

# Small Solar Panel Catalog

(Huaxu Energy 2021)



Small Solar Panel Design&History  
(Knowledge)



Solar Panel for Road Stud  
(Traditional)



Solar Panel for Solar Fountain  
(Amazon Hot)



Solar Panel for Educational Kit



Certificates&Contact

## 01 Solar Panel Design&History(Knowledge)

Small solar panels are widely used in portable electronic devices.

The choice of materials that will cover the solar cells is the most important aspect in ensuring the lifespan and the mechanical properties of the solar panel.

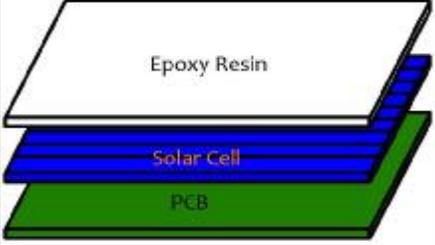
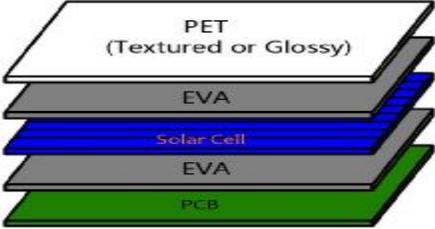
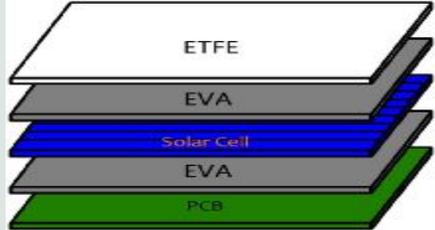
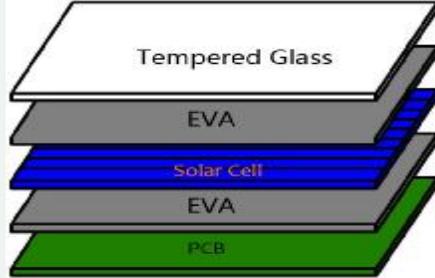
The most widespread small solar panel models on the market are Epoxy Resin coated, PET laminated, ETFE laminated, and Glass laminated solar panels.

A brief introduction of the small solar panel history as following,

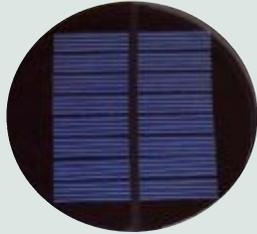
- \* Epoxy encapsulated solar panel(2004-2021)(☆☆☆)
- \* Matt PET laminated solar panel(2006-2021)(☆☆☆☆☆)
- \* ETFE laminated solar panel(2014-2021)(☆☆☆☆☆)
- \* PCB+Glass laminated solar panel(2016-2021)(☆☆☆☆☆)

Nowadays,technology updates so fast and customers designs innovative items and expect longer lifespan of the solar panels. A comparions among above 4 typical small solar panel sheet is attached as following, which is necessary for consumers to know.

## Comparisons among 4 typical small solar panels

Type	Layers	Processing condition	Application Items	Lifespan
Epoxy resin solar panel	 <p style="text-align: center;">Epoxy Resin Solar Cell PCB</p>	Temperature: 55~60 °C Vacuuming time: 1 mins Drying time: 8 hours Machine: Industrial Oven	Solar toys Solar DIY kits Solar educational kits	2 years+
PET laminated solar panel	 <p style="text-align: center;">PET (Textured or Glossy) EVA Solar Cell EVA PCB</p>	Temperature: 135 °C Vacuuming time: 5 mins Laminating time: 7 mins Machine: Solar Laminator	Solar path light Solar warning light Solar road stud Solar barricade light Solar markers	3 years+
ETFE laminated solar panel	 <p style="text-align: center;">ETFE EVA Solar Cell EVA PCB</p>	Temperature: 145 °C Vacuuming time: 7 mins Laminating time: 20 mins Machine: Solar Laminator	Solar robotic cleaner Solar pool skimmer Solar GPS tracker	5 years+
Glass laminated solar panel	 <p style="text-align: center;">Tempered Glass EVA Solar Cell EVA PCB</p>	Temperature: 135 °C Vacuuming time: 7 mins Laminating time: 15 mins Machine: Solar Laminator	Solar navigation lights Solar marine lantern	8 years+

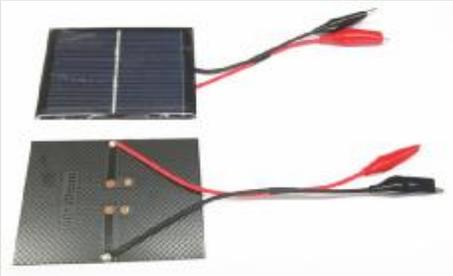
## 02 Solar Panel for Road Stud

Specification of solar panel			
Models	HX-D90P	HX70-50P	HX80-50G
Solar cells	Polycrystalline Eff.20%	Monocrystalline Eff.22%	Monocrystalline Eff.22%
Max. Power(Pm)	0.56W	0.45W	0.5W
Rated Power Voltage(Vm)	4V	2.5V	3V
Rated Power Current(I <sub>m</sub> )	140mA	180mA	166mA
Open Circuit Voltage(V <sub>oc</sub> )	4.8V	3V	3.6V
Short Circuit Current(I <sub>sc</sub> )	148mA	190mA	175mA
Processing	PET laminated	PET laminated	PET laminated
Solar Panel Photos			
Application Photos (Traditional solar barricade, solar road stud, solar marker)			

