

**Panasonic<sup>®</sup>**

SPECIFICATIONS  
OF  
PHOTOVOLTAIC MODULE

Model Number: VBMS245AE02

SANYO Electric Co., Ltd.

|   |                                       |                          |     |
|---|---------------------------------------|--------------------------|-----|
| Title   | SPECIFICATIONS OF PHOTOVOLTAIC MODULE | Page                     | 1/3 |
| <p><b>1. Scope</b><br/> This Specification is applicable for photovoltaic module VBMS245AE02.</p> <p><b>2. Specifications</b><br/> (1) Type of Solar Cells</p> <p style="padding-left: 40px;">Polycrystalline Solar Cells</p> <p>(2) Structure</p> <p style="padding-left: 40px;">Superstrate type.</p> <p>The basic construction consists of laminated assembly of individual solar cells and interconnecting ribbons encapsulated within an insulating material. This encapsulated assembly is sandwiched between a rigid, transparent top surface (glass) and insulating back sheet.</p> <p>(3) Operating Conditions</p> <p style="padding-left: 40px;">① Ambient temperature:                    −20℃ to +40℃<br/> ② Relative humidity:                        45% to 95%</p> |                                       |                          |     |
| Specifications Number   | VBMS245AE02121219                     | SANYO Electric Co., Ltd. |     |

|       |                                       |      |     |
|-------|---------------------------------------|------|-----|
| Title | SPECIFICATIONS OF PHOTOVOLTAIC MODULE | Page | 2/3 |
|-------|---------------------------------------|------|-----|

#### (4) ELECTRICAL SPECIFICATION

##### Characteristics

|                                  |         |      |   |             |
|----------------------------------|---------|------|---|-------------|
| Maximum Power                    | (Pmax)  | 245  | W | +10%, -5%   |
| Short circuit current            | (Isc)   | 8.80 | A | 90% or more |
| Open circuit voltage             | (Voc)   | 37.1 | V | ±10%        |
| Maximum power current            | (Ipmax) | 8.23 | A | (Reference) |
| Maximum power voltage            | (Vpmax) | 30.1 | V | (Reference) |
| Max. system open circuit voltage |         | 1000 | V |             |

\*Electrical specifications are measured under Standard Test Conditions.  
Irradiance of 1000W/m<sup>2</sup>, AM 1.5, 25°C module surface temperature

##### I-V characteristics (Reference)

Fig. 1 shows I-V characteristics of VBMS245AE02 at various cell temperatures.

Fig. 2 shows I-V characteristics of VBMS245AE02 at various irradiance levels.

#### (5) MECHANICAL SPECIFICATION

The Module mounted at 4 points in a manner which is recommended in the attached drawing offers loading of a maximum of 2400N/m<sup>2</sup> (50PSF) (static).

#### (6) PHYSICAL SPECIFICATION

Dimension      1665 × 991 × 38 mm (Refer to attached Drawing)  
Weight            18 kg

#### (7) CERTIFICATION

The VBMS245AE02 Module certified by TUV (ID Number: 0000037246) and it complies with the requirements of IEC61215, IEC61730-1, IEC61730-2 and the CE mark.

|                       |                   |                          |
|-----------------------|-------------------|--------------------------|
| Specifications Number | VBMS245AE02121219 | SANYO Electric Co., Ltd. |
|-----------------------|-------------------|--------------------------|

|       |                                       |      |     |
|-------|---------------------------------------|------|-----|
| Title | SPECIFICATIONS OF PHOTOVOLTAIC MODULE | Page | 3/3 |
|-------|---------------------------------------|------|-----|

### 3. Inspection

The following inspections are performed for all products.

- (1) Exterior
- (2) Dielectric Voltage-Withstand Test
- (3) Voltage, Current, and Power Measurements Test

### 4. Marking

The label specifies the following information.

