



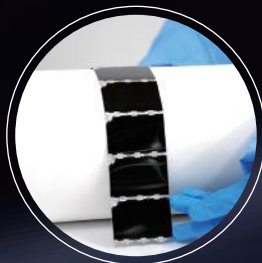
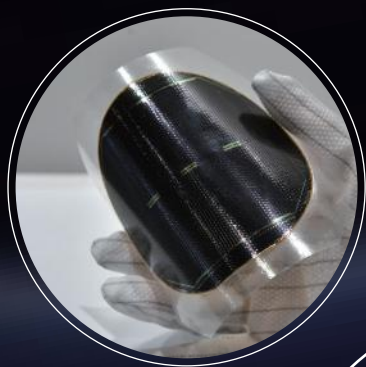
薄膜砷化镓 太阳电池



THIN FILM GaAs SOLAR CELL

应用领域：临近空间及低、中、高轨飞行器

Applications: near space and LEO, MEO, GEO spaceflight.



SISP

Shanghai Institute of Space Power-Sources

Website: en.811sisp.com

薄膜砷化镓太阳能电池

THIN FILM GaAs SOLAR CELL



上海空间电源研究所
中国航天 Shanghai Institute of Space Power-Sources

THIN FILM GaAs SOLAR CELL

· 尺寸: 12~30cm ² (可定制)
· Size: 12~30cm ² (customizable)
· 转换效率: 30~32% (AM0, 135.3mW/cm ² , 25°C)
· Efficiency: 30~32% (AM0, 135.3mW/cm ² , 25°C)
· 应用领域: 临近空间及低、中、高轨飞行器
· Applications: near space and LEO, MEO, GEO spaceflight

产品特点 Features
最小厚度30μm 面密度最低180g/m ² ; Minimum thickness 30 μm Lowest area density 180g/m ²
高重量比功率:1500~2500W/kg; 最小弯曲半径50mm, 适合曲面应用; 高可靠:通过典型空间环境模拟试验; High weight-to-power ratio 1500~2500W/kg; Minimum bending radius 50mm, suitable for surface application; Pass the typical space environment simulation tests, highly reliable
12/24/30 cm ²电池片尺寸可定制。
12/24/30 cm ²Customizable cell size for flexible arrangement.

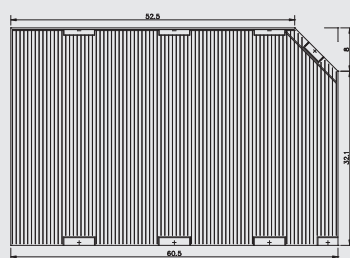
应用经验: Experience

宇航领域, 柔性太阳能电池阵技术应用于载人航天、探月工程;

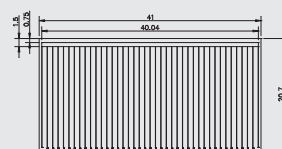
In the aerospace field, the flexible solar array technology has been applied to manned spaceflight and lunar exploration projects;

航空领域, 成功应用于多个高空长航时太阳能无人机型号。

In the aviation field, it has been successfully applied to multiple high-altitude long-endurance solar UAV models.



聚酰亚胺衬底薄膜砷化镓太阳能电池
Thin Film GaAs Solar Cells on PI



金属衬底薄膜砷化镓太阳能电池
Thin Film GaAs Solar Cells on Metal

产品规格: Product Specifications

衬底 Substrate	聚酰亚胺 PI	金属 Metal
电池材料 Base material	GaInP ₂ /GaAs/InGaAs	
电池片面积/cm ² Cell area/cm ²	12~30 (可定制 customizable)	
面密度/g/m ² Surface density/g/m ²	180	230
电池片厚度/μm Thickness/μm	70~75	30~35
最小弯曲半径/mm Minimum bending radius /mm	50	

电性能参数: Electrical performance parameters

衬底 Substrate	聚酰亚胺 PI	金属 Metal
平均开路电压V _{oc} /mV Average open circuit voltage V _{oc} /mV	3080	
平均短路电流密度J _{sc} /mA/cm ² Average short circuit current density J _{sc} /mA/cm ²	16.7	
平均最大功率电压V _m /mV Average voltage@ Max. Power V _m /mV	2641	
平均最大功率电流密度J _m /mA/cm ² Average current density @ Max. Power J _m /mA/cm ²	16.0	
平均转换效率η _{bare} /%	32	

(AM0, 1sun, 135.3mW/cm², 25°C)

抗辐照性能 (1MeV): Radiation Degradation (Fluence 1MeV)

型号 Model	聚酰亚胺 PI / 金属 Metal		
辐照强度 Parameters	1×10 ¹⁴ e/cm ²	5×10 ¹⁴ e/cm ²	1×10 ¹⁵ e/cm ²
I _m /I _{m0}	0.99	0.98	0.97
V _m /V _{m0}	0.94	0.90	0.88
P _m /P _{m0}	0.95	0.90	0.84

(AM0, 1sun, 135.3mW/cm², 25°C)

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