

GCell

Smart. Sustainable. Solar.



Smart Sustainable Solar



GCell. The closest that mankind has come to replicating photosynthesis.

The wait is over. We've created the next generation of photovoltaic technology. Put simply – we have revolutionised indoor solar power. And we've named it GCell – in homage to its inventor Professor Michael Grätzel.

GCell uses nanotechnology to deliver a huge step forward in the world's ability to harness visible light into electrical energy. The patented Dye-Sensitized Cells (DSSC) are thin, flexible and lightweight which means that they can be used to power a wide variety of devices.

GCell's enviable build qualities make it perfect for integrating into wireless, remote and mobile products. This flexibility of use could effectively solve the problem created by the demand for ecological, portable and electrical devices. Products powered by GCell can reduce or eliminate the need to use disposable batteries and can be used in instances where replacing batteries is inconvenient, costly, or dangerous.

Not only does GCell offer indoor power on a flexible substrate – it's also manufactured using low-energy consumption and high-efficiency roll-to-roll manufacturing techniques – plus it uses inexpensive and natural materials.

Smart energy

Why choose GCell?

GCell is a smart choice for energy harvesting when integrating a solar module into an electrical device.

S

UPERIOR LOW LIGHT PERFORMANCE

Suitable for shaded and diffuse light locations.
Works in a wide range of lighting conditions.

M

ANUFACTURED IN THE UK

Uses low-energy consumption, high-efficiency,
roll-to-roll assembly techniques.

A

TTUNED TO INDOOR USE

Designed specifically for indoor energy
harvesting product applications.

R

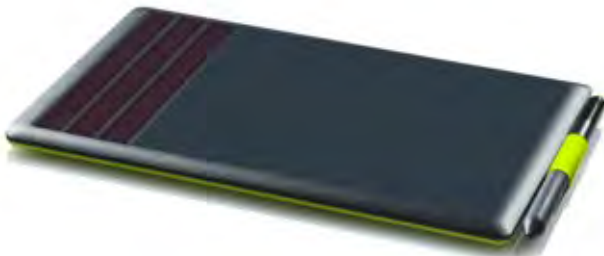
OBUST AND LIGHTWEIGHT

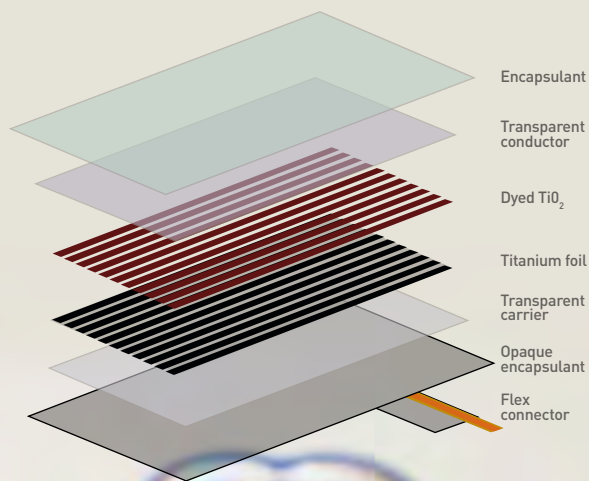
Suitable for everyday usage without fear of breakages.
Lightweight for use in portable applications and cheaper to transport.

T

HIN AND FLEXIBLE

Adds minimal amount of thickness for versatile integration.
Manufactured to withstand flexing over 10,000 times.





GCell is lightweight and thin,
yet incredibly robust –
**no wonder we're the
brand leader.**

GCell is lightweight and thin, yet robust and durable enough to withstand everyday use.

It's designed using the most advanced photo-reactive nano-engineered materials and uses an inexpensive, energy efficient manufacturing process.

GCell characteristics:

Flexible. Tested to withstand flexing over 10,000 times around a 25mm radius with no measurable drop in performance.