- (1) Manufacturers name , model number, and nominal electrical specifications at STC including:
  - ① Maximum Power (Pmax )
  - ② Short circuit current ( I<sub>sc</sub>)
  - ③ Open circuit voltage ( Voc)
  - ④ Maximum power current ( I<sub>mp</sub> )
  - ⑤ Maximum power voltage ( V<sub>mp</sub> )
- (2) Maximum system voltage
- (3) Maximum over-current protection rating
- (4) Date of manufacture (DDMMYY) (ex. 12.10.12 means Oct. 12, 2012)
- (5) Serial number
- (6) Application class of product
- (7) Other

\*As part of our policy of continuous improvement SANYO reserves the right to change products specification at any time without prior notice.

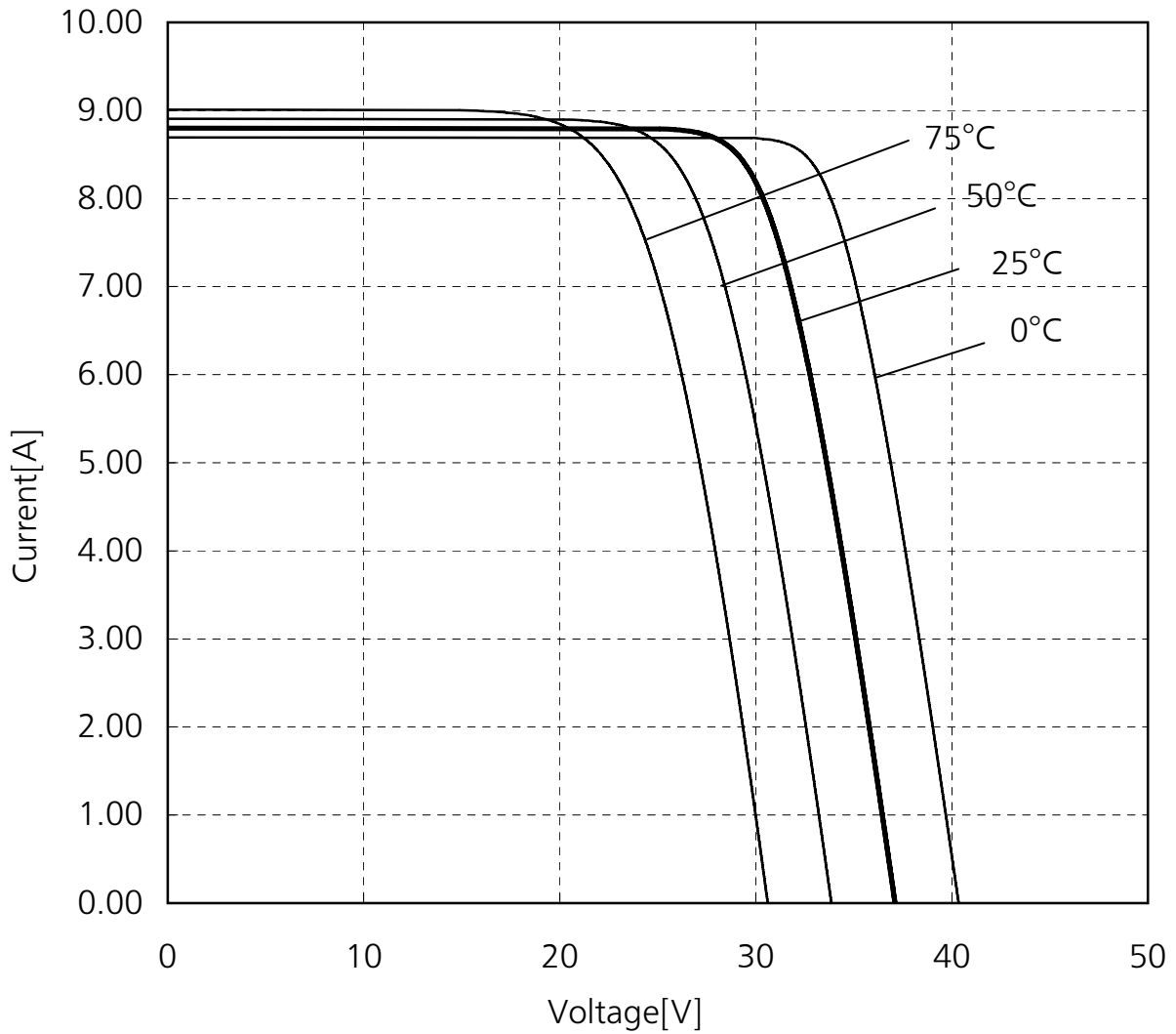
|                       |                   |                          |
|-----------------------|-------------------|--------------------------|
| Specifications Number | VBMS245AE02121219 | SANYO Electric Co., Ltd. |
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Fig.1

