What's GaN and why do you need it?

Gallium nitride, or GaN, is a material that's starting to be used for semiconductors in chargers. It was used to make LEDs starting in the '90s, and it's also a popular material for solar cell arrays on satellites. The main thing about GaN when it comes to chargers is that it produces less heat. Less heat means components can be closer together, so a charger can be smaller than ever before—while maintaining all the power capabilities and safety standards.

What's a charger really do?

We're glad you asked.

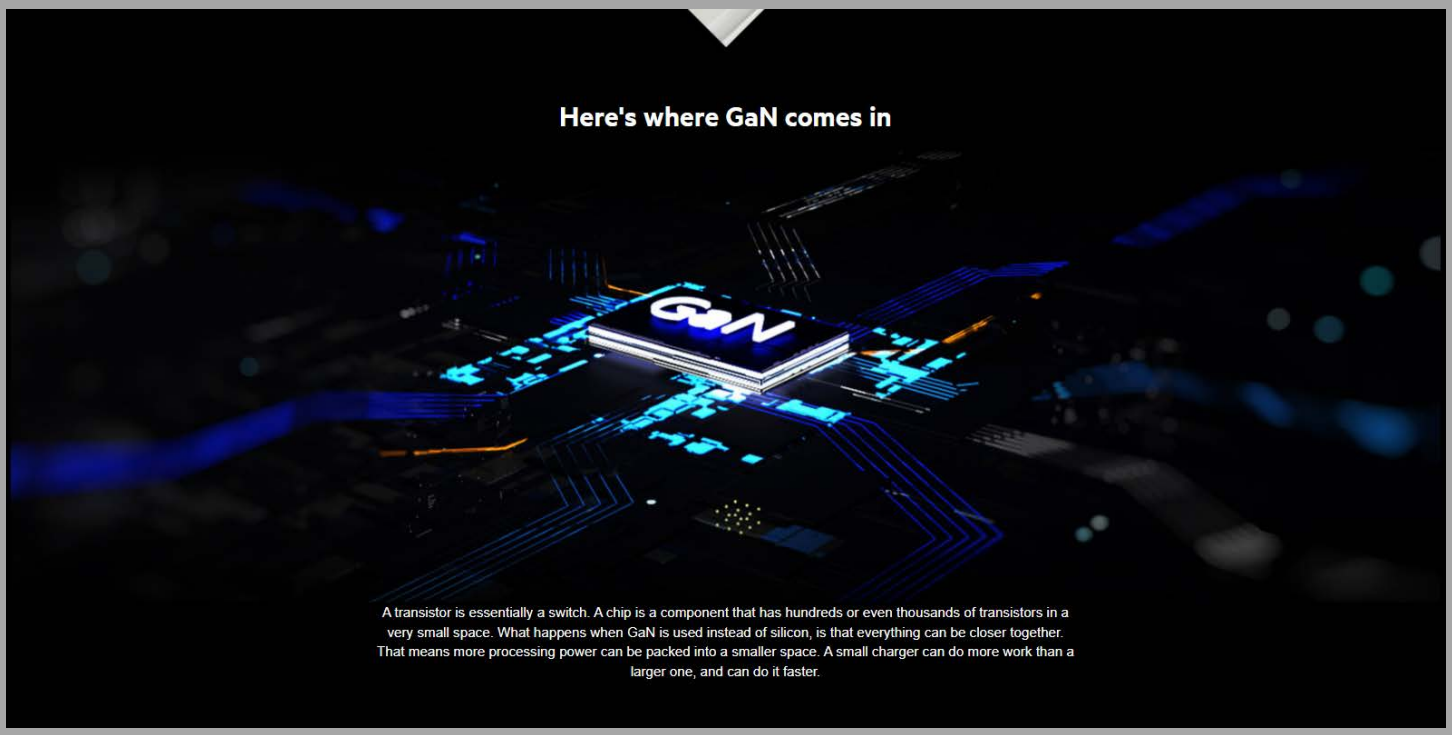
Before we look at GaN on the inside of a charger, let's take a look at what a charger does. Each of our smartphones, tablets, and laptops has a battery. When a battery is transferring power to our devices, what's happening is actually a chemical reaction. A charger takes an electrical current to reverse that chemical reaction. In the early days, chargers just sent juice to a battery constantly, which could lead to overcharging and damage. Modern chargers include monitoring systems that lower the current as a battery fills up, which minimizes the possibility of overcharging.

The heat is on: GaN replaces silicon

Since the '80s, silicon has been the go-to material for transistors. Silicon conducts electricity better than previously used materials—such as vacuum tubes—and keeps costs down, as it's not too expensive to produce. Over the decades, improvements to technology led to the high performance we're accustomed to today. Advancement can only go so far, and silicon transistors may be close to as good as they are going to get. The properties of silicon material itself as far as heat and electrical transfer mean the components can't get any smaller.

GaN is different. It's a crystal-like material that's capable of conducting far higher voltages. Electrical current can pass through components made from GaN faster than silicon, which leads to even faster processing. GaN is more efficient, so there's less heat.