### 03 Solar Panel for Solar Fountain

Specification of solar panel			
Models	HX-D180-MP	HX-D180P	HX-D180E
Solar cells	Monocrystalline Eff.20%	Monocrystalline Eff.22%	Monocrystalline Eff.22%
Max. Power(Pm)	2.4W	4W	3W
Rated Power Voltage(Vm)	9V	5V	5V
Rated Power Current(I <sub>m</sub> )	267mA	800mA	600mA
Open Circuit Voltage(V <sub>oc</sub> )	10.8V	6V	6V
Short Circuit Current(I <sub>sc</sub> )	280mA	840mA	625mA
Processing	PET laminated	PET laminated	Epoxy resin coated
Solar Panel Photos			
Application Photos (Amazon hot solar fountain with various of designs)			

## 04 Solar Panel for Educational Kit

Specification of solar panel		
Models	HX90-70P	HX120-60E
Solar cells	Polycrystalline Eff.20%	Monocrystalline Eff.22%
Max. Power(Pm)	0.9W	1.25W
Rated Power Voltage(Vm)	1.5V	5V
Rated Power Current(I <sub>m</sub> )	600mA	250mA
Open Circuit Voltage(V <sub>oc</sub> )	1.8V	6V
Short Circuit Current(I <sub>sc</sub> )	630mA	265mA
Processing	Epoxy resin coated	ETFE laminated
Solar Panel Photos		
Application Photos		

## 05 Certificates&Contact



**Verification of Conformity**  
Certificate No.: 19ZCTC0805003RC

**Applicant** : Huaxu Energy Technology Co.,Ltd.  
**Address** : Bldg A3, Yijing Industrial Park, Guangming New District, Shenzhen 518034 China  
**Manufacturer** : Huaxu Energy Technology Co.,Ltd.  
**Address** : Bldg A3, Yijing Industrial Park, Guangming New District, Shenzhen 518034 China  
**Product** : Small solar panel  
**Brand Name** : HUAXU  
**Model No.** : 60X60MM

Requirement	Applied Standards	Document Evidence	Result
RoHS Directive	2011/65/EU 2015/863	Test Report: 19ZCTC0805003RR	Conform
RoHS Standards	IEC 62321:2013		

**RoHS**

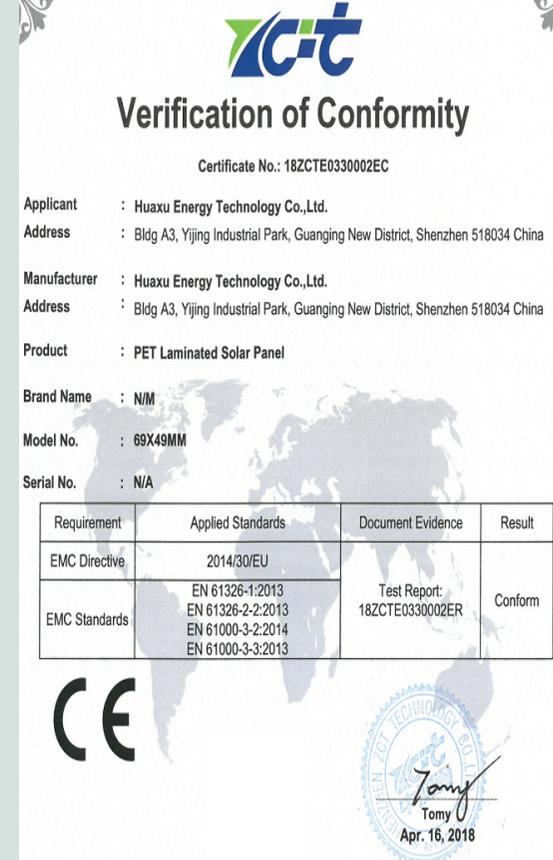



**Verification of Conformity**  
Certificate No.: 18ZCTC0330002RC

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**Address** : Bldg A3, Yijing Industrial Park, Guangming New District, Shenzhen 518034 China  
**Manufacturer** : Huaxu Energy Technology Co.,Ltd.  
**Address** : Bldg A3, Yijing Industrial Park, Guangming New District, Shenzhen 518034 China  
**Product** : PET Laminated Solar Panel  
**Brand Name** : N/M  
**Model No.** : 69X49MM  
**Serial No.** : N/A

Requirement	Applied Standards	Document Evidence	Result
RoHS Directive	2011/65/EU	Test Report: 18ZCTC0330002RR	Conform
RoHS Standards	IEC 62321:2013		

**RoHS**

**Verification of Conformity**  
Certificate No.: 18ZCTE0330002EC

**Applicant** : Huaxu Energy Technology Co.,Ltd.  
**Address** : Bldg A3, Yijing Industrial Park, Guangming New District, Shenzhen 518034 China  
**Manufacturer** : Huaxu Energy Technology Co.,Ltd.  
**Address** : Bldg A3, Yijing Industrial Park, Guangming New District, Shenzhen 518034 China  
**Product** : PET Laminated Solar Panel  
**Brand Name** : N/M  
**Model No.** : 69X49MM  
**Serial No.** : N/A

Requirement	Applied Standards	Document Evidence	Result
EMC Directive	2014/30/EU	Test Report: 18ZCTE0330002ER	Conform
EMC Standards	EN 61326-1:2013 EN 61326-2-2:2013 EN 61000-3-2:2014 EN 61000-3-3:2013		

**CE**



Huaxu Energy Technology Co Ltd( Since 2009)

Bldg.A3, Yijing Industrial Park, Guangming District, Shenzhen 518034, China

[www.hx-sunshine.com](http://www.hx-sunshine.com) [sales@hx-sunshine.com](mailto:sales@hx-sunshine.com)

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