Dependence of I – V Characteristics on Temperature (Reference)

Model No.: VBMS245AE02

AM-1.5, 1000W/m<sup>2</sup>



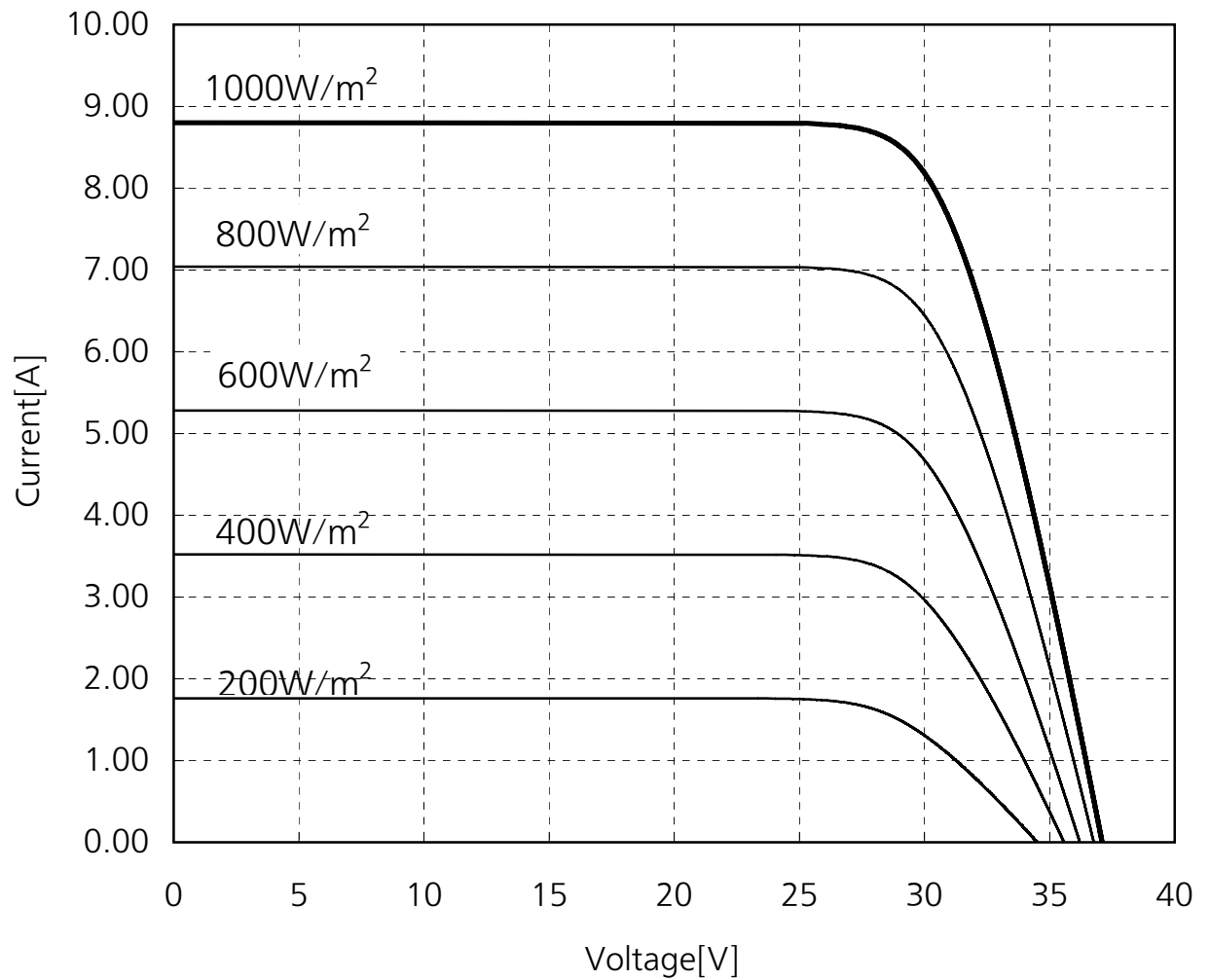
※0°C, 25°C, 50°C, 75°C : Cell temperature

