



Navitas

Let's go *GaNFast™*



拯救者
LEGION

GaNFast™

GaN Speed *GaN Efficiency* *GaN Density*

Lenovo Partners with Navitas Again to Deliver the World's First GaNFast™ 90W Fast Charger for E-sports Mobile Phones

New Gallium Nitride (GaN) Technology Delivers Incomparable Speed

Lenovo and Navitas Semiconductor have launched the fastest, most powerful charger for Legion e-sports, using GaNFast™ power ICs, and is supplied ‘in-box’ with every Legion phone. Next-generation gallium nitride (GaN) technology enables the 90W dual USB-C output charger to deliver 40% more power and charge 25% faster than previous best-in-class hardware. The speed of the Legion charger is worthy of the e-sports phone processing power.

Measuring only 66 x 62 x 28 mm (115 cc), the 90W Legion fast charger is a true savior for gamers as it can fast charge a 5,000mAh battery to 100% in only 30 minutes, made possible by gallium nitride (GaNFast) technology. Running twenty times faster than the traditional, slow silicon (Si), it improves the power by three times, thus making the charging speed three times faster, in half the size and weight of the old silicon chargers.



No matter how imaginative you are, you will still be startled by the data. Our charging speed will bring extraordinary experience to users. I'm quite astonished at the revolutionary influence brought by the advanced GaNFast technology of Navitas Semiconductor.

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"We have been discussing about a possibility, and today this possibility has come true. One of the missions of Lenovo is to create the most excellent and most innovative products in the world. It is a great pleasure for us to establish long-term cooperation and explore more new possibilities with Navitas Semiconductor," said Mr. Jin CHEN, General Manager of the Cellphone Business Department of Lenovo China.

"For Navitas Semiconductor, the cooperation with Lenovo is a great milestone because Lenovo is not only a top phone manufacturer but also a top PC device manufacturer. GaNFast power ICs are a single chip integrating GaN field-effect transistor (FET), GaN digital and GaN analog circuits. It rapidly promotes the commercialization of the new generation of high-frequency, high-efficiency and high-power-density power converters. It is a great honor for Navitas Semiconductor to provide GaNFast power ICs for Lenovo, to help Lenovo improve user experience and technological innovation," noted Yingjie (Charles) ZHA, VP & General Manager of Navitas China.



**Make Your Enemies
Think Twice
When You Charge**

Always be battle-ready with a dual battery setup for maximum power and the fastest charging experience ever. Together with a revolutionary dual-liquid, mid-thermal, floating cooling system for better thermal distribution, you can run for longer and cooler even in the heat of battle.

10 -minute
charge for 50%
battery life

30 -minute
charge for full
battery life

Dual-liquid
mid-thermal, floating
cooling system

Dual 2500mAh
batteries

Dual type-C
90W turbo-charging



Moving to 90W, and coming back to the Lenovo charger for the Legion gaming phone, we again see GaN's high-frequency performance. This time, the power is above 75W, so a power factor correction (PFC) stage is needed. The critical conduction mode (CrCM) boost PFC is running up to 200kHz – around 4x faster than with old, slow silicon chips due to the excellent low charge of gallium nitride. The isolating DC-DC stage is a high-frequency QR flyback, running 3x faster than with silicon. In both PFC and DC-DC, this allows the magnetics to shrink and enable the world's smallest 90W 2C charger.

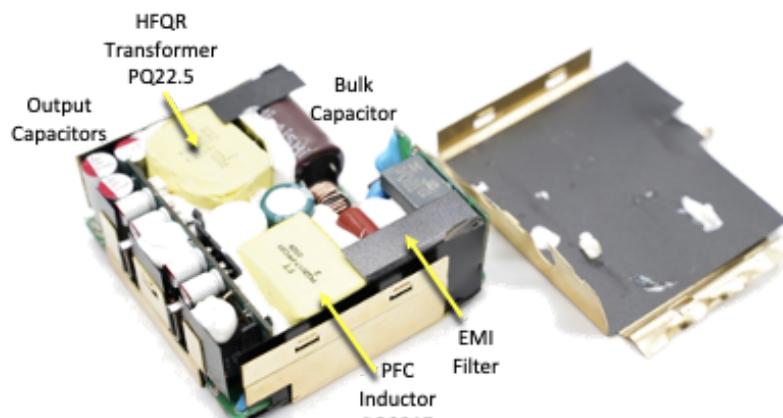
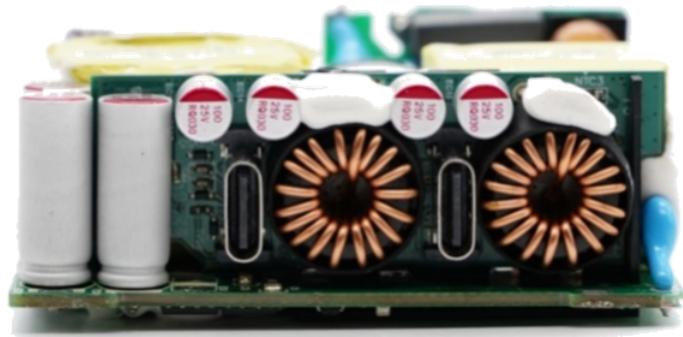


