

eFilm – ultra light solar cells & films

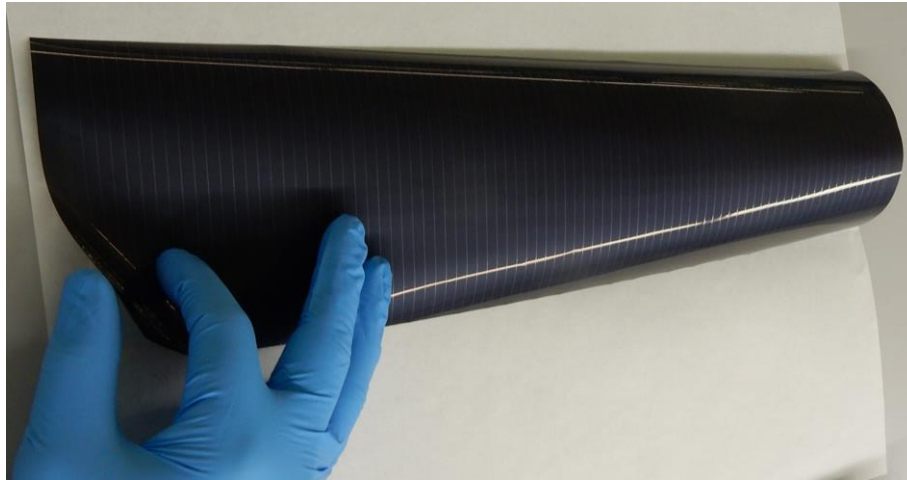


Figure 1: Ultra-light solar cell array

Description

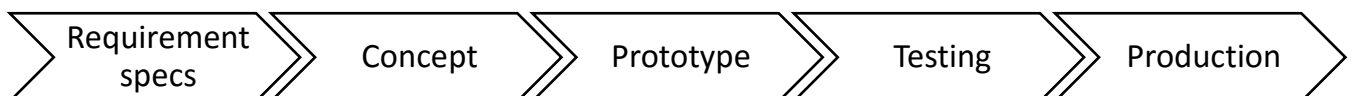
The eFilm is a rollable and lightweight solar film material designed for integration into customized projects in aerospace, automotive, space or industrial applications. The eFilm is made out of customizable array of serial connected CIGS thin film solar cells by a laser patterning process based upon a light flexible polymeric substrate. The eFilm is available in standard dimensions for qualification and testing purpose and can be customized in development projects towards the specifications of industrial customers.

Features

- **Ultra-light** solar films with only 60 g /m² or **2.000 W per kg**
- **Customizable** in width / length and voltage / current
- Interconnected cell arrays by a **laser patterning process**
- **Rollable** form factor
- **Simple contacting** of solar array on first and last cell
- **Unbreakable** and vibration resistant
- Made in **Switzerland**

From Concept to Production

Flisom offers engineering services, prototyping and production of customized eFilm thin film solar cells. Our engineers work with you on design, engineering and production.



Technical data of standard eFilm submodule

Dimensions of standard submodule			
Length	[mm]		742
Width	[mm]		372
Thickness of solar film	[micron]		< 30
Weight	[g / m ²]		60
Nominal power	[W / m ²]		100-140
Electrical characteristics of standard submodule			
Open circuit voltage Voc	[V]		48 ±3
Short circuit current	[A]		0.9 ±0.3
Voltage at nom. Power Vmpp	[V]		36 ±3
Current at nom. Power Impp	[A]		0.8 ±0.3
Thermal characteristics			
Temperature coefficient	Voc	[%/°C]	-0.3
Temperature coefficient	Isc	[%/°C]	0.01
Temperature coefficient	Pmpp	[%/°C]	-0.35
Additional data			
Cell type	Flexible CIGS based on polymeric substrate		
Electrical connection	Laser scribed intercell connection; two contact pads for busbars		
Delivery	<ol style="list-style-type: none"> Standard submodules are delivered cut out / singulated. Customized submodules are delivered on rolls and require expertise for unwinding, singulation, contacting and encapsulation. 		