Fig.2

Dependence of I – V Characteristics on Irradiance (Reference)

Model No.: VBMS245AE02

Cell temperature : 25 °C

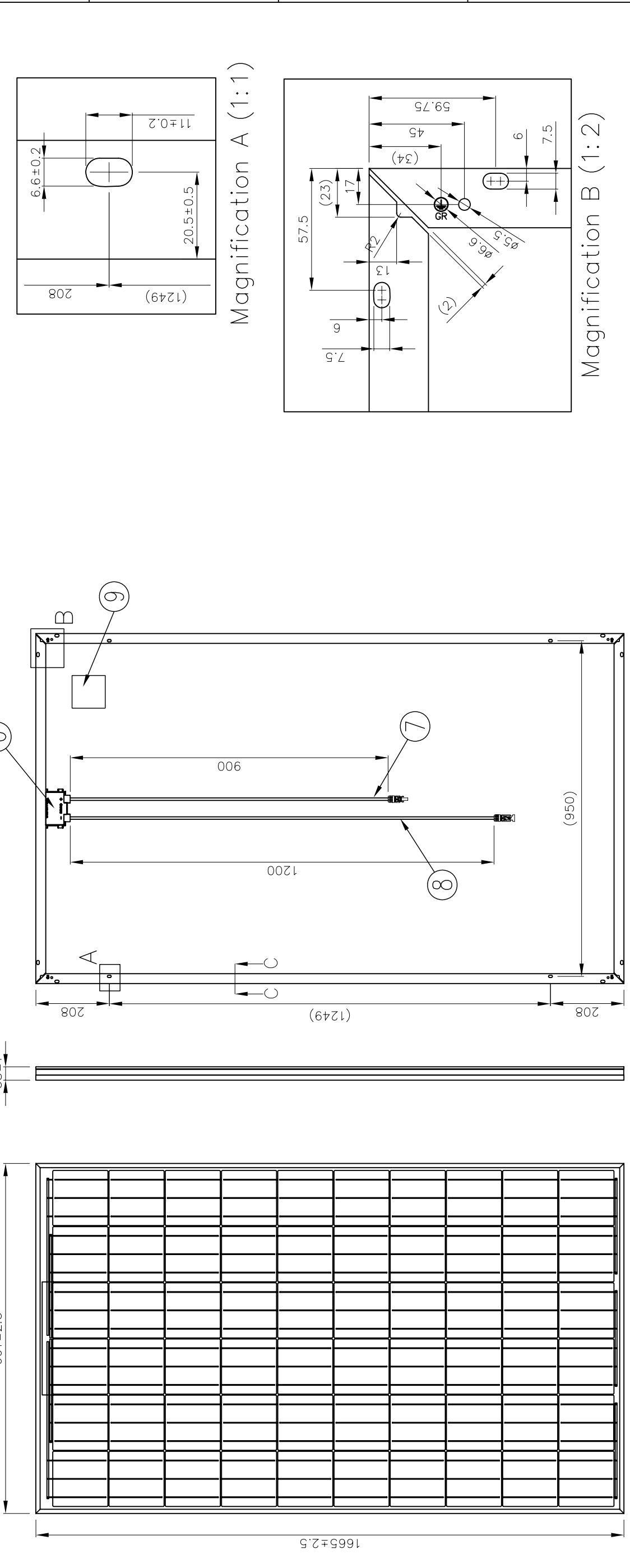
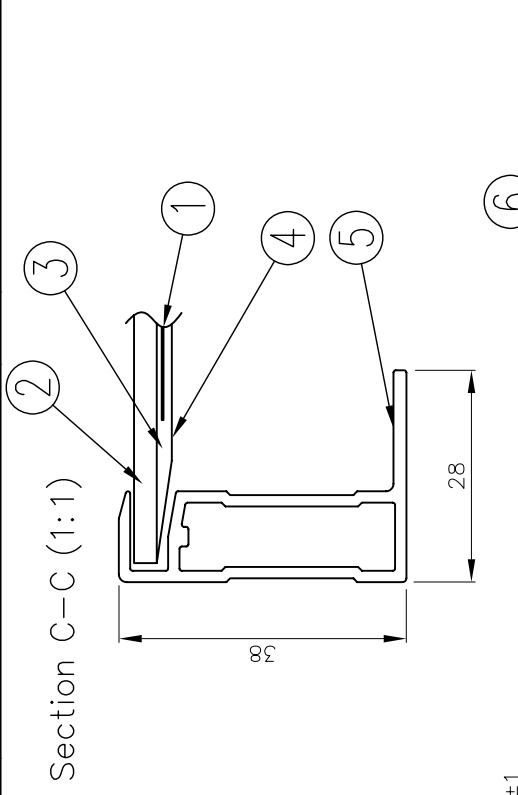


