

MIH[®] VMJ PV Cell-Array Datasheet



Key Features:

- High efficiency Si-based MIH[®] VMJ PV cell
- Cell-Array efficiency with 975 nm laser up to 36% at 10 W/cm²
- High voltage density: 30V standard 10mm x 10mm cells
- High temperature durability (up to 120°C operation)
- Cell and array size customization
- Optimal efficiency with 9xx nm lasers
- High thermal conductivity Aluminum (Al) or Aluminum Nitride (AlN) substrates

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-Array product line operates most efficiently with wavelengths in the range of 900 nm to 1,000 nm.

The 5S1010.4-A555555 is MHGP's standard Cell-Array product offering, suitable for applications requiring power up to 160 watts when active cooling available. Note: higher power output is also possible with good thermal management (performance of the VMJ PV Cell-Array 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 *

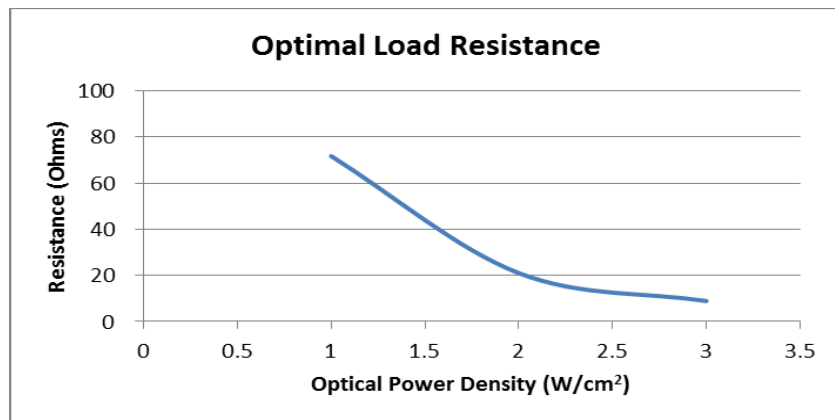
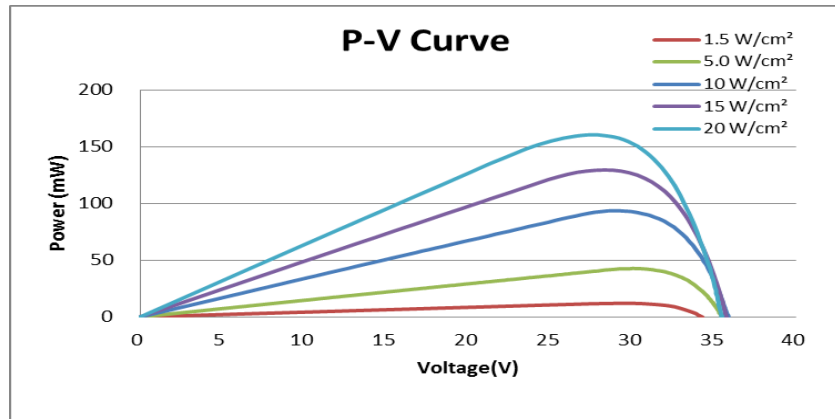
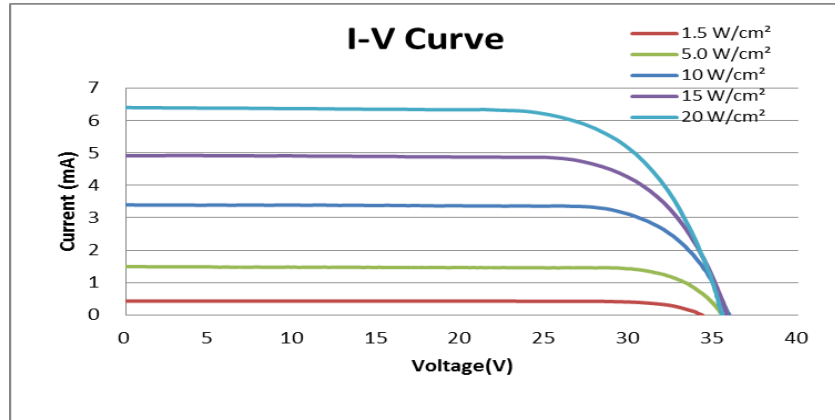
Part Number	Length (mm)	Width (mm)	Height (mm)	Input Power (W)	Power Density (W/cm ²)	Vmax (V)	I _{max} (A)	P _{max} (W)	Efficiency (%)
5S1010.4-A555555	55.0	55.0	1.5	39.6	1.5	29.6	0.4	12.3	31.0%
				131.5	5.0	30.0	1.4	43.4	33.0%
				263.5	10.0	29.0	3.3	94.7	35.9%
				395.0	15.0	28.2	4.7	131.2	33.2%
				526.7	20.0	27.7	5.9	163.5	31.0%

* Typical converter performance of 5S1010.4-A555555

* Tested with 975 nm laser source and 20 °C cooling water at 7 L/min

* Efficiency will vary depending on level of light uniformity, as well as Cell-Array temperature

Electrical Characteristics (Continued)



Customization Options

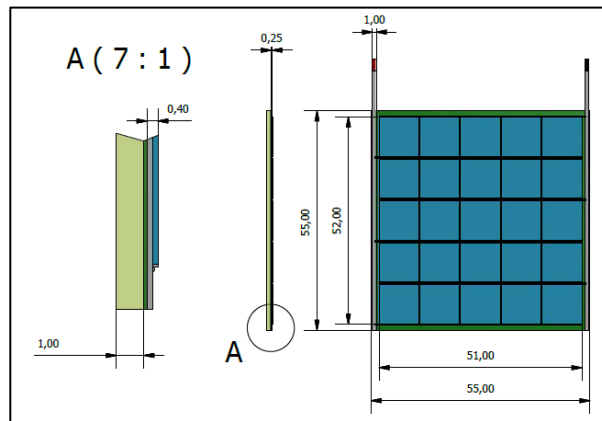
The following Cell-Array parameters can be customized upon request.

- VMJ PV cell Size
- Substrate Size
- Array Configuration (number of rows and columns)
- Output Configuration (series or parallel wiring)
- Electrical Connector output

Recommended Testing Guidance

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

Mechanical Dimensions



Net Weight: AlN Cell-Array: 12.7g; Al Cell-Array 11.0g

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