

# PHOTON ENERGY SYSTEMS

## Microtile Technology design specifications

### Photon Energy Systems Photovoltaic Modules

- ✓ Lowest installed cost/watt of ANY PV technology.
- ✓ Ultrathin cells utilizes 6X less silicon than conventional solar cells to dramatically reduce module costs.
- ✓ All rear contact cells for improved efficiency and appearance – no front side interconnect lines.
- ✓ Front side plus back side module power generation – the back side of the module also can be used to collect power from sunlight – typical boost of an additional 15% with suitable rear white reflective surfaces.

### Photon Energy Systems Microtile Technology

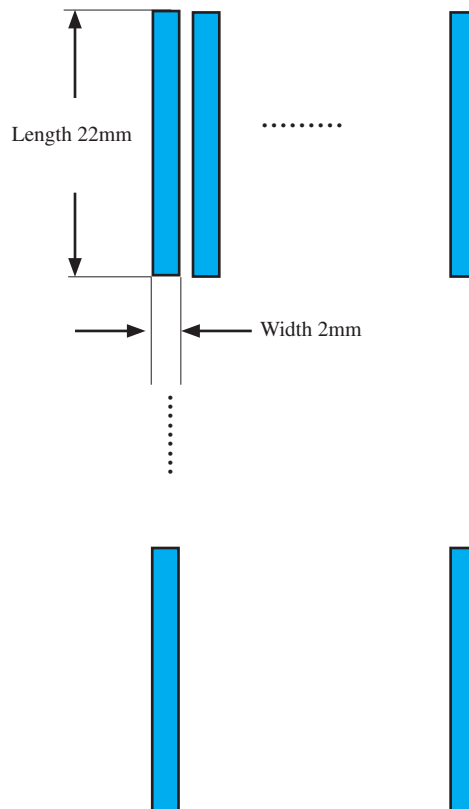
- ✓ Fine grain architecture enables any combination of serial and parallel interconnect for any voltage
- ✓ Integral bypass diodes per submodule eliminates shading issues

Part Number 2x22

Rated power 6mW  
Microtile efficiency 13%  
Nominal voltage under load 400mV

Extended lifetime with 25 year limited warranty.

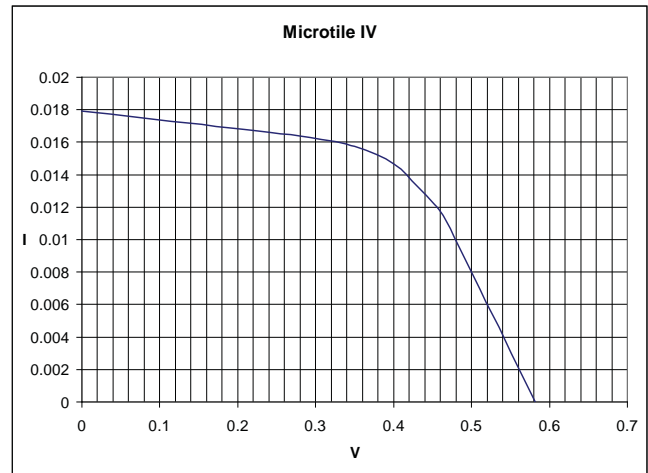
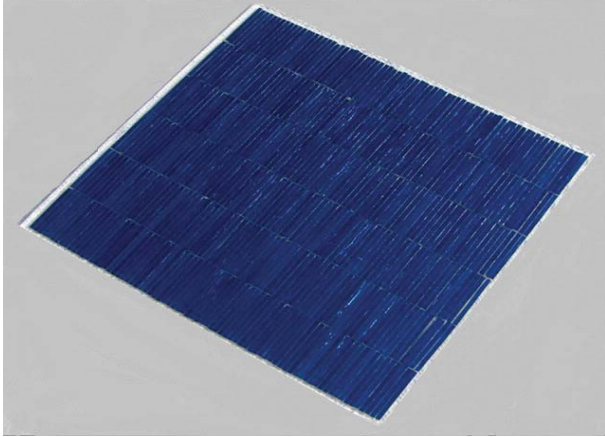
### Supercell microtile layout



Photon Energy Systems is committed to a renewable energy world.

# Microtile technology design specifications

## Microtile Arrays



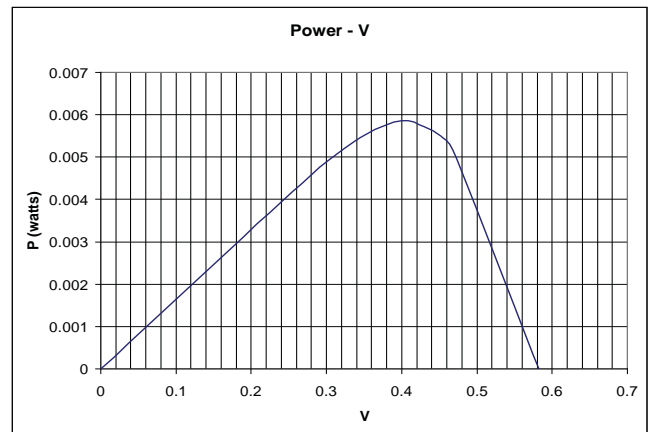
## Qualification Test Parameters

Per customer specification

## Typical Microtile Electrical Characteristics

2X22

Rated power (Pmax) <sup>1</sup>	6mW
Warranted minimum power	5mW
Voltage at Pmax (Vmp)	400mV
Current at Pmax (Imp)	14.6mA
Voltage at Vmax (Voc)	580mV
Short circuit current (Isc)	17.5mA
Efficiency	13%
Temperature coefficient of Pmax	- (0.5 +/- 0.05)%/°C
Normal cell operating temp <sup>2</sup>	47°C



## Mechanical Characteristics

2X22

Dimensions (mm)	2x22
Thickness (microns)	50
Gap - tile to tile (mm)	0.1
Weight (g)	0.005

- Standard test conditions irradiance of 1000W/m<sup>2</sup> at an AM1.5G solar spectrum and cell temp of 25°C.
- Normal operating temperature air temperature of 20°C, irradiance 800W/m<sup>2</sup>, wind speed 1m/s.

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