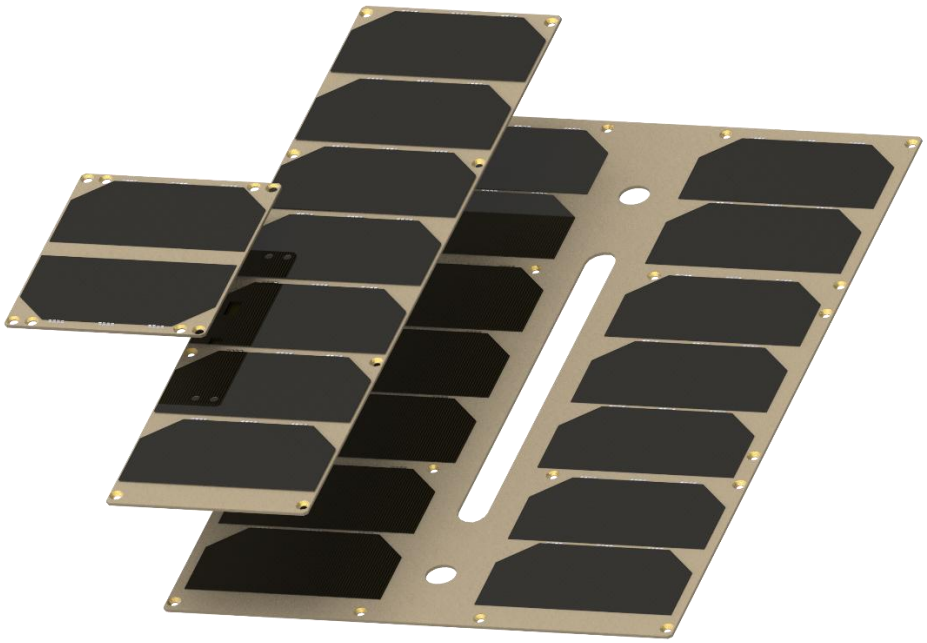

RA Solar Panels

DATASHEET

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GLOSSARY

AM0	Zero Atmospheres (Spectrum)
BOL	Beginning of Life
CSS	Coarse Sun Sensor
EOL	End of Life
FSS	Fine Sun Sensor
LEO	Low Earth Orbit
PCB	Printed Circuit Board
PSU	Power Supply Unit
RBF	Remove Before Flight

1 PRODUCT OVERVIEW

Typical configurations of 1U, 2U, 3U, 6U, 8U with various customization options. Typically integrates state-of-the-art triple junction solar cells.

Compatible with Spacemanic and third-party PSU and frames.

Flight heritage on 10+ missions (e.g. LASARsat, CroCube, GRBBeta and external customers).

Customization options available:

- Body-mounted/deployable
- Structural panel (without solar cells)
- RBF cutout, customer-specified cutouts
- Panel-mounted temperature sensor, Sun sensor (CSS/mechanical interface for FSS)
- Panel-mounted magnetorquer, patch antennas
- Bypass protection diode
- Customizable mechanical and electrical interface

2 TECHNICAL SPECIFICATION

Table 2-1: Solar panel technical specification

Parameter	Value	Unit
Operating temperature	-40 to +125	°C
Typical PCB thickness	1.6	mm
Typical PCB material	370HR	-

Table 2-2: Solar cell technical specification

Parameter @ AM0 (135.3 mW.cm^{-2}) and 25 °C	BOL	EOL (10^{15} e.cm^{-2})	Unit
Open circuit voltage (V_{oc})	2.75	2.48	V
Short circuit current (I_{sc})	0.52	0.49	A
Max power voltage (V_{mp})	2.48	2.26	V
Max power current (I_{mp})	0.50	0.46	A
Efficiency	> 30 %	25.7 %	-

Table 2-3: Typical configuration parameters

Size	Typical number of cells	Typical configurations	BOL Peak Power @ LEO	Typical mass
1U	2	2S1P	2.48 W	30 g
2U	4	4S1P	4.96 W	70 g
3U	7	7S1P	8.68 W	110 g
6U body-mounted	14	7S2P	17.36 W	~230 g
6U deployable	16	8S2P/4S4P	19.84 W	~230 g
8U body-mounted	18	6S3P	22.32 W	~300 g
8U deployable	20	5S4P	24.80 W	~300 g

3 INTERFACES

3.1 ELECTRICAL

Typically, 4-pin MOLEX PicoBlade connector (53261-0471) is used. Reverse polarity protection diode (STPS1045SF) included. Customization based on customer requirements is available.