1 2 3 4 5 6

DO NOT SCALE DRAWING

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| No. | DESCRIPTION              | Q'TY | MATERIAL | REMARKS          |
|-----|--------------------------|------|----------|------------------|
| ①   | Solar Cell               | 60   | Si       | 156 x 156 (mm)   |
| ②   | Glass                    | 1    |          |                  |
| ③   | Encapsulant              |      | EVA      |                  |
| ④   | Back sheet               | 1    |          |                  |
| ⑤   | Frame                    | 1    |          |                  |
| ⑥   | Junction Box             | 1    |          |                  |
| ⑦   | Cable with Connector (+) | 1    |          | Hosiden: HSC2009 |
| ⑧   | Cable with Connector (-) | 1    |          | Hosiden: HSC2010 |
| ⑨   | ASSEMBLY LABEL           | 1    |          |                  |



|      |             |           |
|------|-------------|-----------|
| ENG. | DATE        | 12-0ct-12 |
| CHK. | FILE NO.    |           |
| CHK. | TOLERANCE   |           |
| APP. | DIMENSION : | mm        |
|      | SCALE       | 1:12      |
|      | QUANTITY    |           |

| SYMBOL | DATE | DESCRIPTION | No. |
|--------|------|-------------|-----|
| △      |      |             |     |
| △      |      |             |     |

| REVISIONS             |                |                |  |
|-----------------------|----------------|----------------|--|
| FINISH/PROCESS        | STANDARD MODEL | VBMSxxxAE02    |  |
| RAW MATERIAL STANDARD | PARTS NAME     | SOLAR MODULE   |  |
| MASS                  | 18kg           | PARTS NO.      |  |
| DRAWING NO.           |                | INITIAL ED NO. |  |

Capacity to resist wind-pressure is 2400Pa.  
Capacity to resist snow load is 2400Pa.

SOLAR MODULE (MODEL : VBMSxxxAE02)

SANYO Electric Co., Ltd.