

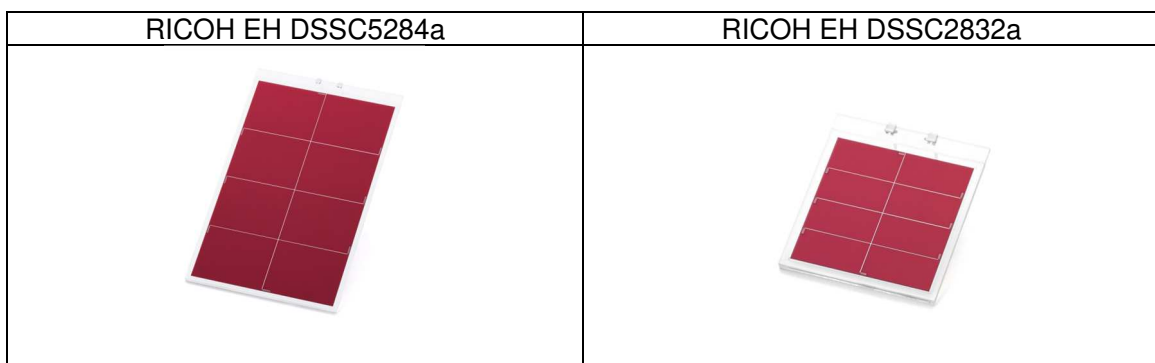
## Launch of new RICOH EH DSSC modules with 20% increase in power generation

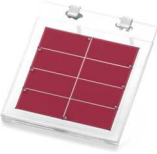

Independent power sources for IoT devices compatible with harsh environments  
such as refrigeration warehouses

**TOKYO, May 13, 2021** – Ricoh announced the launch of a new generation of RICOH EH DSSC Series, a solid-state dye-sensitized solar cell (DSSC) module that achieves high-power generation performance even under weak lighting conditions. The new module's maximum power output has improved by approximately 20% from the previous product. The latest modules can be used in low-temperature environments down to -30°C, perfect for a wide variety of settings, including lighted refrigerated warehouses and sensors for merchandising freezers. The new DSSC is offered as an independent power source for IoT sensor makers to use in devices for the manufacturing and distribution industries, smart offices and homes, and nursing and medical care facilities (storage of pharmaceuticals).

The new product line-up is available in three size formats. An evaluation set is also available containing three module sizes for product evaluation.

Product names	RICOH EH DSSC5284a	RICOH EH DSSC2832a	RICOH EH DSSC1719a	RICOH EH DSSC Evaluation Set
Sales unit pcs/case	12 pcs/case	48 pcs/case	120 pcs/case	5284a x 3 pcs 2832a x 3 pcs 1719a x 3 pcs
Pricing	Contact sales			
Release Date	Late May, 2021			



RICOH EH DSSC1719a	RICOH EH DSSC Evaluation Set
	

The Internet of Things (IoT) brings the power of the internet beyond standard computers or smartphones to a wide range of objects. Data from sensors attached to those objects can be collected and uploaded to the internet. The data can be used for monitoring environments or object locations wirelessly and without the need for batteries. The use of sensors is expected to increase in the future. Energy harvesting technologies (environmental power generation) using light, heat, vibration, etc., are attracting wide-spread attention as an effective power source that can power sensors continuously.

Ricoh's DSSC was developed by applying the organic photoconductor technology that Ricoh has developed for multifunction devices. It solves the safety and durability problems, such as liquid leakage and corrosion, that batteries using electrolytes have. Also, by designing organic materials suitable for indoor light source wavelengths and optimizing the device structure, generating electricity with high efficiency is possible even in places with lower light levels, such as warehouses.

Ricoh will continue to develop technologies that improve the performance of solid-state dye-sensitized solar cells. It hopes to expand these devices' use as self-contained power sources into areas including sensing devices, light-emitting devices, and switches that contribute to powering the IoT of society.

### **Main features of the new RICOH EH DSSC Series**

1. High power output in areas with low light  
There is a high power generation potential on the walls of offices, warehouses, and factories, even under indoor light or other low-light environments. Self-contained solar modules eliminated the need for replacing coin-type batteries used in IoT terminals.
2. High power output from low to high temperatures  
High power generation is achieved under a wide -30°C to 60°C temperature range. Modules can be used in general indoor environments as well as in cold storage or refrigerated environments.
3. Safety with a solidified electrolyte  
Modules are made using only solid materials and are safe and highly durable, eliminating the risk of liquid leakage due to aging.

## Specifications of the new RICOH EH DSSC Series

	RICOH EH DSSC5284a	RICOH EH DSSC2832a	RICOH EH DSSC1719a
Dimensions	52mm × 84mm	28mm × 32mm	17mm × 19mm
Maximum output ( $P_{max}$ ) min.	276 $\mu$ W	48 $\mu$ W	13 $\mu$ W
Open-circuit voltage ( $V_{oc}$ ) typ.	5.4V		
Maximum output operating voltage ( $V_{pmax}$ ) typ.	4.5V		
Maximum output operating current ( $I_{pmax}$ ) typ.	61.3 $\mu$ A	10.7 $\mu$ A	2.9 $\mu$ A
Substrate	Glass		
Thickness	1.4mm		
Operating environment	Indoor		

Electrical characteristics and conditions: Color temperature is approx. 5000K at 25°C.

For more product information, please see the link below:

<https://industry.ricoh.com/en/dye-sensitized-solar-cell>

### ■ Related information

Complete Solid-State Dye-Sensitized Solar Cell Technology

[https://www.ricoh.com/technology/tech/066\\_dssc](https://www.ricoh.com/technology/tech/066_dssc)

Ricoh launches the world's first solid-state dye-sensitized solar cell modules

[https://www.ricoh.com/release/2020/0204\\_1/](https://www.ricoh.com/release/2020/0204_1/)

RICOH EH Environment Sensor D101

<https://industry.ricoh.com/en/dye-sensitized-solar-cell/sensor>

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Ricoh is empowering digital workplaces using innovative technologies and services, thus enabling individuals to work smarter.

With cultivated knowledge and organizational capabilities nurtured over its 85-years history, Ricoh is a leading provider of document management solutions, IT services, communications services, commercial and industrial printing, digital cameras, and industrial systems.

Headquartered in Tokyo, Ricoh Group has major operations throughout the world and its products and services now reach customers in approximately 200 countries and regions. In the financial year ended March 2021, Ricoh Group had worldwide sales of 1,682 billion yen (approx. 15.1 billion USD).

For further information, please visit [www.ricoh.com](http://www.ricoh.com)

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