

SEMI PV86-0223

SPECIFICATION FOR CRYSTALLINE SILICON PHOTOVOLTAIC MODULE DIMENSIONS

This Standard was technically approved by the Photovoltaic Global Technical Committee. This edition was approved for publication by the global Audits and Reviews Subcommittee on May 5, 2022. Available at www.semiviews.org and www.semi.org in February 2023; originally published October 2018.

NOTICE: Paragraphs entitled 'NOTE:' are not an official part of this Standard or Safety Guideline and are not intended to modify or supersede the official Standard or Safety Guideline. These have been supplied by the global technical committee to enhance the usage of the Standard or Safety Guideline.

1 Purpose

1.1 This Standard specifies to standardize dimensions of crystalline silicon photovoltaic (PV) modules and specifications of mounting holes.

2 Scope

2.1 This Standard specifies the overall dimensions of crystalline silicon photovoltaic modules and the location and size of mounting holes of framed modules.

2.2 This Standard applies to crystalline silicon PV modules with $156.75 \text{ mm} \pm 0.25 \text{ mm}$ / $158.75 \text{ mm} \pm 0.25 \text{ mm}$ / $166 \text{ mm} \pm 0.25 \text{ mm}$ / $182 \text{ mm} \pm 0.25 \text{ mm}$ / $210 \text{ mm} \pm 0.25 \text{ mm}$ (including full-cell and half-cell). The creep age distances of these modules meet the requirement of pollution level 1 or pollution level 2 material items in IEC 61730-1.

2.3 The schematic diagram of cell strings in the crystalline silicon photovoltaic modules is shown in Appendix 1.

NOTICE: SEMI Standards and Safety Guidelines do not purport to address all safety issues associated with their use. It is the responsibility of the users of the Documents to establish appropriate safety and health practices, and determine the applicability of regulatory or other limitations prior to use.

3 Limitations

3.1 None.

4 Referenced Standards and Documents

4.1 IEC® Standards¹

IEC 61730-1 — Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction

4.2 ISO® Standards²

ISO 2768-1 — General Tolerances – Part 1: Tolerances for Linear and Angular Dimensions without Individual Tolerance Indications

NOTICE: Unless otherwise indicated, all documents cited shall be the latest published versions.

5 Terminology

5.1 Definitions

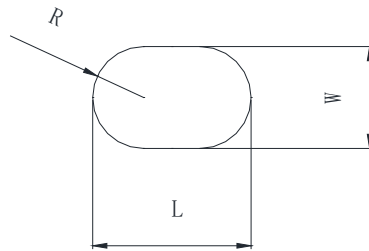
5.1.1 *module dimension* — module dimension refers to the length and the width of the photovoltaic modules.

5.1.2 *mounting hole* — mounting hole is used to fix photovoltaic modules to the bracket holes.

¹ International Electrotechnical Commission, 3 rue de Varembe, Case Postale 131, CH-1211 Geneva 20, Switzerland; Telephone: +41.22.919.02.11, <http://www.iec.ch>. IEC trademark is owned by International Electrotechnical Commission.

² International Organization for Standardization, ISO Central Secretariat, Chemin de Blandonnet 8, CP 401-1214 Vernier, Geneva, Switzerland; Telephone: +41.22.749.01.11, Fax: +41.22.733.34.30, <http://www.iso.org>. ISO trademark is owned by International Organization for Standardization.

5.1.3 *size of mounting holes* — the dimensions of mounting holes are the length, width and radius of the arc. The schematic diagram is in Figure 1 below.



#1 Where L = the length of mounting holes, W = the width of mounting holes, and R = the radius of arc.

Figure 1
Schematic Diagram of the Mounting Holes Dimensions

5.1.4 *position of mounting holes* — positions of mounting holes are indicated by the distances along the longer side and shorter side of the PV modules, which are shown in Figure 2 below.

