

Data Sheet

Variables Affecting Performance

The current and power output of photovoltaic modules are approximately proportional to illumination intensity. At a given intensity, a photovoltaic module's operating voltage is determined by the characteristics of the load. If that load is a battery, the battery's internal impedance will dictate operating voltage.

Increases in a module's temperature increases current but decrease voltage. Solarex's OEM modules are designed to provide peak power voltage that exceeds battery charging requirements in most warm weather conditions.

Care must be taken to assure that Solarex OEM products are properly handled, finished, installed, and mounted. Solarex's engineering service staff is available for consultation and support

during all phases of product design and manufacturing.

Maximum Charging Power by Design

Solarex OEM modules are designed to produce maximum power near their specified voltage under load (Vld) points and to produce useful voltage and current over the expected range of operating conditions.

Solarex MEGA™ Series Module Products

Type	Description	Wire Length	Vld	Ild(min.)	Ild(typ.)	Length*	Width*	Thickness*
MSX-005	MEGA module with wires	6.0"(152.4mm)	3.3V	135mA	150mA	4.50"(114.3mm)	2.63"(66.8mm)	.125"(3.0mm)
MSX-01	MEGA module with wires	6.0"(152.4mm)	7.5V	135mA	150mA	5.00"(127.0mm)	5.00"(127.0mm)	.125"(3.0mm)

Solarex SA-Series Plate Products (multiple components on 12" by 13" plates)

Type	Description	Components/Plate	Vld	Ild(min.)	Ild(typ.)	Length*	Width*	Thickness*
SA-03300P	Finished 4X Plate	4	3.6V	300mA	320mA	13.00"(330.2mm)	3.00"(76.2mm)	.090"(2.3mm)
SA-06110P	Standard 4X Plated	4	7.5V	110mA	125mA	6.00"(152.4mm)	6.00"(152.4mm)	.090"(2.3mm)
SA-06110P	Coated 4X Plate	4	7.5V	110mA	125mA	6.00"(152.4mm)	6.00"(152.4mm)	.090"(2.3mm)

SA-Series Components (individual components ready to use)

Type	Description	Vld	Ild(min.)	Ild(typ.)	Length*	Width*	Thickness*
SA-03300	Finished Component	3.6V	300mA	320mA	13.00"(330.2mm)	3.00"(76.2mm)	.090"(2.3mm)
SA-0640	Standard Component	7.5V	40mA	45mA	6.00"(152.4mm)	2.17"(55.1mm)	.090"(2.3mm)
SA-0680	Standard Component	7.5V	80mA	90mA	6.00"(152.4mm)	4.33"(110.0mm)	.090"(2.3mm)
SA-06110	Standard Component	7.5V	110mA	125mA	6.00"(152.4mm)	6.00"(152.4mm)	.090"(2.3mm)
SA-1	Wired Component	17.5V	80mA	100mA	12.00"(304.8mm)	4.33"(110.0mm)	.090"(2.3mm)
SA-2	Wired Component	7.5V	290mA	325mA	13.00"(330.2mm)	6.00"(152.4mm)	.090"(2.3mm)
SA-5	Wired Component	17.5V	290mA	325mA	13.00"(330.2mm)	12.00"(304.8mm)	.090"(2.3mm)

Notes:

- Vld - Voltage under load
- Ild (min.) - Minimum initial current output measured at Vld under STC (Standard Test Conditions).
- Ild (typ.) - Typical initial current output measured at Vld under STC.
- "Standard" SA-Series plates and components are provided without a protective back coating and solder pads.
- "Coated" SA-Series plates and components are provided with a protective back coating.
- "Finished" SA-Series plates and components are provided with a protective coating and solder pads.
- STC - Standard Test Conditions are illumination of 1kW/m² (1 sun) at spectral distribution 1.5 and a solar cell temperature of 25°C.

*All plate products are 12" x 13" x .09" (304.8 mm x 330.2 mm x 2.3 mm)

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Electrical Specifications

Model #	MSX-005	MSX-01	SA-03300	SA-0640	SA-0680	SA-06110
Specified Load Voltage (Vld)	3.3V	7.5V	3.6V	7.5V	7.5V	7.5V
Typical Current at Vld (Ild)	150mA	150mA	320mA	45mA	90mA	125mA
Open Circuit Voltage (Ioc)	4.6V	10.3V	5.0V	12.0V	12.0V	12.0V
Short Circuit Current (Ioc)	160mA	160mA	380mA	35mA	110mA	150mA
Temperature Coefficient of Voltage per °C	-16mV	-37mV	-15mV	-30mV	-30mV	-30mV
Temperature Coefficient of Current per °C	0.15 mA	0.15mA	0.30mA	0.05mA	0.10mA	0.15mA

Notes: Data based on measurement at STC. For full electrical data on the SA-1, SA-2, and SA-5, please consult the Solarex Data Sheets for these products.