Here's where GaN comes in

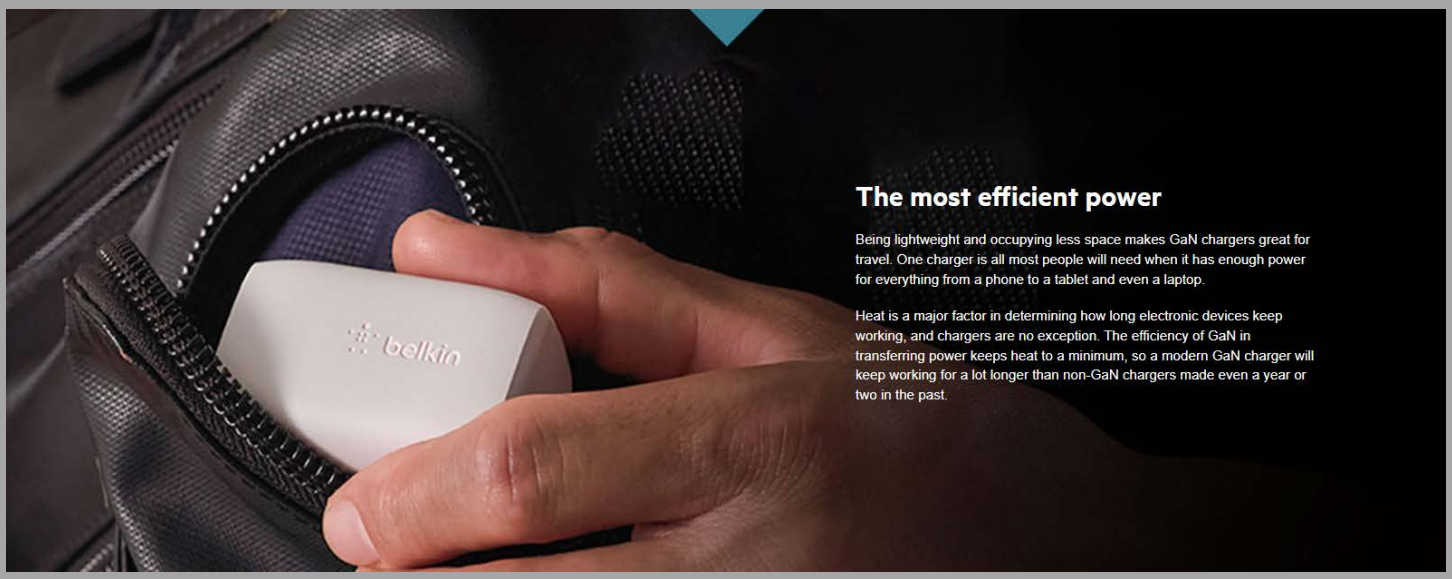


A transistor is essentially a switch. A chip is a component that has hundreds or even thousands of transistors in a very small space. What happens when GaN is used instead of silicon, is that everything can be closer together. That means more processing power can be packed into a smaller space. A small charger can do more work than a larger one, and can do it faster.

Why GaN is the future of charging

Most of us have a few electronic devices that need charging. With a charger that uses GaN technology, we get a whole lot more bang for our buck—both now and in the future.

Since the overall design is smaller, most GaN chargers incorporate USB-C Power Delivery. This offers fast charging for compatible devices. Most current smartphones allow fast charging of some kind and even more devices will have this option in the future.



The most efficient power

Being lightweight and occupying less space makes GaN chargers great for travel. One charger is all most people will need when it has enough power for everything from a phone to a tablet and even a laptop.

Heat is a major factor in determining how long electronic devices keep working, and chargers are no exception. The efficiency of GaN in transferring power keeps heat to a minimum, so a modern GaN charger will keep working for a lot longer than non-GaN chargers made even a year or two in the past.

Belkin innovation meets GaN technology

Belkin was one of the first companies to design chargers for mobile devices and has been a trusted name since those earliest days. GaN technology is only part of the story. We work closely with industry leaders to develop products that are powerful, faster, and safer for each device you'll be connecting.

The world-class research and development we're known for extends to our family of GaN chargers. In-house mechanical work, innovative electrical designs, and partnerships with leading chipset manufacturers deliver the best products and user experience possible.

Small meets power

Our 60W GaN charger is an excellent example of the next-generation solutions that Belkin creates. It's the smallest 60W GaN charger on the market,* and brings the convenience of fast, powerful, and safe charging into an ultra-compact design. Ideal for travel, home or office, you'll be able to charge your laptop, tablet, smartphone, or other USB-C devices, with a single powerful charger. Using innovative GaN technology, this charger provides up to 60W of power for any compatible device. Built-in protection keeps your devices safe from overcurrent and overvoltage damage. USB-C Power Delivery certification ensures fast and reliable performance with your devices.

Engineered for safety, efficiency, and durability, Belkin chargers are accredited or approved for compatibility by companies such as Apple, Google, and the USB-Implementers Forum (aka USB-IF).

*Measured against top competitors in the U.S. marketplace as of Feb. 4, 2020.

Featured Products

BOOST↑CHARGE™ Dual USB-C PD GaN Wall Charger 68W

$54.99

BOOST↑CHARGE™ Dual USB-C GaN Wall Charger 68W + USB-C Cable

$64.99

BOOST↑CHARGE™ 30W USB-C PD GaN Wall Charger

~~$29.99~~ $25.49

BOOST↑CHARGE™ 30W USB-C GaN Wall Charger + USB-C Cable

$44.99

BOOST↑CHARGE™ PRO USB-C PD GaN Wall Charger - 60W

$49.99

BOOST↑CHARGE™ PRO 20W USB-C PD GaN Wall Charger

$24.99

BOOST↑CHARGE™ PRO 20W USB-C PD GaN Wall Charger + USB-C Cable

$34.99

BOOST↑CHARGE™ PRO 20W USB-C PD GaN Wall Charger + USB-C to Lightning Cable

~~$39.99~~ $27.99