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Lenovo 联想 Legion 9W 2C

High-frequency topology shrinks magnetics, EMI filter and output caps

CrCM Boost PFC (150k-200 kHz) with NV6127 GaNFast™ power IC and NCP1622 controller



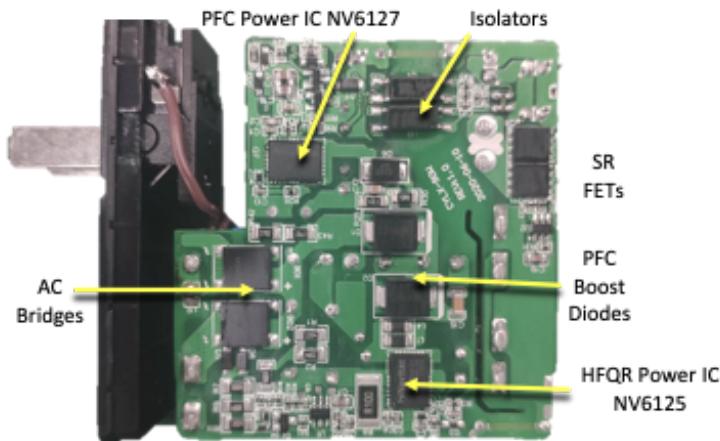
Control ICs NCP1622, NCP1342 on daughtercard

HFQR DC-DC (130-160 kHz) with NV6125 and NCP1342

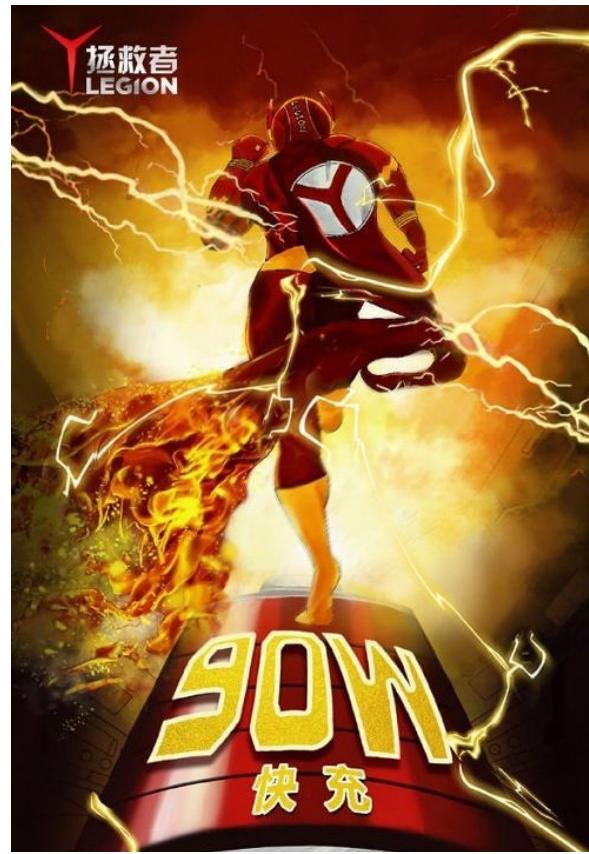
Size: 66 x 63 x 28 mm = 116 cc (cased) = 0.8 W/cc

58 x 59.6 x 22 mm = 76 cc (PCBA) = 1.2 W/cc

Efficiency DoE VI (90W, Dual Output):
91.8% @ full load, 230 V_{AC}, 91.6% @ 130 V_{AC}



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Lenovo and Navitas Reach the Peak of Fast Charger Performance in Style

Lenovo and Navitas partner to introduce the Thinkplus GaN 65W fast charger using GaNFast power ICs.

The tiny (63cc), featherweight (93g) fast charger packs a powerful 65W punch with single USB-C output. The charging circuits use gallium nitride (GaN), a next-generation semiconductor technology that runs up to 20x faster than old, slow silicon (Si), and enables 3x more power, which translates to up to 3x faster charging in half the size & weight.



"The Thinkplus Lipstick 65W GaN fast charger is the ultimate in portability, and GaNFast power ICs enabled us to achieve a 50% reduction in size and weight on our original laptop adapters and 25% reduction vs. the previous best-in-class Lipstick." said William Wang, Lenovo's Director of Marketing. He added "At 65W it's a perfect match for the latest ThinkPad plus it can power any tablet or phone using the powerful and flexible USB Type-C connector. It's perfect for the on-the-go lifestyle - carry only one Lipstick and leave all your other chargers and cables behind."

The Thinkplus GaN 65W fast charger was introduced with the Thinkpad X1 Carbon and Yoga by Wang Zhong, VP Lenovo Group. The charger is now available in mass production. The new Lipstick uses GaNFast power ICs operating 6x faster than traditional silicon components," noted Stephen Oliver, VP Corporate Marketing and Investor Relations, Navitas Semiconductor. Fast charging in a tiny form-factor enabled the Thinkplus industrial design team to create the perfect, stylish travel adapter."

World's smallest 65W

Lenovo
thinkplus Lipstick
GaN 65W Charger

Navitas

Let's go GaNFast™

Another GaNFast charger, the Thinkplus GaN Pro now offers the same 65W power but with the flexibility to charge two devices simultaneously, from the USB-C and USB-A ports in a similar form-factor.

To review and buy Lenovo chargers, visit www.GaNFast.com

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