High Temperature Performance

High operating temperature reduces voltage output while slightly improving current. As a result, high temperatures may in

certain conditions reduce voltage below the minimum necessary to charge a battery. Solarex OEM modules are among the

only commercially available PV devices to minimize this problem. Solarex specifies high Vlds at STC for all its OEM products.

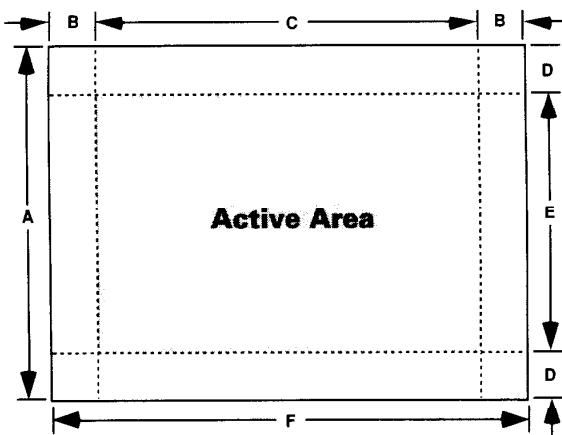
Mechanical Characteristics and Design Considerations

Active Area

A Module's Active Area—the frontal area that generates electrical power—is a critical design consid-

eration in using any photovoltaic product. If this area is covered by a mounting bezel or

hold-down, power may be reduced and the product may cease to function. For optimal performance, the Active Area must never be shaded.



Front Face of Module

Active Area Dimensions

Type	A	B	C	D	E	F
MSX-005	4.5"	.295"	2.244"	.388"	3.772"	2.830"
MSX-01	5.0"	.230"	4.540"	.409"	4.182"	5.000"
SA-03300	13.0"	.250"	2.50"	.125"	12.75"	3.000"
SA-0640	2.16"	.250"	5.50"	.125"	1.91"	6.000"
SA-0680	4.33"	.250"	5.50"	.125"	4.08"	6.000"
SA-06110	6.00"	.250"	5.50"	.125"	5.75"	6.000"

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Mechanical Characteristics and Design Considerations (Cont'd)

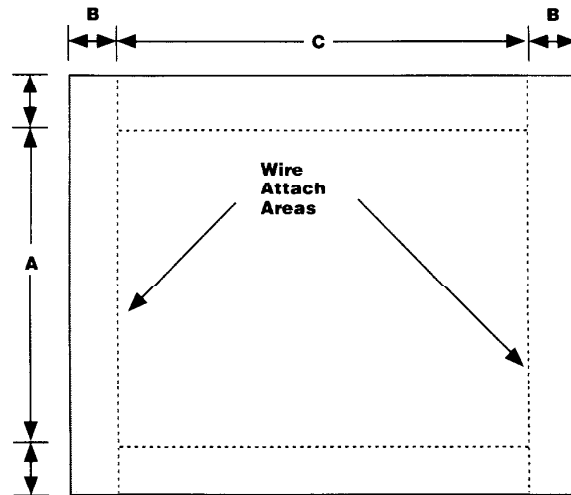
Unit Soldering Information

SA Series products require direct soldering of wires onto the unit's bus bars. The Wire Attach Area (shown to the right) indicates the position for attaching to these bus bars. Wires may be attached anywhere in these areas. However, attaching the wire to the center of the bus bar maximizes current collection.

Mounting and Installation

Customers are urged to contact Solarex for mounting and installation guidance. Mounting schemes that expose the module's edges and backs to water for prolonged periods reduce life expectancy. Solarex provides important technical information on mounting design and on other related topics, such as product handling, soldering, installation, and testing.

Module mechanical drawings and I-V Curves are available upon request. These drawings provide critical tolerance information, and should be consulted prior to making a final design decision. All dimensions are for Solarex produced modules and components. Components cut from plates by customers may show different dimensions due to variations in glass cutting.



Back Face of Module

Wire Attach Area Dimensions			
Type	A	B	C
SA-0640	2.16"	.250"	5.50"
SA-0680	4.33"	.250"	5.50"
SA-06110	6.00"	.250"	5.50"