MIH® VMJ PV Cell-Panel Datasheet

Cell-Panel - 120mm x 120mm

Key Features:

- High efficiency Si-based MIH® VMJ PV cell
- Cell-Panel efficiency with 975nm laser up to 24% at 1.7 W/cm^2
- High voltage density: 30V standard 10mm x 10mm cells
- High temperature durability (up to 120°C operation)
- Standard Cell-Panel size of 120mm x 120mm
- Cell and panel size customization
- Optimal efficiency with 9xx nm lasers
- High thermal conductivity aluminum substrate

Product Description: MH GoPower offers the only photovoltaic receiver product line capable of delivering a wide range of power and voltage outputs. Power output levels range from tens of milliwatts to hundreds of watts, while output voltage levels are possible from 4 volts to over 30 volts (higher voltages possible by wiring VMJ PV cells in series). MHGP's Cell-Panel is constructed by assembling four (4) MHGP Cell-Arrays together. The Cell-Panel product line operates most efficiently with wavelengths in the range of 900 nm to 1,000 nm.

The P0202-A555555 is MHGP's standard Cell-Panel product offering. Each of the four Cell-Arrays that make up the Cell-Panel are independently capable of generating over 160 watts, when actively cooled (please see MHGP's Cell-Array datasheet). Therefore, the Cell-Panel, under similar operating conditions, has potential to generate over 640 watts. Note: actual power output of the Cell-Panel will depend on the thermal management design of system (performance of the VMJ PV Cell-Panel will drop ~3% for every 10°C increase in temperature).

Target applications include dense array PV receivers for laser power beaming (including powering UAVs, aerospace applications, and remote ground based sensors), and for high power, power over fiber applications. Features of target applications include need for remote power delivery, or high voltage isolation, or need to operate in high voltage or high EMI environments.

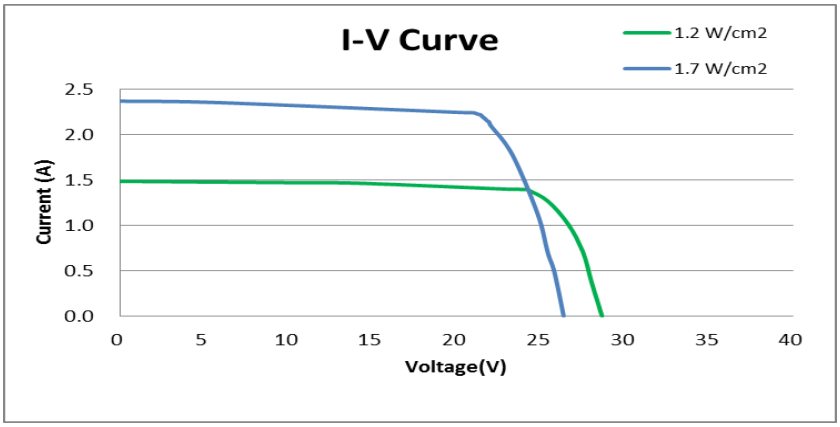
Electrical Characteristics *

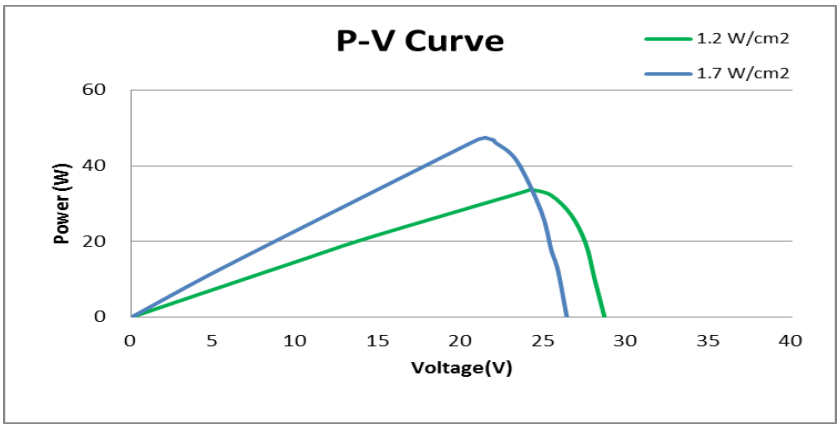
Part Number	Length (mm)	Width (mm)	Height (mm)	Input Power (W)	Power Density (W/cm2)	Vmax (V)	Imax (A)	Pmax (W)	Efficiency (%)
P0202-A555555	120.0	120.0	4.6	137	1.2	24.2	1.4	33.7	24.6%
				195	1.7	21.4	2.2	47.5	24.3%

