纳微 Navitas

Let's go GaNFast™

SEMICON® CHINA



GaN Power ICs Drive Fast Charger Innovation and Market Adoption

SEMICON June 29th 2020
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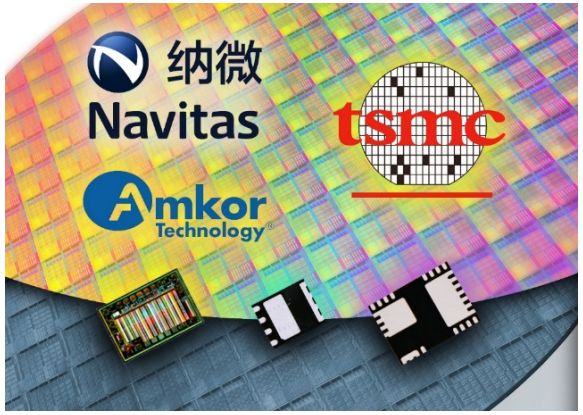
纳微 Navitas Semiconductor Inc.

GaNFast™



- World's first & only GaN power IC company
  - Production released, fast revenue ramp
  - 1M+ shipped (Dec'19), 12-week leadtime, *zero* ppm returns
- Global Expansion
  - HQ: Ireland
  - China: Shenzhen, Shanghai and Hangzhou
  - Other regions: Los Angeles, Taipei, Hsinchu, Manila, Seoul
- Navitas:
  - Latin for *Energy – energy savings, a new energy in power*
  - Founded January 2014, proven management, 80 employees
  - Tier 1 manufacturing partners
  - Strong financial investors ($1B+ managed capital)





More Screen, More Battery…



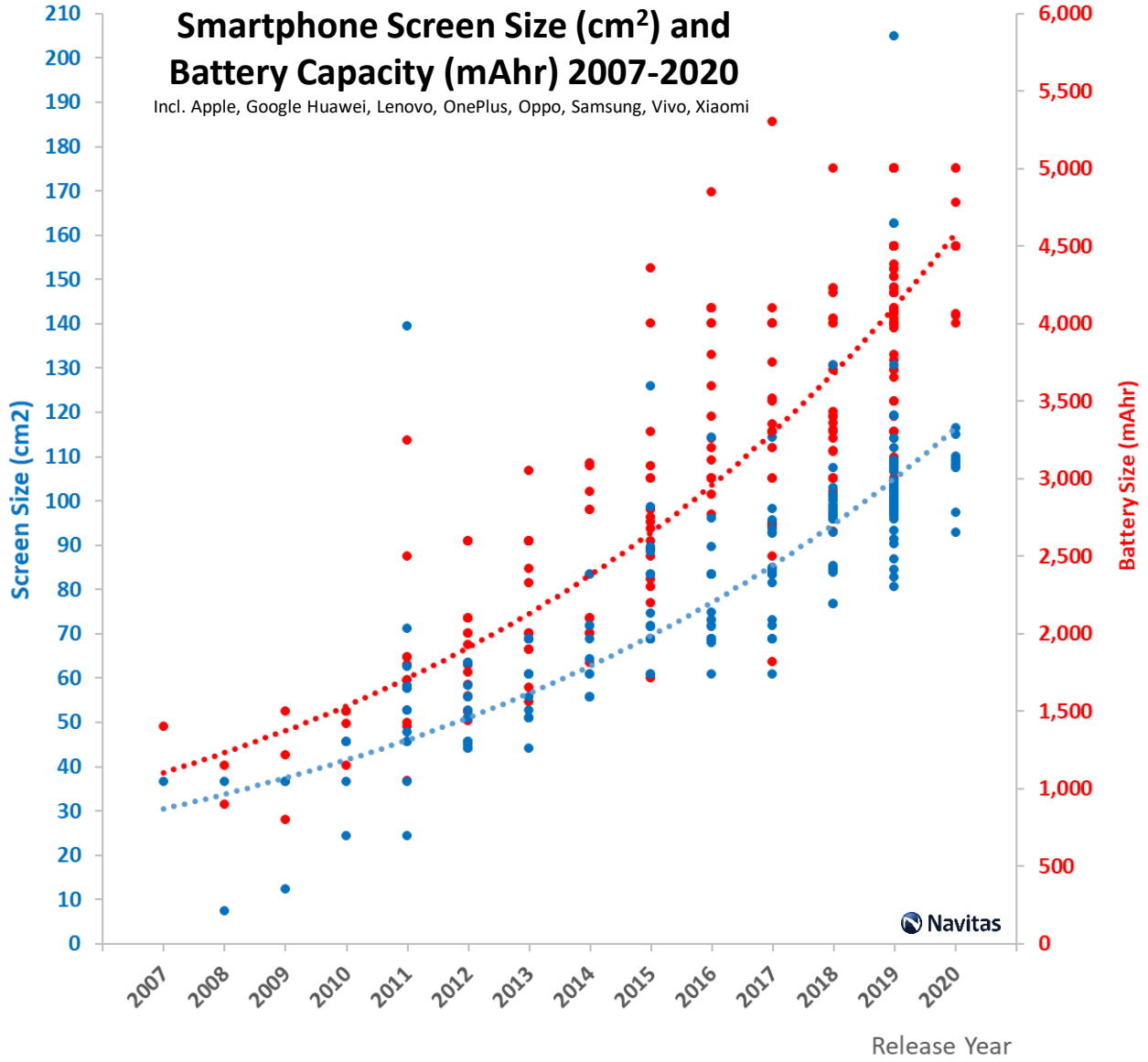
2007
Apple
iPhone 1
36.5 cm^2
1,400 mAhr