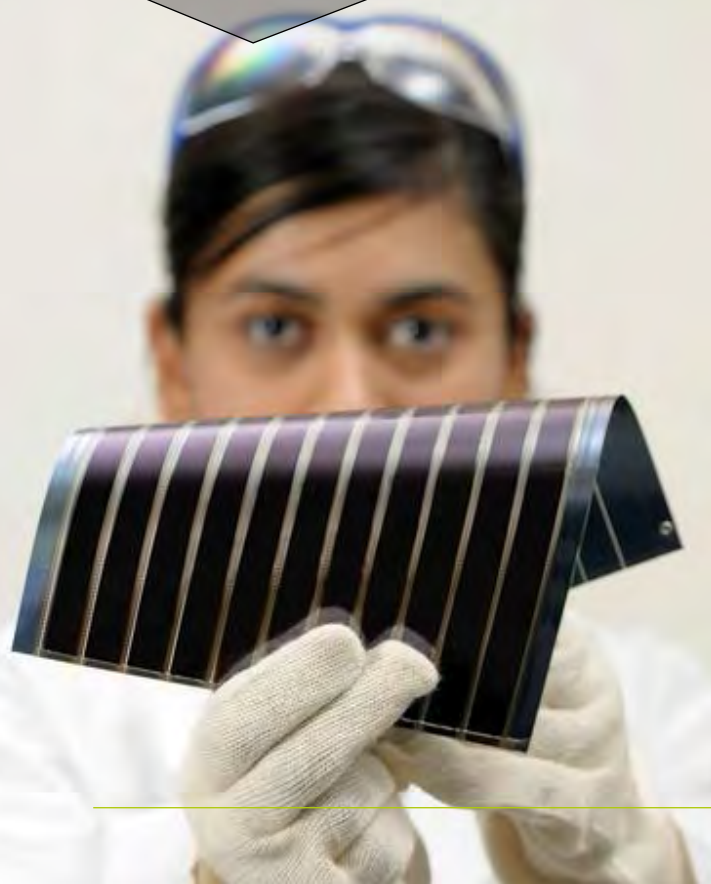
Robust. Tough enough to withstand impact, drop tests and compression making it suitable for everyday usage without fear of breakages.

Thin. Adds minimal thickness to any product application; approximately the thickness of a credit card.

Lightweight. Easier to transport, lower logistical costs and adds minimal weight to any product application.

Versatile. Easily integrated into a wide variety of product applications.

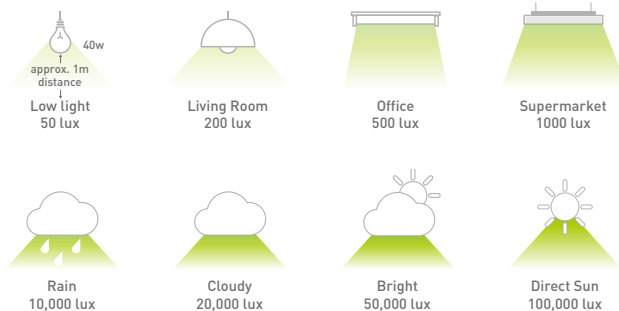
Durable. Excellent vapour barrier properties using a high-performance polymer front sheet barrier film with high light transmission.



Indoor energy

Whether it's a dimly lit living room or brightly lit supermarket – GCell is designed to perform.

GCell has been created to work in a wide range of indoor lighting conditions from dimly-lit living rooms through to brightly-lit supermarkets. GCell can also harvest energy from sunlight* although it has not been specifically attuned for these light levels.

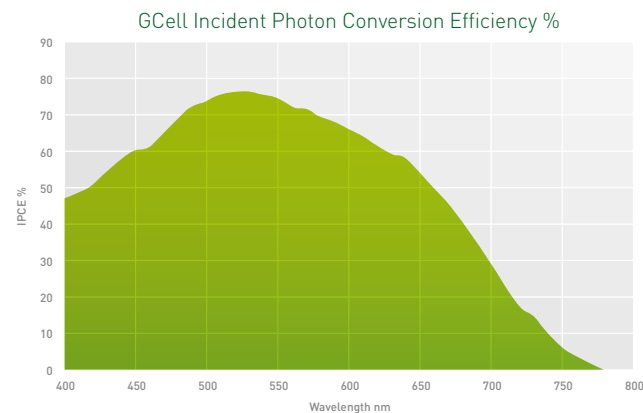


*For details on GCell for outdoor use please contact a member of the Business Development team:
Power@GCell.com

GCell spectral response - attuned for indoor use

GCell has been attuned to indoor lighting conditions to provide improved power density. The spectral response of GCell is similar to that of the human eye; infrared and ultraviolet offer little benefit to its energy harvesting capabilities.