Table 3-1: Typical solar panel connector pinout

Pin Number	Signal	Voltage	Description
1	SP-	0 V	Solar Panel negative (GND)
2	SP+	0 V to 20 V	Solar Panel positive, 2 A max
3	SP+	0 V to 20 V	Solar Panel positive, 2 A max
4	SP-	0 V	Solar Panel negative (GND)

3.2 MECHANICAL

Exact dimensions, cutouts and mounting points subject to customer requirements. Typical CAD can be provided, but exact model would be specified based on the discussion with the customer.

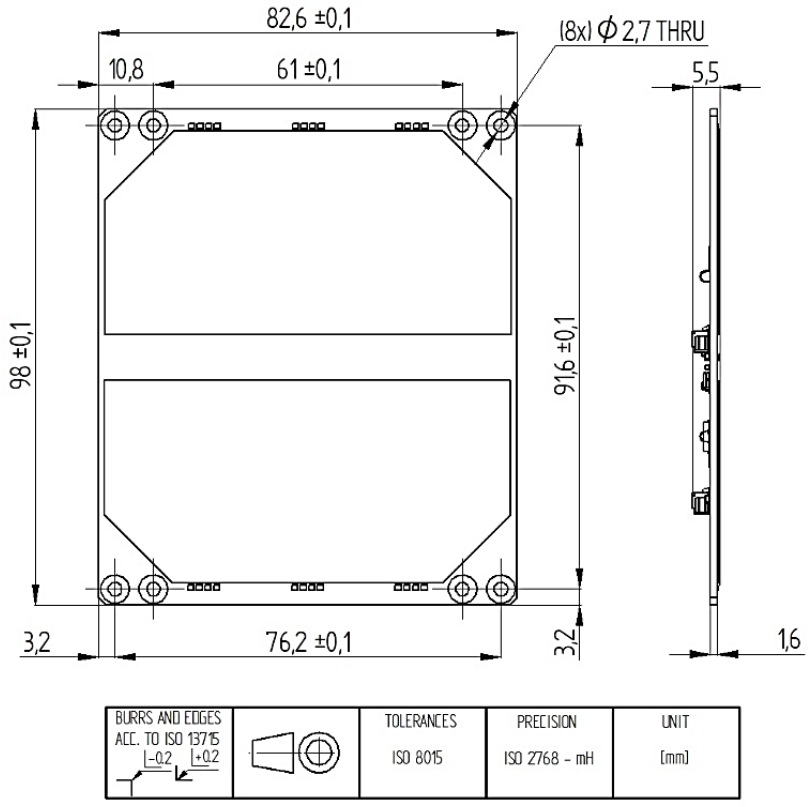

Figure 3-1: Typical 1U body mounted solar panel

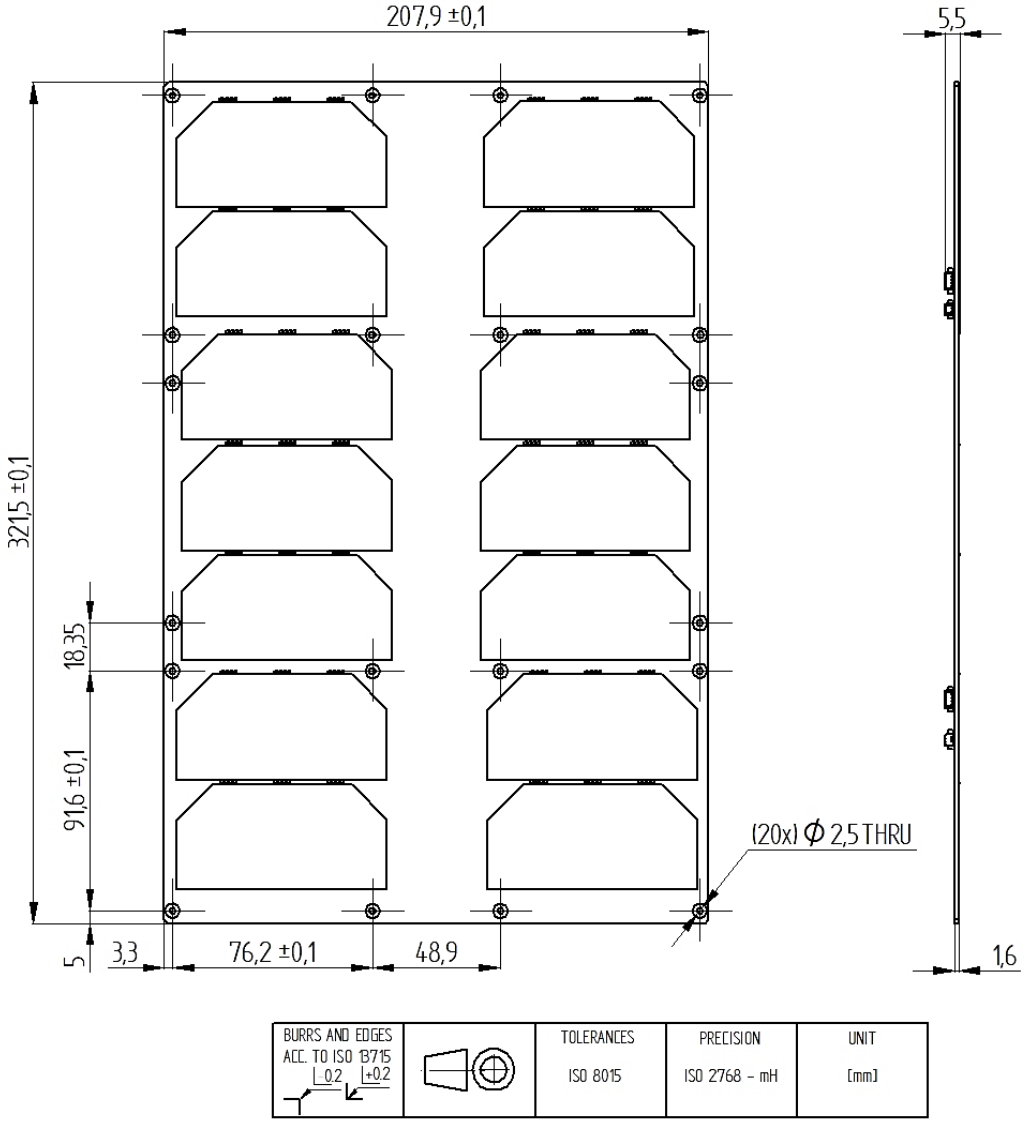

Figure 3-2: Typical 6U body mounted solar panel

4 POSSIBLE EXTRAS

Table 4-1: Extras specification

Type	Model	Note
Temperature Sensor	TMP112	
Sun Sensor	SLCD	
Sun Sensor ADC	MCP3221	
Bypasss Diode	N/A	0,8 V @ 620 mA

5 RELATED PRODUCTS

You may be also interested in:

- Amun 1U PSU
- Amun XL PSU – *Coming Soon*
- 1U Frame
- 1-16U CubeSat Platforms / Complete Mission

6 DISCLAIMER

Spacemanic shall not be liable for any damages, losses, delays, or other consequences arising from improper use, unauthorized modifications, or incompatibility of the product with other systems, even in cases where these products are deployed in demanding environments such as satellite or space applications. The product is designed for specific use according to the technical specifications outlined in the official documentation, and the company is not responsible for any issues arising from usage beyond this scope.

The company is also not liable for damages caused by external factors that cannot be predicted or controlled, including but not limited to infrastructure failures, space conditions (e.g., radiation, microgravity), natural disasters, human error, unauthorized third-party interference, or unplanned changes in regulatory or legal requirements.

By using the product, the user acknowledges awareness of the risks associated with its use in satellite and space applications and accepts full responsibility for the correct deployment and use of the product.