2013
Samsung
Galaxy S4
68.9 cm^2
2,600 mAhr



2019
Huawei
Mate X
205 cm^2
4,500 mAhr



Images to scale
Source: gsmarena.com, Navitas

More Battery, More Charge Time

GaNFast™



2007
iPhone 1
1,400 mAhr



2013
Galaxy S4
2,600 mAhr



2019
Mate X
4,500 mAhr



Apple 5W
Cube

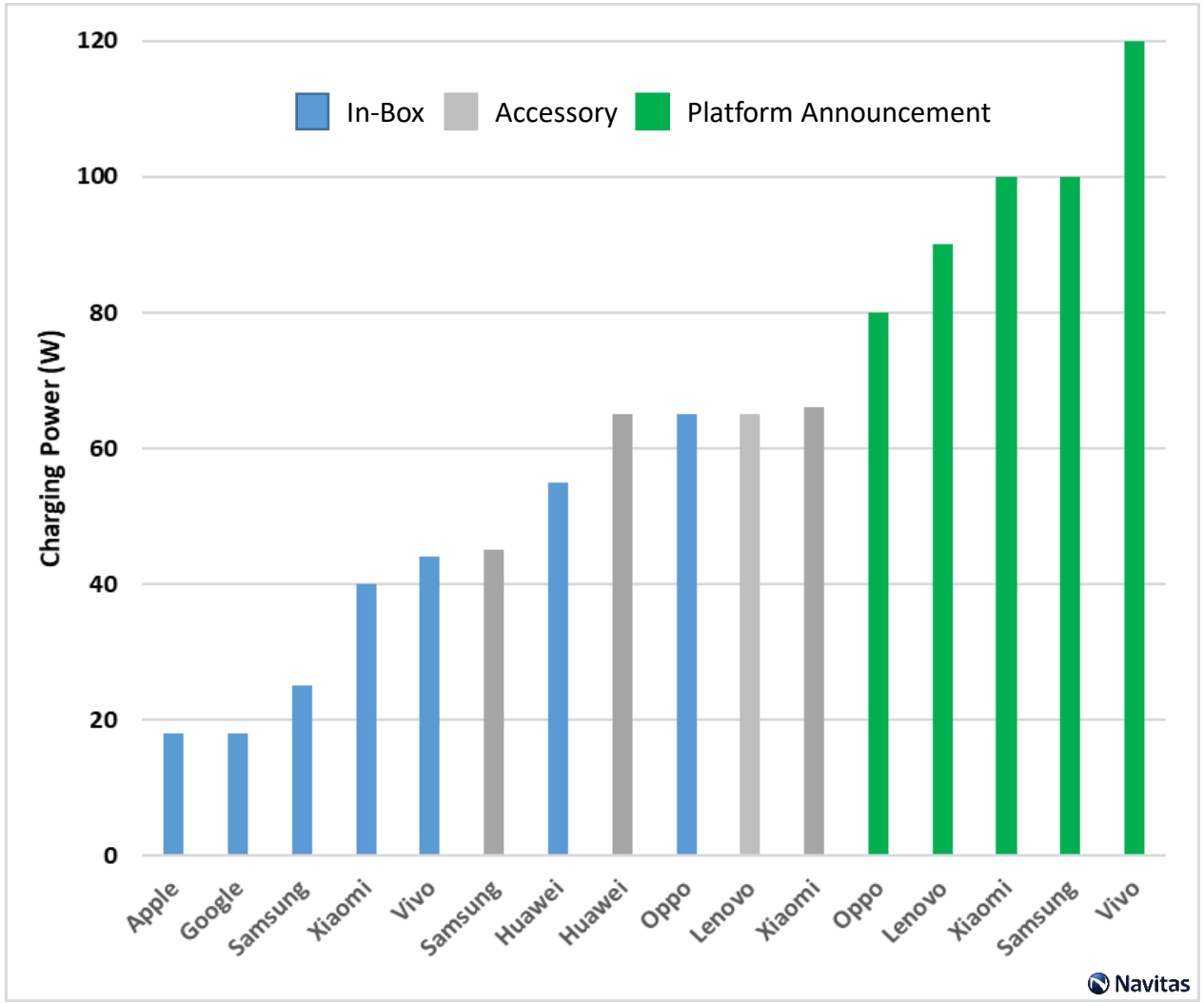
1.7 hrs → **3.1 hrs** → **5.4 hrs**

Source: gsmarena.com, Navitas

More Power, Faster Charge

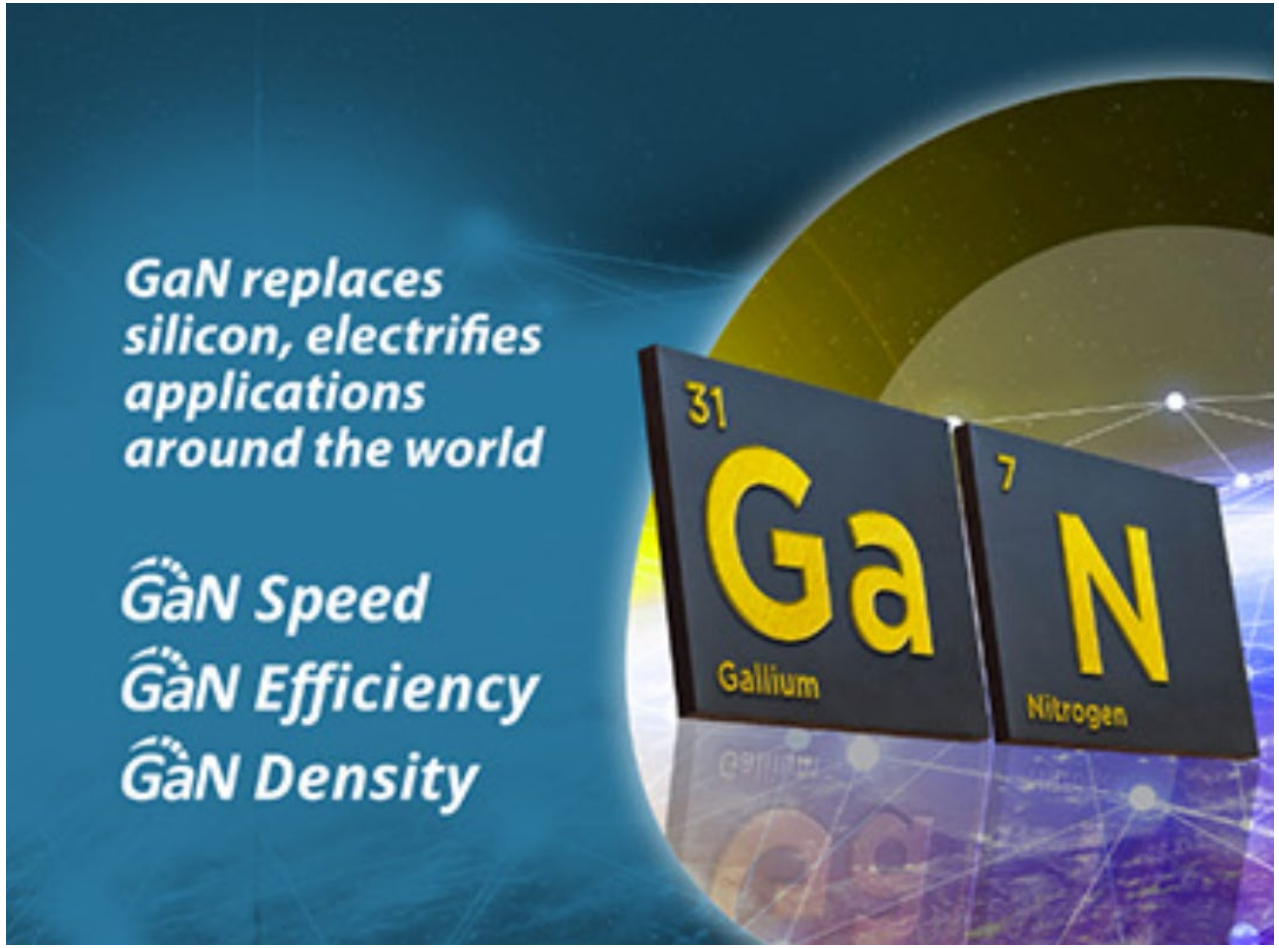


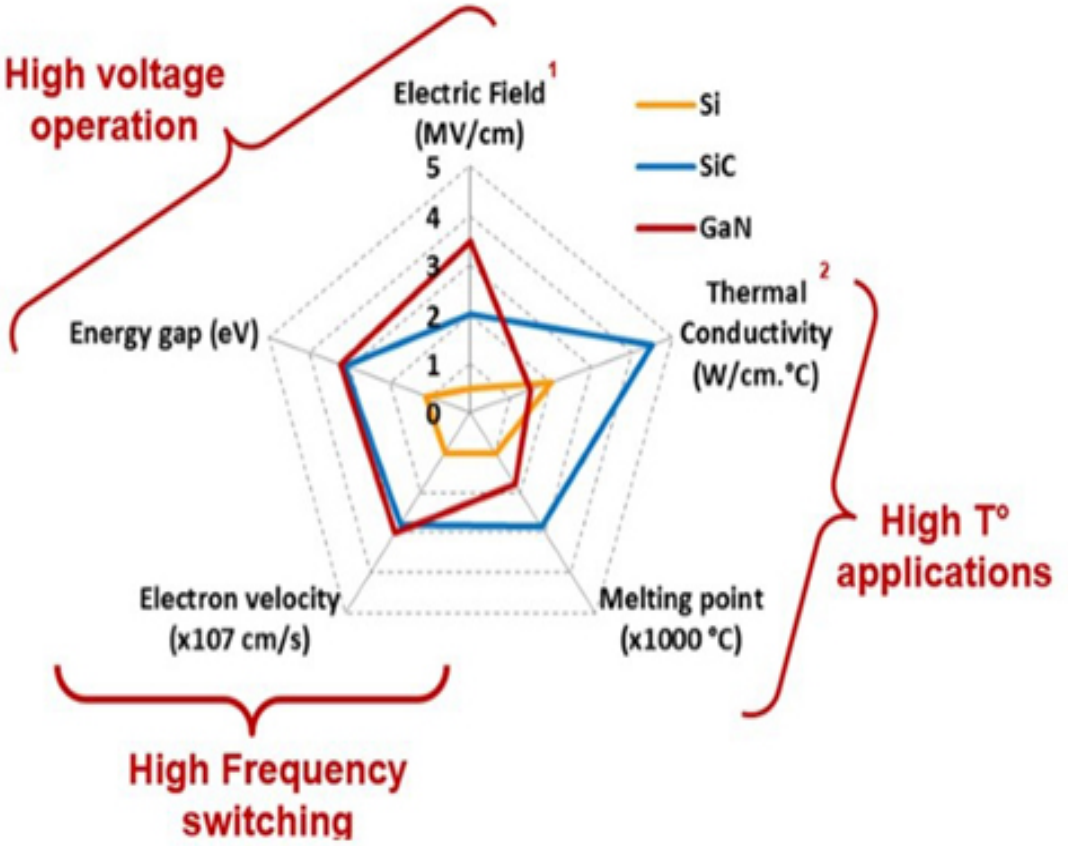