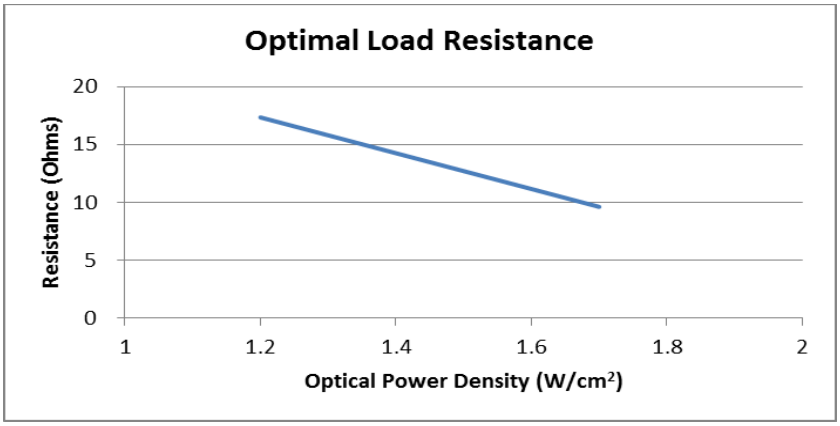
** Typical converter performance of P0202-A555555*
** Tested with 975 nm laser source and 25°C cooling air*
** Efficiency will vary depending on level of light uniformity, as well as Cell-Panel temperature*

Note: MHGP does not have the equipment to test the 120mm x 120mm Cell-Panel at higher power densities than 1.7W/cm^2.

Electrical Characteristics (Continued)







Customization Options

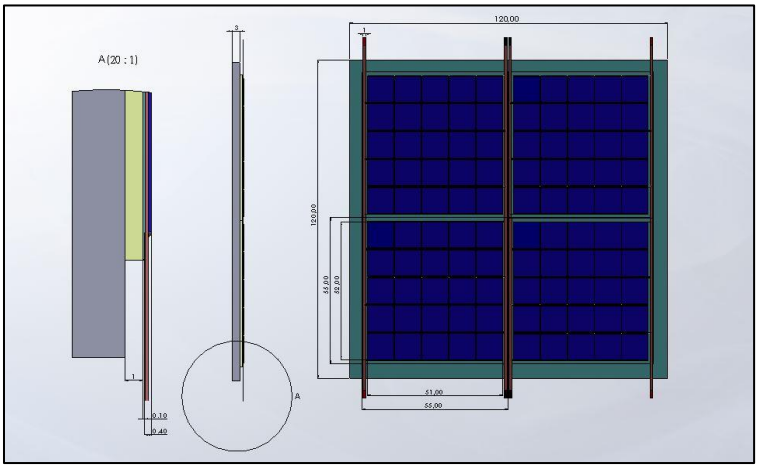
The following Cell-Panel parameters can be customized upon request.

- ☐ VMJ PV Cell Size (Customization upon request)
- ☐ Cell-Array AlN Substrate Size
- ☐ Cell-Panel Al Substrate Size
- ☐ Panel Configuration (number of rows and columns of Cell-Arrays)
- ☐ Output Configuration (series or parallel wiring)
- ☐ Electrical Connector output

Recommended Testing Guidance

Our Cell-Panels allow customers to quickly test the performance of our VMJ PV cells in dense panel applications. Our standard Cell-Panels are designed for indoor, laboratory testing. It is not recommended that the Cell-Panels be tested in outdoor applications subject to high humidity and condensation. Customization for outdoor applications and testing is available upon request.

Mechanical Dimensions



MH GoPower Company Limited
No. 6-2, Luke 3rd Rd., Luzhu Dist., Kaohsiung City 821, Taiwan
TEL: +886-7-6955900 / FAX: +886-7-6955950
info@mhgopower.com / www.mhgopower.com

GoPowerX, Inc. (U.S. Subsidiary)
P.O. Box 37, Oberlin, OH 44074, USA