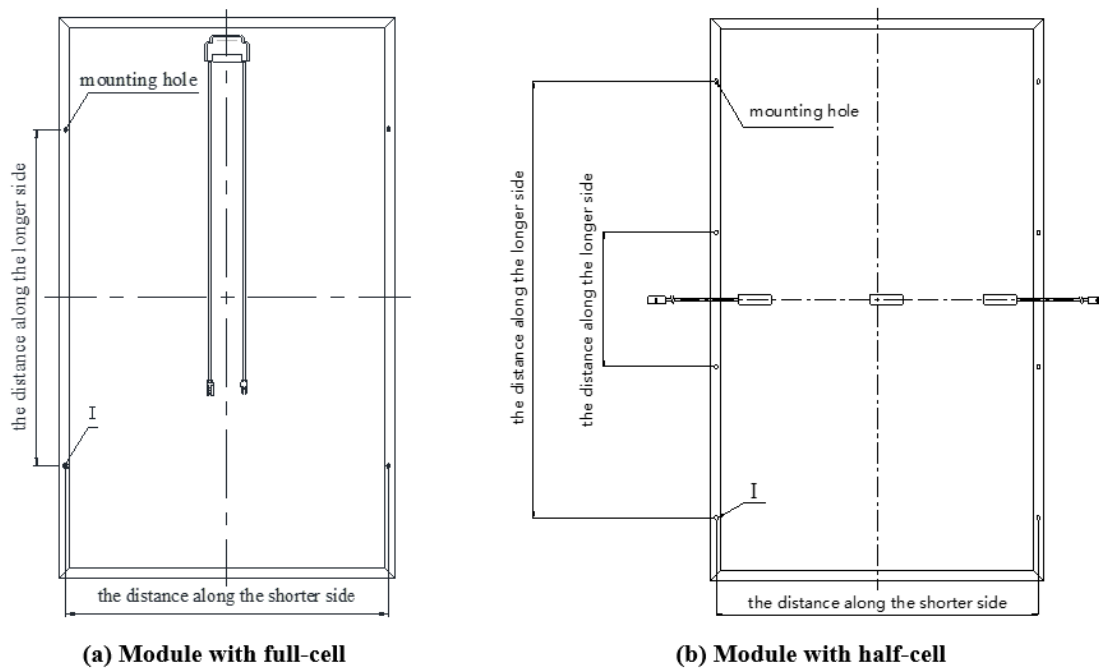


Figure 2
Schematic Diagram of the Mounting Hole Positions

6 Test Methods

6.1 None.

7 Ordering Information

7.1 The following order information should be included: type, certification, power, specification.

8 Requirements

8.1 *Module Dimension* — Dimensional requirements of the modules are in Tables 1 through 5 below. The schematic diagram of the module is shown in Figure 3.

NOTE 1: The module shape is rectangular.

Table 1 Module Dimensions of 156.75 mm Cell

<i>Cell Size</i>	<i>Module Type</i>	<i>Cell Amount</i>	<i>Length</i>	<i>Width</i>
full-cell	framed single-glass module	60	(1650 ± 2) mm	(992 ± 2) mm
		72	(1960 ± 2) mm	
	framed double-glass module	60	(1664 ± 2) mm	(996 ± 2) mm
		72	(1977 ± 2) mm	
half-cell	framed single-glass module	120	(1675 ± 2) mm	(992 ± 2) mm
		144	(2000 ± 2) mm	
	framed double-glass module	120	(1698 ± 2) mm	(996 ± 2) mm
		144	(2020 ± 2) mm	

Table 2 Module Dimensions of 158.75 mm Cell

<i>Cell Size</i>	<i>Module Type</i>	<i>Cell Amount</i>	<i>Length</i>	<i>Width</i>
full-cell	framed single-glass module	60	(1665 ± 2) mm	(1002 ± 2) mm
		72	(1979 ± 2) mm	
half-cell	framed single-glass module	120	(1684 ± 2) mm	(1002 ± 2) mm
		144	(2008 ± 2) mm	
	frameless double-glass module	120	(1698 ± 2) mm	(1008 ± 2) mm
		144	(2024 ± 2) mm	
	framed double-glass module	120	(1704 ± 2) mm	
		144	(2031 ± 2) mm	

Table 3 Module Dimensions of 166 mm Cell

<i>Cell Size</i>	<i>Module Type</i>	<i>Cell Amount</i>	<i>Length</i>	<i>Width</i>
half-cell	framed single-glass module/ framed double-glass module	120	(1755 ± 2) mm	(1038 ± 2) mm
		144	(2094 ± 2) mm	

Table 4 Module Dimensions of 182 mm Cell

<i>Cell Size</i>	<i>Module Type</i>	<i>Cell Amount</i>	<i>Length</i>	<i>Width</i>
half-cell	framed single-glass module/ framed double-glass module	108	(1722 ± 2) mm	(1134 ± 2) mm
		144	(2278 ± 2) mm	
		156	(2465 ± 2) mm	