Vivo's Super FlashCharge 120W technology, claims 100% charge of a 4,000 mAhr phone battery in just 13 minutes.



Source: Navitas

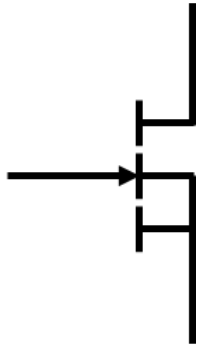
Enabling Technology: GaN





World's First GaNFast™ Power ICs

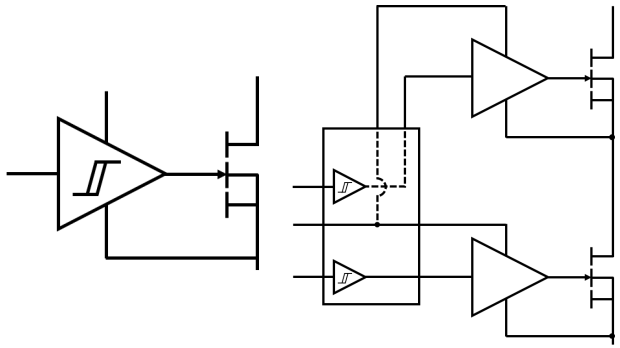
Fastest, most efficient GaN Power FETs



>20x faster than silicon
>5x faster than cascoded GaN
Proprietary design

+

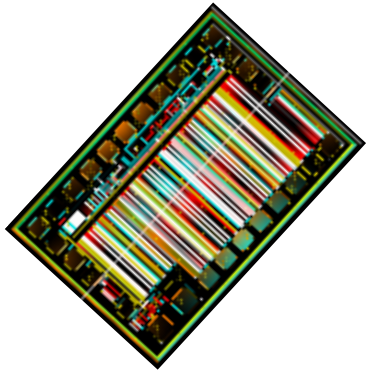
First & Fastest Integrated GaN Gate Drivers



>3x faster than any other gate driver
Proprietary design
75+ patents granted/applied