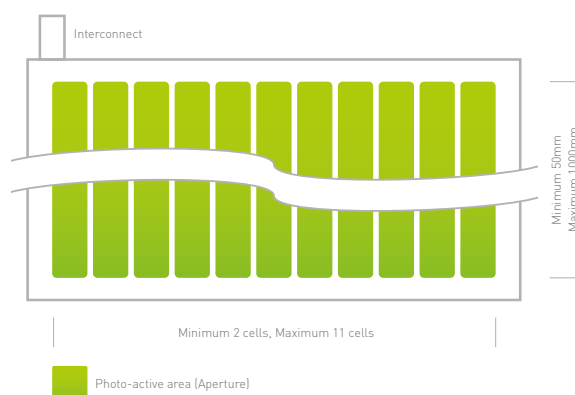
The absorption spectra of GCell is 390-700 nm. The peak absorbance is between 500-550 nm. The simple rule for GCell is, if the light is visible then its energy can be harvested.



Customisable energy



GCell's flexible energy also comes in flexible sizes.



Our unique manufacturing process means GCell can be modified to suit your needs.

It is available in custom lengths and sizes for high volume OEM integration – from a minimum length of 50mm to a maximum of 1000mm and a minimum width of 2 cells to a maximum of 11 cells. To discuss your OEM requirements please contact a member of the Business Development team at Power@GCell.com

Electrical Performance

GCell has been attuned to indoor lighting conditions to provide improved power density. We use the term power density instead of the term efficiency because it is a more tangible performance measurement of GCell when used indoors.

Our calculation method uses power output (e.g. microwatts) for a given area (e.g. per cm²) at a luminance level (e.g. 200lux). Depending on the chemical formulation, materials used and customer requirements GCell's power density at 200lux ranges from 4 – 7μW/cm².

For datasheets and further information on the electrical performance of GCell please contact the Business Development team at Power@GCell.com

Dimensions	Min	Max
Length (mm)	50	1000
Cells (12mm ea)	2	11

Illuminance range	Min	Max
Attuned range (Lux)	50	2,000
Working range (Lux)	50	100,000*

*Solar simulator – 100,000Lux = 1000 Wm⁻²

Temperature range	Min	Max
Operating temperature (°C)	10	50
Storage temperature (°C)	-10	55

Spectral response	Min	Max
Attuned range (nm)	390	700
Peak absorbance (nm)	500	550

Weight	Grammes
Per cm ²	0.059

Lifetime	Years
Attuned range	3*

*Exposure to a higher illuminance may reduce product life

Versatile energy



GCell. The
applications
are limitless.

GCell's technology pushes the boundaries of energy harvesting – which means that we can also push the boundaries of its application.

GCell can be used in a wide variety of situations and scenarios including Bluetooth® keyboards and eReaders in the consumer electronics environment, washroom fragrance dispensers, smoke alarms in the sensors market, smart cards and electronic price labels in the retail sector.

These are just a few examples of GCell's applications – to discuss your product email Power@GCell.com

Consumer electronics



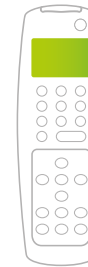
Smart watch



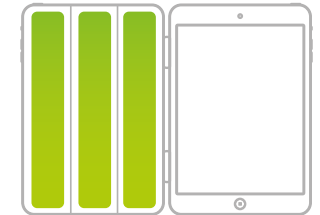
eReader



Bluetooth keyboard



Remote control



Tablet accessories

Sensors & Actuators



Washroom fragrance dispenser



Smoke alarm



Blinds & shades



Wireless sensors



Real-time location sensors

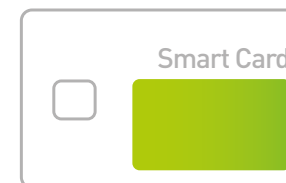
Retail



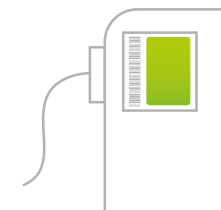
Electronic price labels



Point of purchase



Smart cards



Radio frequency identification

Sustainable energy

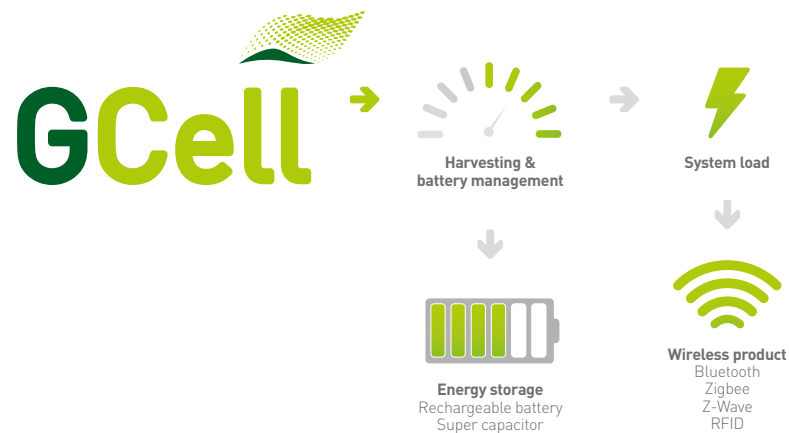
eleven

Powered by
GCell

GCell harvests the energy in light to power a wide range of indoor applications.

