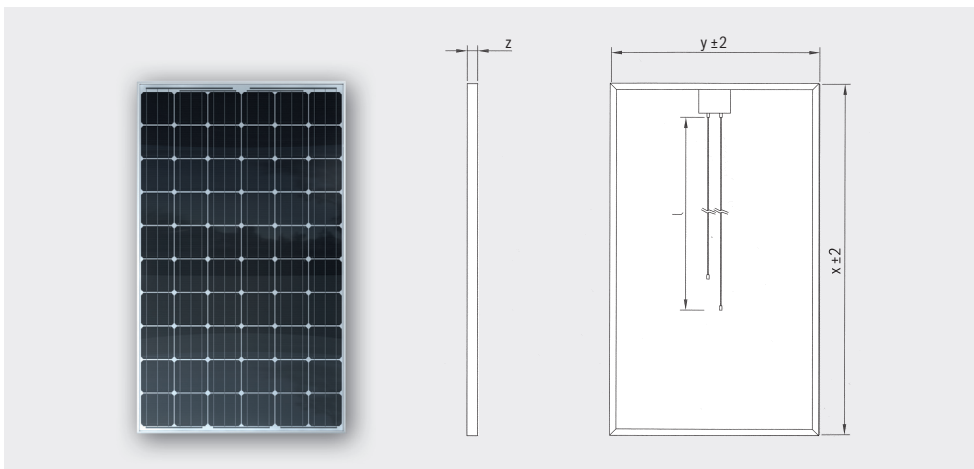
Electrical characteristics for STC¹:

Designation	P _{mpp} [Wp]	V _{mpp} [V]	I _{mpp} [A]	V _{oc} [V]	I _{sc} [A]	Reverse-current load capacity [A]
M245 3BB	245	30.10	8.20	37.70	8.70	17
M240 3BB	240	30.00	8.10	37.40	8.60	17
M235 3BB	235	29.90	8.00	37.10	8.50	17
M230 3BB	230	29.70	7.90	37.00	8.40	17
M225 3BB	225	29.40	7.80	36.90	8.30	17
Reduction in module efficiency with decrease in irradiation level from 1000 W/m ² to 200 W/m ² (at 25 °C): -0.33% (absolute); measuring tolerance P _{mpp} ±3%						

Electrical characteristics for NOCT¹:

Designation	P _{mpp} [W]	V _{mpp} [V]	V _{oc} [V]	I _{sc} [A]
M245 3BB	177	27.07	34.09	6.92
M240 3BB	173	26.98	34.00	6.84
M235 3BB	169	26.87	33.89	6.76
M230 3BB	166	26.76	33.79	6.68
M225 3BB	162	26.55	33.49	6.60
NOCT: Normal Operation Cell Temperature 48.4 °C: Irradiation level 800 W/m ² , AM 1.5, temperature 20 °C, wind speed 1 m/s, electrical open circuit operation				

Dimensions²:



¹ Electrical parameters are typical mean values from historical production data. No guarantee is made for the accuracy of this data for future production batches.

² Drawings are not to scale. For detailed dimensions and tolerances, see above.

Notes on assembly:

- ▶ See installation and operating manual at: www.bosch-solarenergy.com/products
- ▶ Horizontal and vertical assembly possible
- ▶ System voltage max. 1000 V
- ▶ Operating temperature range -40 to 85 °C

Weak light performance:

Intensity [W/m ²]	V _{mpp} [%]	I _{mpp} [%]
800	0.0	-20
600	0.0	-40
400	-0.4	-60
200	-3.2	-80
100	-6.0	-90
The electrical data applies for 25 °C and AM 1.5.		

Thermal characteristics:

Temperature coefficient	TK [%/K]
P _{mpp}	-0.46
U _{oc}	-0.32
I _{sc}	0.032