=

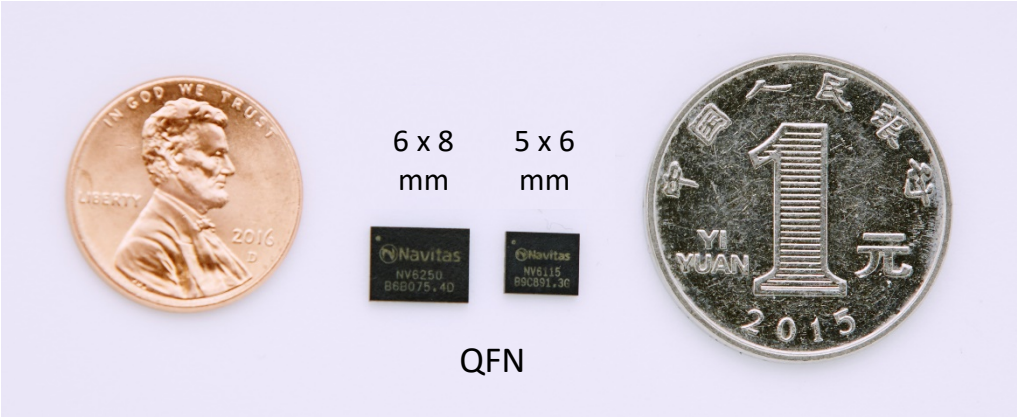
World's First GaNFast™ Power ICs

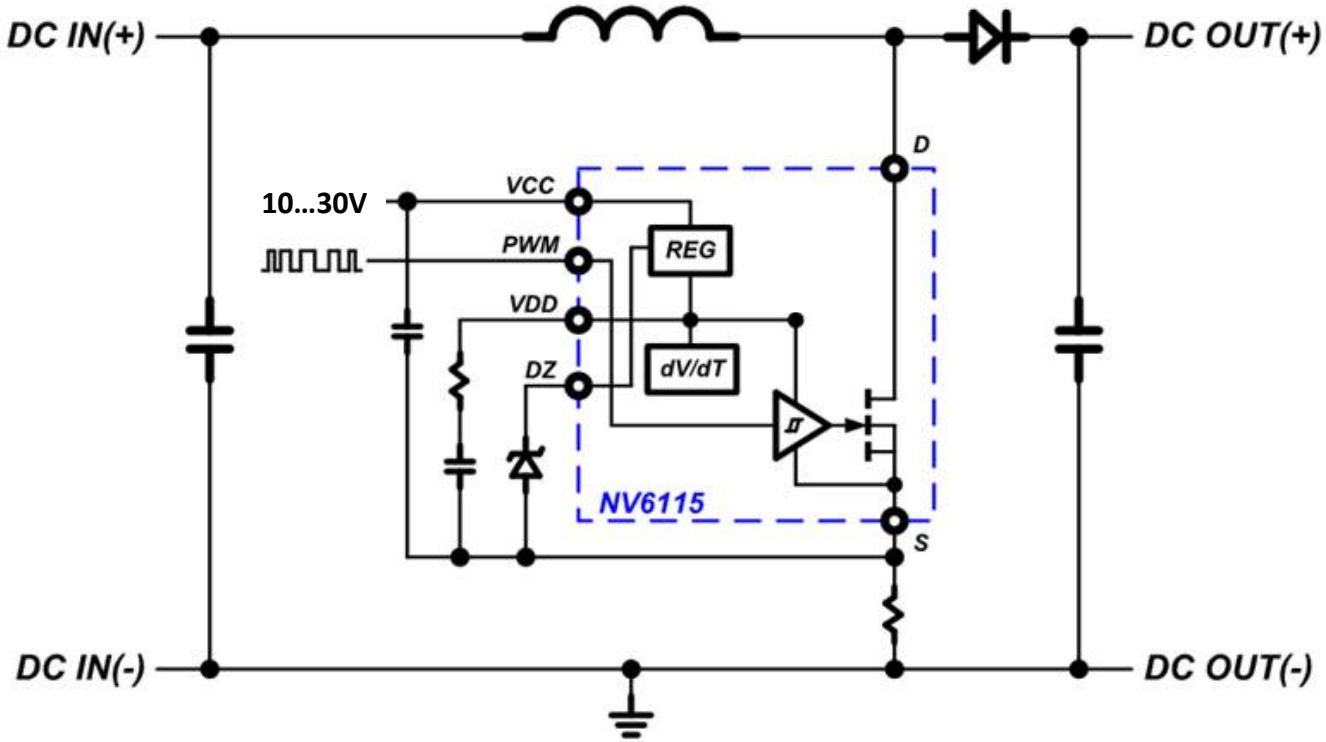


Up to 40 MHz switching, 5x higher density & 20% lower system cost

Single GaNFast Power IC

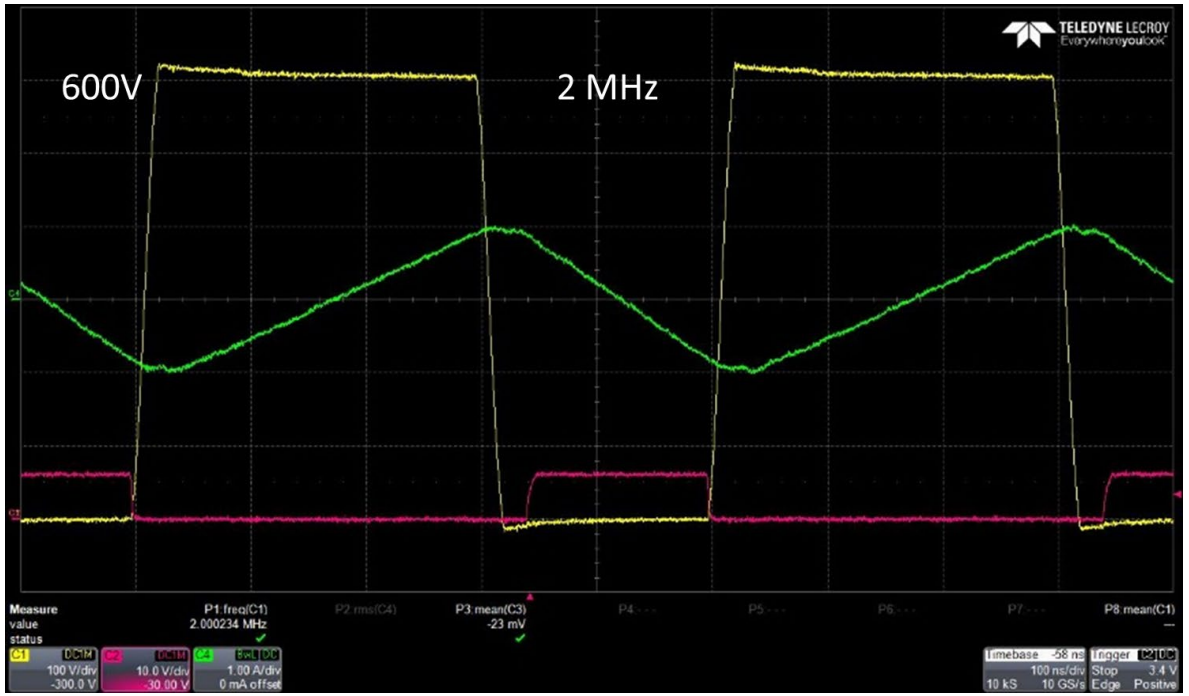
- Monolithic integration, 650V
  - GaN FET
  - GaN Driver
  - GaN Logic
- “Digital In, Power Out”