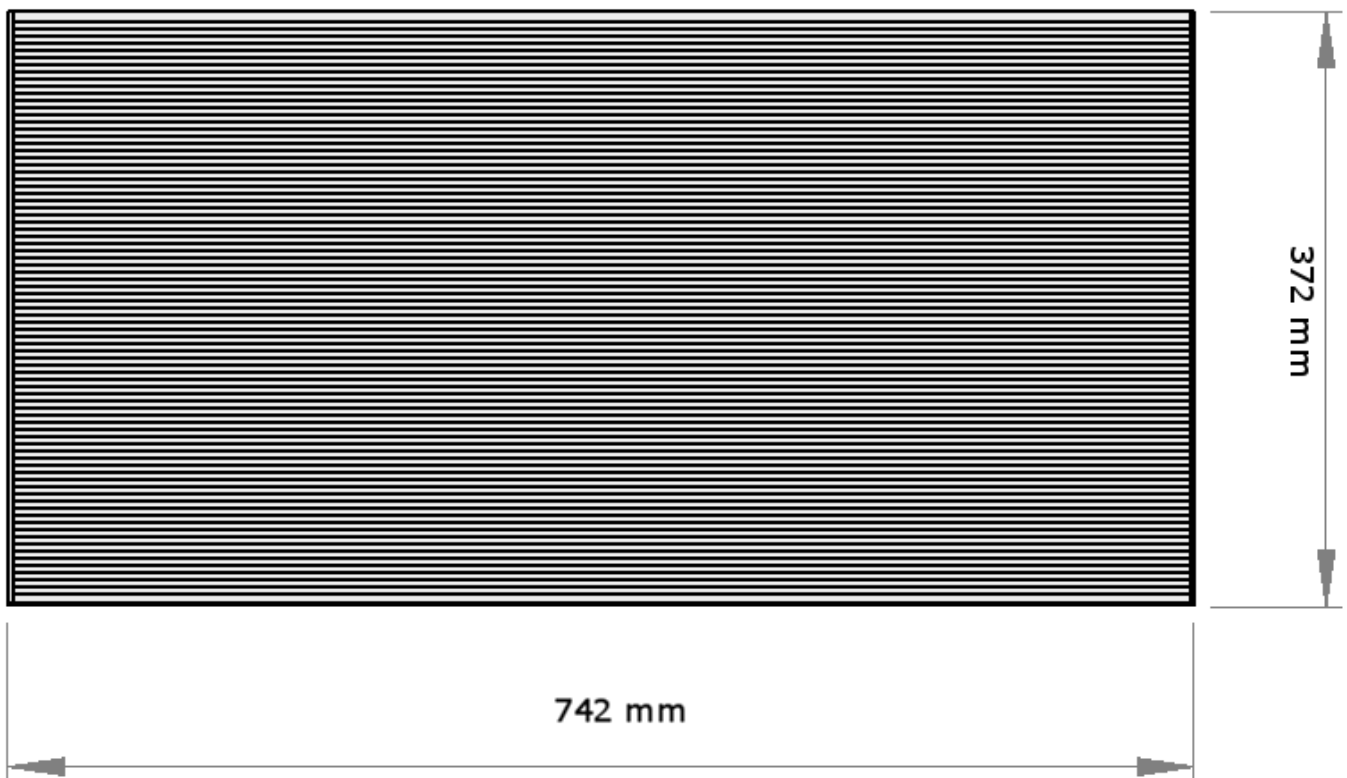
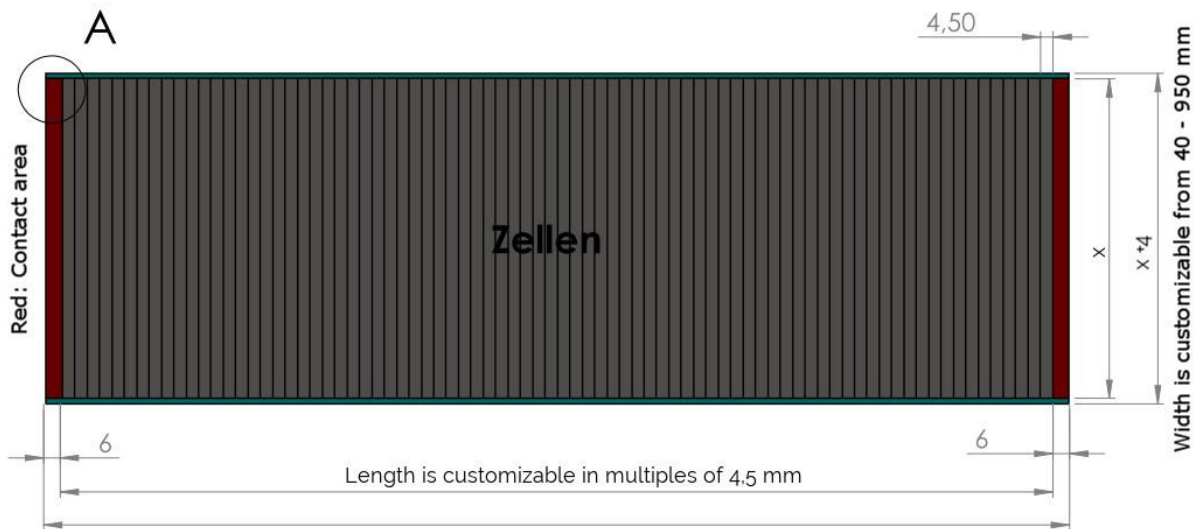


Figure 2: Layout of standard solar eFilm submodule

Drawing indicating customization possibilities



Application platform for:

- Foldable or rollable ultra-light solar sun sails for space applications
- Ultra-light solar films for covering airship and stratospheric balloons
- Ultra-light Solar films for integration into drones and Aircrafts
- Solar blimps
- Fast deployable Military and Emergency respond solar applications
- Off-grid and Mobility solar solutions
- Solar automotive integrations into sunroofs
- Solar blinds, awnings and solar sunshades
- Integration into BIPV facades
- Integration into glass tubes for agricultural PV
- Integration to power IoT and sensor devices
- And many more ideas

[Contact us now with your project. Challenge us!](#)

We continuously develop our products. Electrical and physical properties subject to change without prior notice.

Integration Partner: