

# Powerful performance – high stability. Bosch Solar Module c-Si M 60

**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 US and German-standard components
- ▶ Excellent processing and long-term stability right along the value-added chain
- ▶ Professional customer service with designated contact persons

USA & Canada-  
version

## **Warranty conditions:**

- ▶ 10 year product warranty
- ▶ 25 year performance guarantee (90% up to 10 years, 80% up to 25 years)
- ▶ Product certification to UL 1703
- ▶ CEC registered
- ▶ Product certification to IEC 61215 (ed. 2)
- ▶ Protection class II / IEC 61730
- ▶ CE conformity



Manufacturer	Length [x]	Width [y]	Height [z]	Weight	Junction box	Plug connector	Cable [l]	Front glass surface
16	64.57 in 1640.0	39.37 in 1000.0	1.65 in 42.0	51.81 lb 23.5	Tyco	Tyco Solarlok	39.37 in 1000.0	Structured
If not stated differently, x, y, z, l in mm, ±2 mm; weight in kg ±0.5								

Crystalline solar module	
Performance classes	225 Wp, 230 Wp, 235 Wp, 240 Wp
Performance sorting	±2.5 Wp
Structure	<b>Glass-foil laminate</b> <ul style="list-style-type: none"> <li>▶ Anodized aluminum frame</li> <li>▶ Junction box (IP 65) with 3 bypass diodes</li> <li>▶ Weather-resistant back sheet (white)</li> <li>▶ Cable 12 AWG (4mm<sup>2</sup>)</li> </ul>
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)

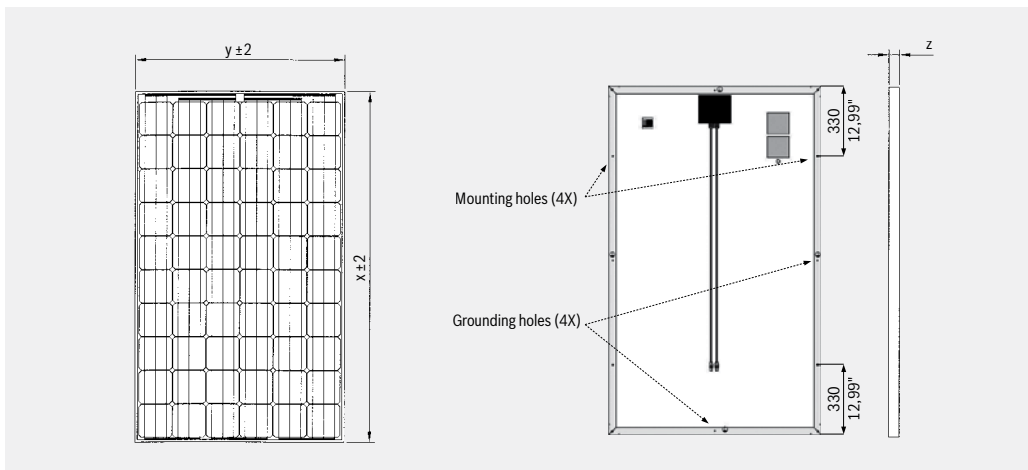
**Electrical characteristics for STC\*:**

Designation	Pmpp [Wp]	Vmpp [V]	Impp [A]	Voc [V]	Isc [A]	Reverse-current load capacity [A]
M240 3BB	240	29.62	8.11	36.75	8.56	17
M235 3BB	235	29.41	7.99	36.48	8.47	17
M230 3BB	230	29.20	7.88	36.22	8.38	17
M225 3BB	225	29.00	7.76	35.96	8.29	17
Reduction in module efficiency with decrease in irradiation level from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup> (at 25 °C): -0.65% (absolute); measuring tolerance P ±3%						

**Electrical characteristics for NOCT\*:**

Designation	Pmpp [W]	Vmpp [V]	Voc [V]	Isc [A]
M240 3BB	173	27.44	34.09	6.84
M235 3BB	169	27.24	33.89	6.76
M230 3BB	166	27.04	33.69	6.68
M225 3BB	162	26.83	33.49	6.60
NOCT: Normal Operation Cell Temperature 48.4 °C; Irradiation level 800 W/m <sup>2</sup> , AM 1.5, temperature 20 °C, wind speed 1 m/s, electrical open circuit operation				

**Dimensions\*\*:**



**Notes on assembly:**

- ▶ See installation and operating manual at: [www.bosch-solarenergy.com/products/](http://www.bosch-solarenergy.com/products/)
- ▶ Horizontal and vertical assembly possible
- ▶ System voltage max. 600 V

**Weak light performance:**

Intensity [W/m <sup>2</sup> ]	Vmpp [%]	Impp [%]
800	0.0	-20
600	-0.9	-40
400	-2.1	-60
200	-5.1	-80
100	-8.7	-90
The electrical data applies for 25 °C and AM 1.5.		

**Thermal characteristics:**

Operating temperature range	-40 to 85 °C
Temperature coefficient Pmpp	-0.47%/K
Temperature coefficient Voc	-0.34%/K
Temperature coefficient Isc	0.035%/K



\* Electrical parameters are typical mean values from historical production data. Bosch Solar Energy assumes no liability for the accuracy of this data for future production batches.

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

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