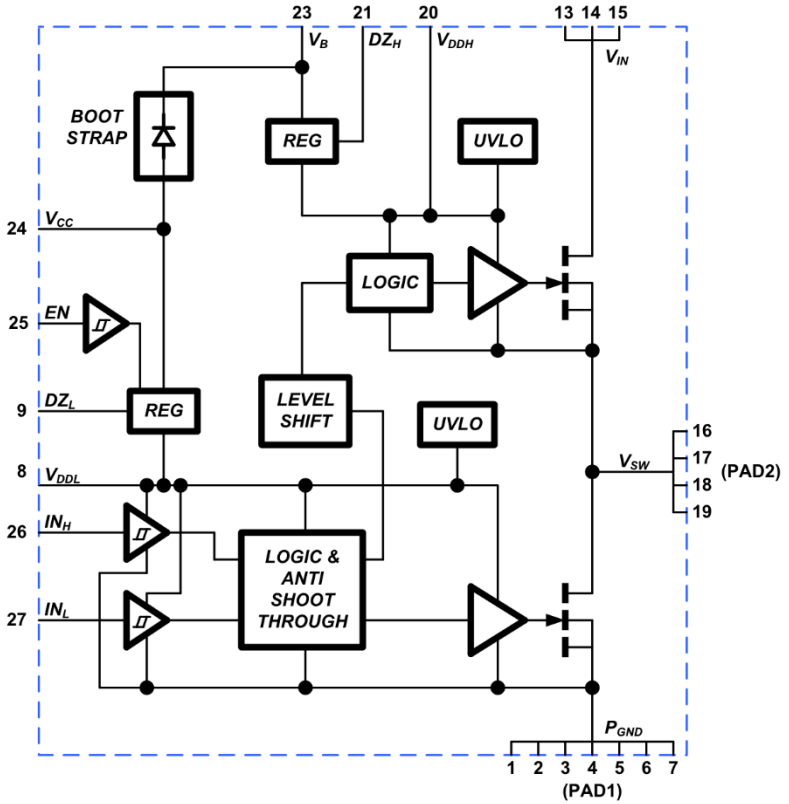


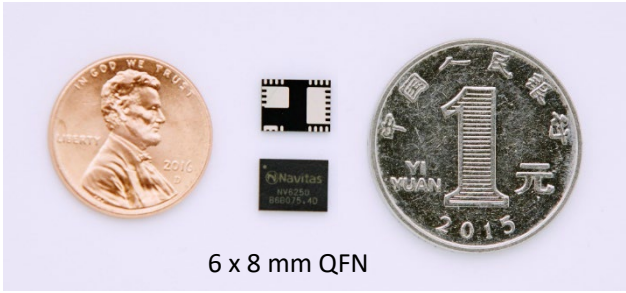


Half-Bridge GaNFast Power IC

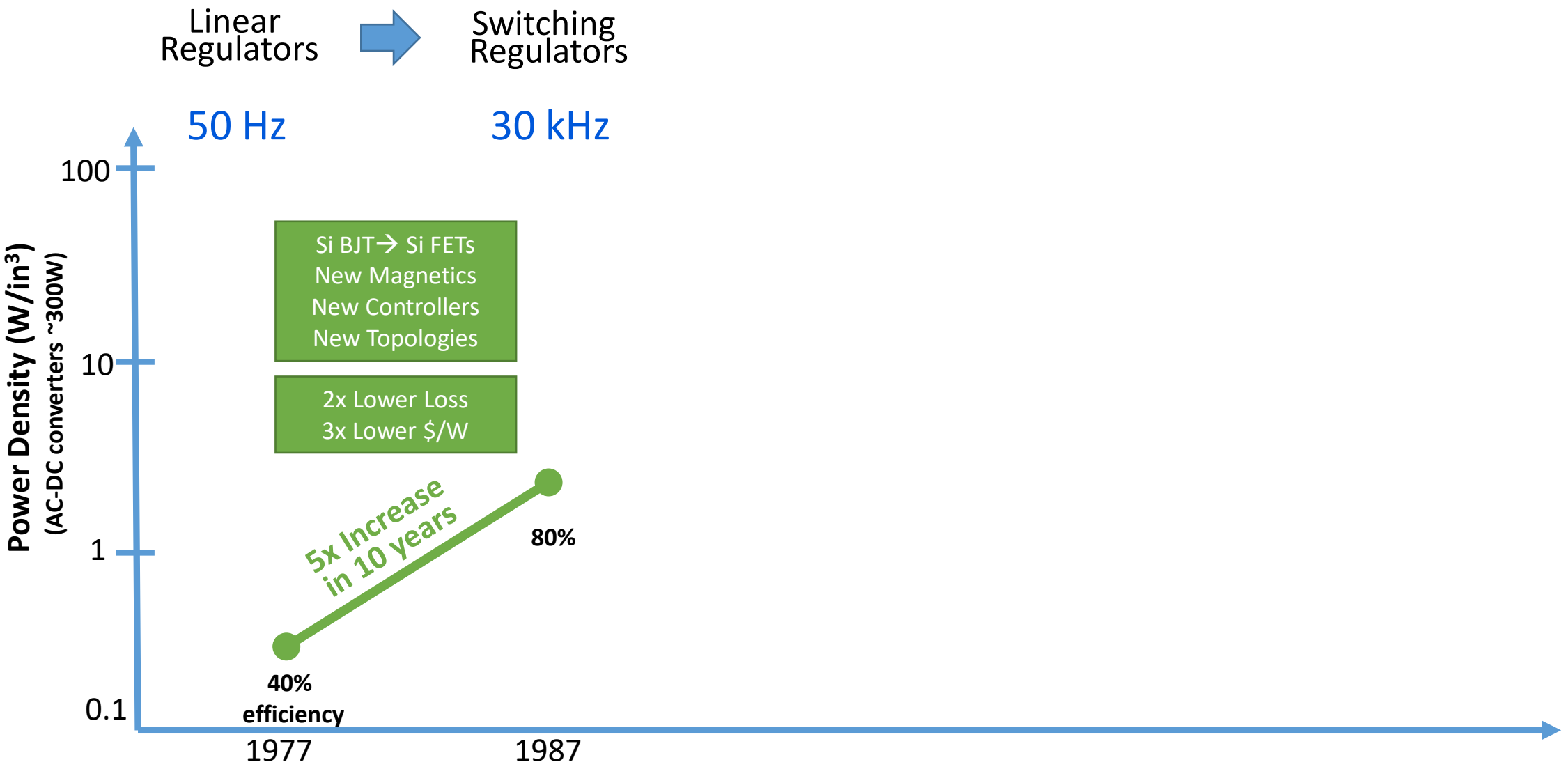
- Monolithic integration, 650V
  - 2x GaN FETs
  - 2x GaN drivers
  - GaN Logic (level-shift, bootstrap, UVLO, shoot-through, ESD)
- “Digital In, Power Out”



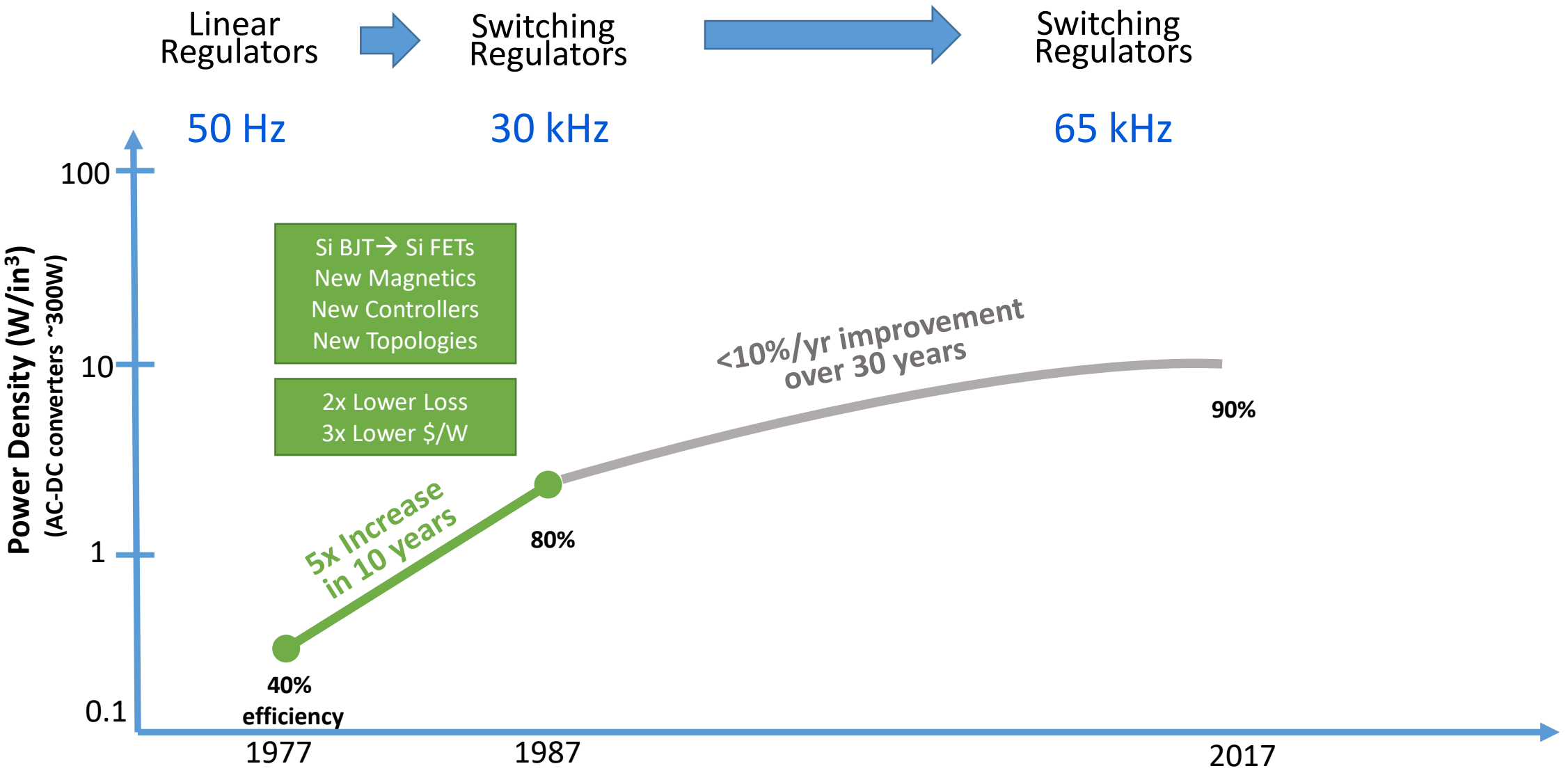




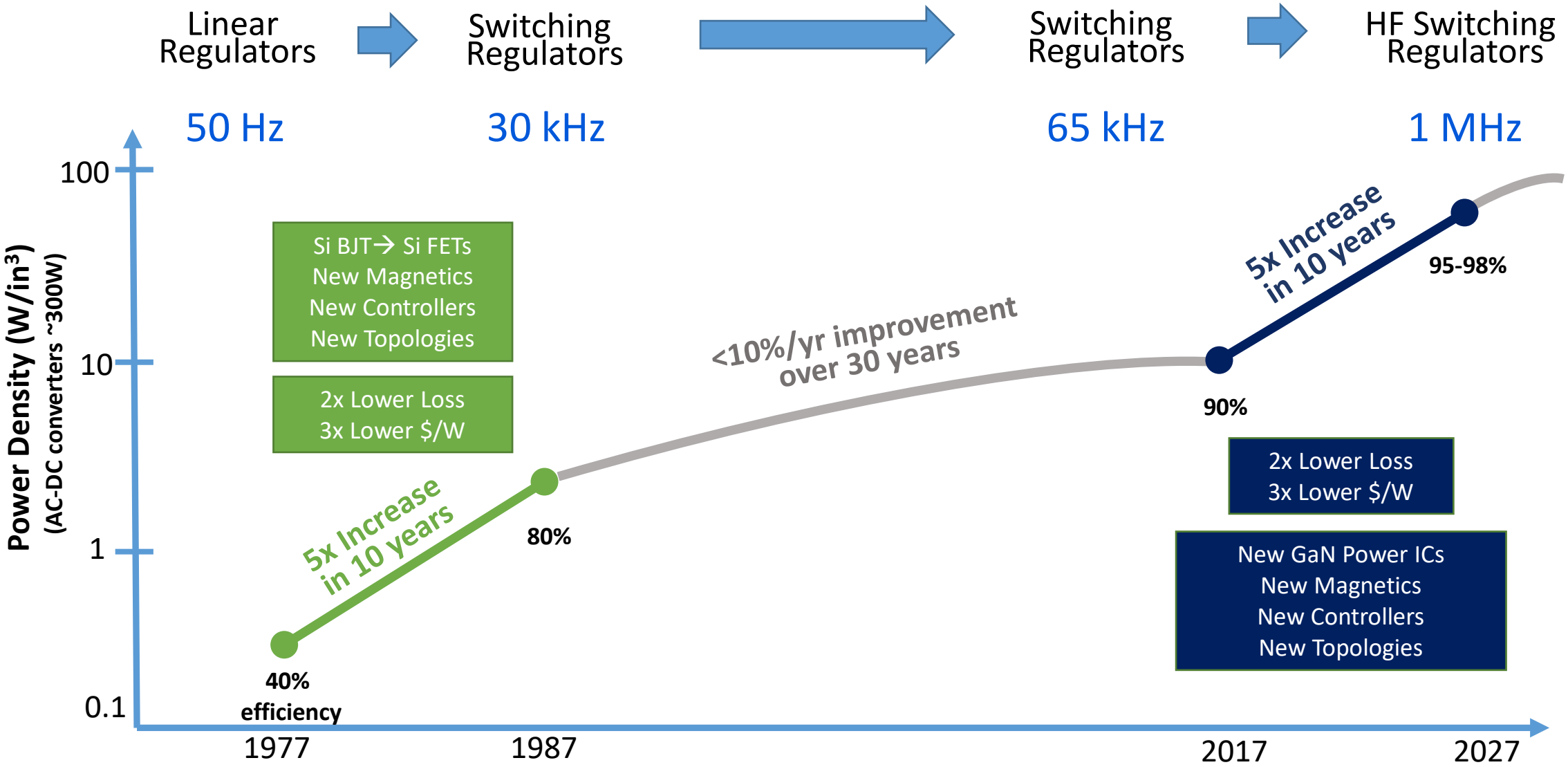
The First Step in Power



The Long Journey

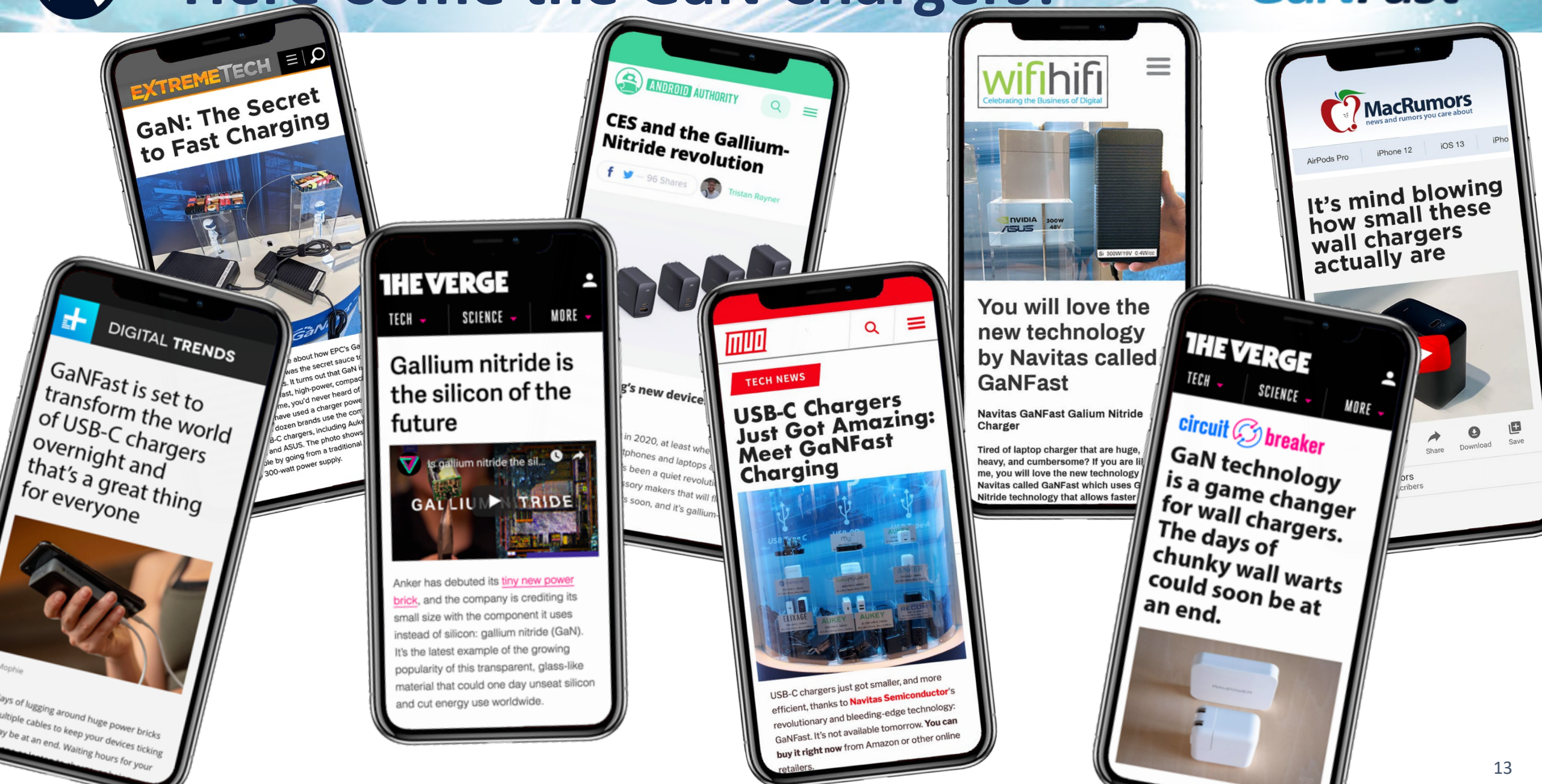


The Next Generation



Here Come the GaN Chargers!

GaNFast™



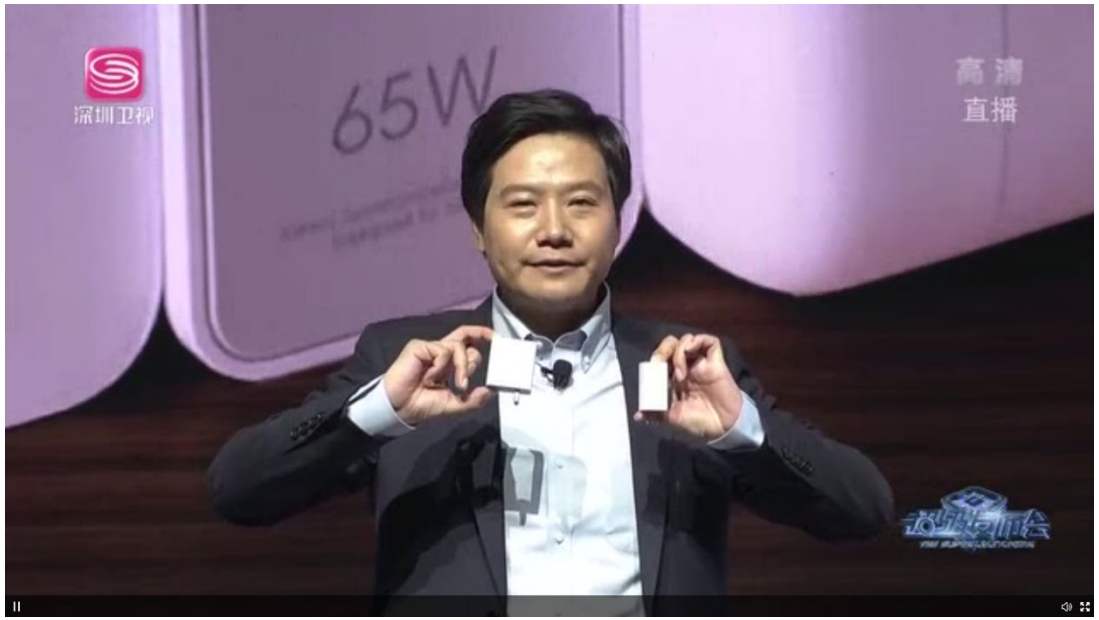
小米 xiaomi.com Goes GaNFast™



65W-1C
53cc



Mi 10, 10 Pro



Xiaomi CEO: "How tiny is this GaN charger?"



Xiaomi CEO: "This GaN charger is extremely small & efficient?"