GCell plays a critical role in the energy harvesting concept by scavenging energy from ambient light sources, both natural and artificial, for immediate use or energy storage.

For details on indoor energy harvesting, energy storage considerations and our energy harvesting reference design, please visit www.GCell.com



About G24 Power.

G24 Power is recognised as the world leader in the design and manufacture of Dye-sensitized Solar Cells.

The company takes its name from the concept of being able to use any light source, natural or artificial ambient light, and converting it into electrical energy. G24 Power – green 24-hour power.

Our GCell product uses nanotechnology to deliver a huge step forward in the world's ability to harness visible light into electrical energy. The patented cells are thin, flexible and lightweight which means that they can be used to power a wide variety of devices.

Market leadership

We have successfully taken Professor Michael Graetzel's invention from the laboratory and created the world's first large-scale mass production facility for DSSC.

The market is now realising the benefits of GCell from G24 Power by providing a clean interface between the wireless electronic product and its power requirements.

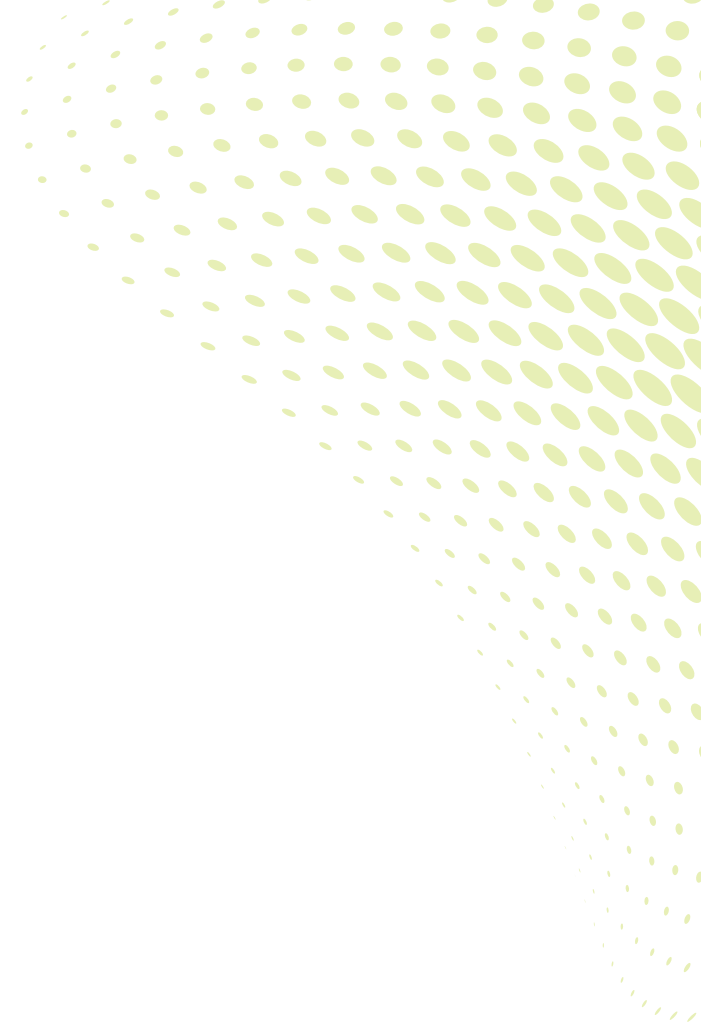


World class manufacturing

Our head office is located in Newport, South Wales, UK where our 89,000 sq. metre factory utilises a roll-to-roll manufacturing process giving us the capacity to produce more than 500,000 metres of large GCell modules per year. We are supported by our R&D laboratory in Lausanne, Switzerland plus our product development and integration team in Dongguan, China.

Partnering with OEMs

G24 Power partners with global OEM leaders to bring innovative, ecological, 'must have' wireless products to market and to serve the growing demand for portable consumer electronics, wireless sensors and actuators, retail displays, plus other indoor electronic and battery powered devices.



Notes



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