Lenovo Goes GaNFast™





这一只 更小只

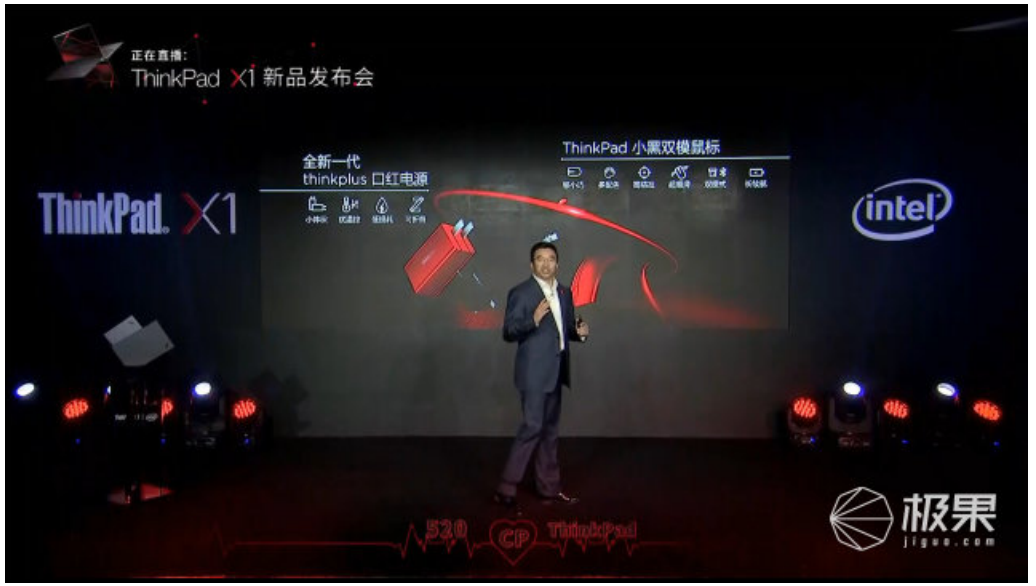
- 新一代口红电源，体积更小巧，带在身上毫无存在感，无论何时出行，只需包中常备这一个。
- 可折叠式插脚设计，2:1宽高比 [1]，不怕划伤其他物品，随身而行，方便省心。

63cc 小巧体积 [1] | 93g 羽量身形 [1]

什么是GaN黑科技

- GaN氮化镓，是一种新型半导体在电源上的创新应用，采用氮化镓技术的口红电源体积更小，转换效率更高，发热更少。

小体积 | 优温控 | 低开关损耗



Wang Zhong, VP Lenovo Group online launch 5-20-20



Baseus倍思 Goes GaNFast™

World's Smallest
3-output 65W
(86 cc)



抖音 Live-stream
Huge Success



World's Smallest
3-output 120W
(154 cc)



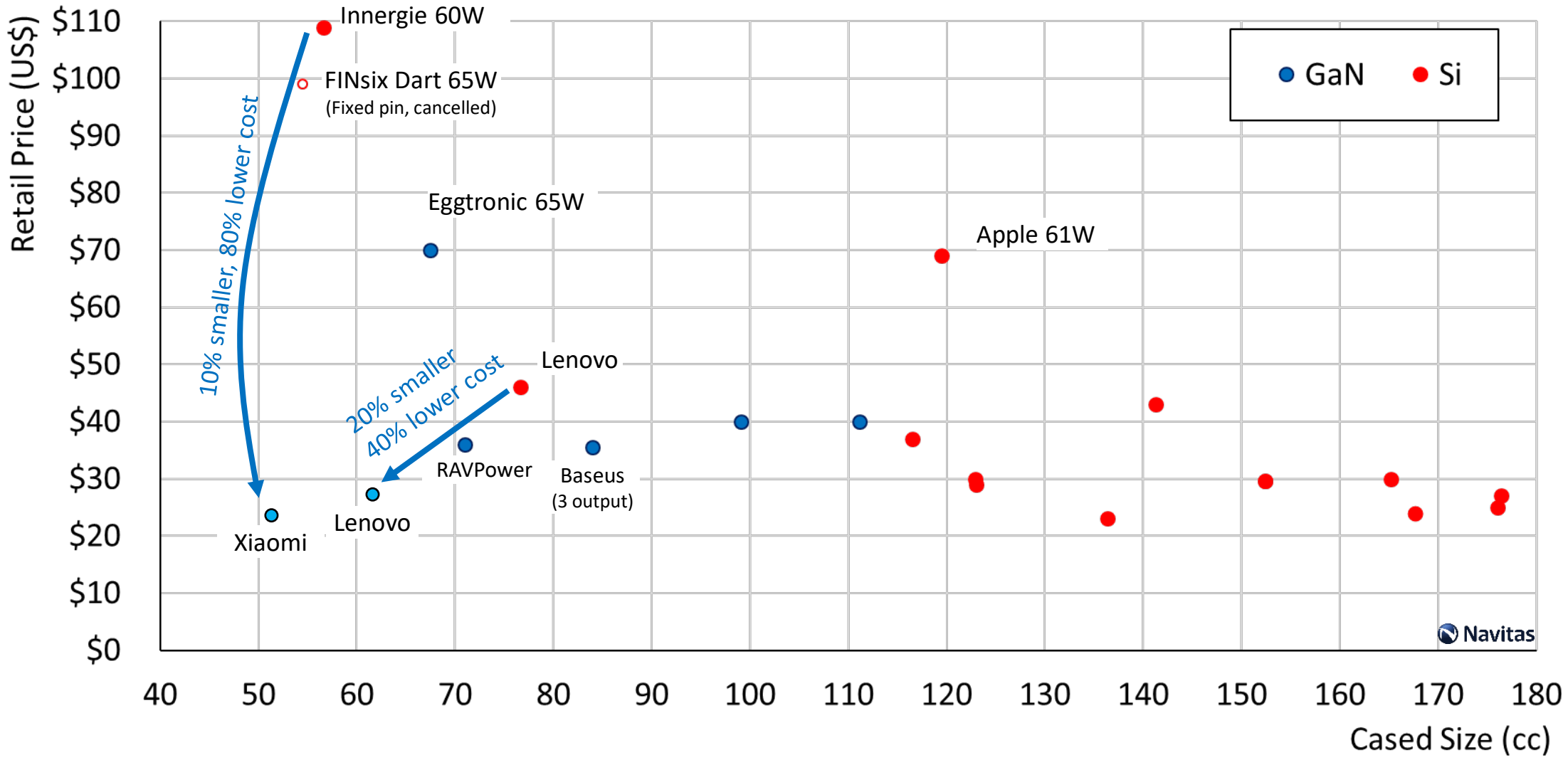
ASUS® NVIDIA® Go GaNFast™

World's Fastest Laptop:
Asus ProArt StudioBook One
NVIDIA Quadro RTXTM 6000

300W in 92 x 92 x 28 mm
= 237 cc
= 1.3 W/cc



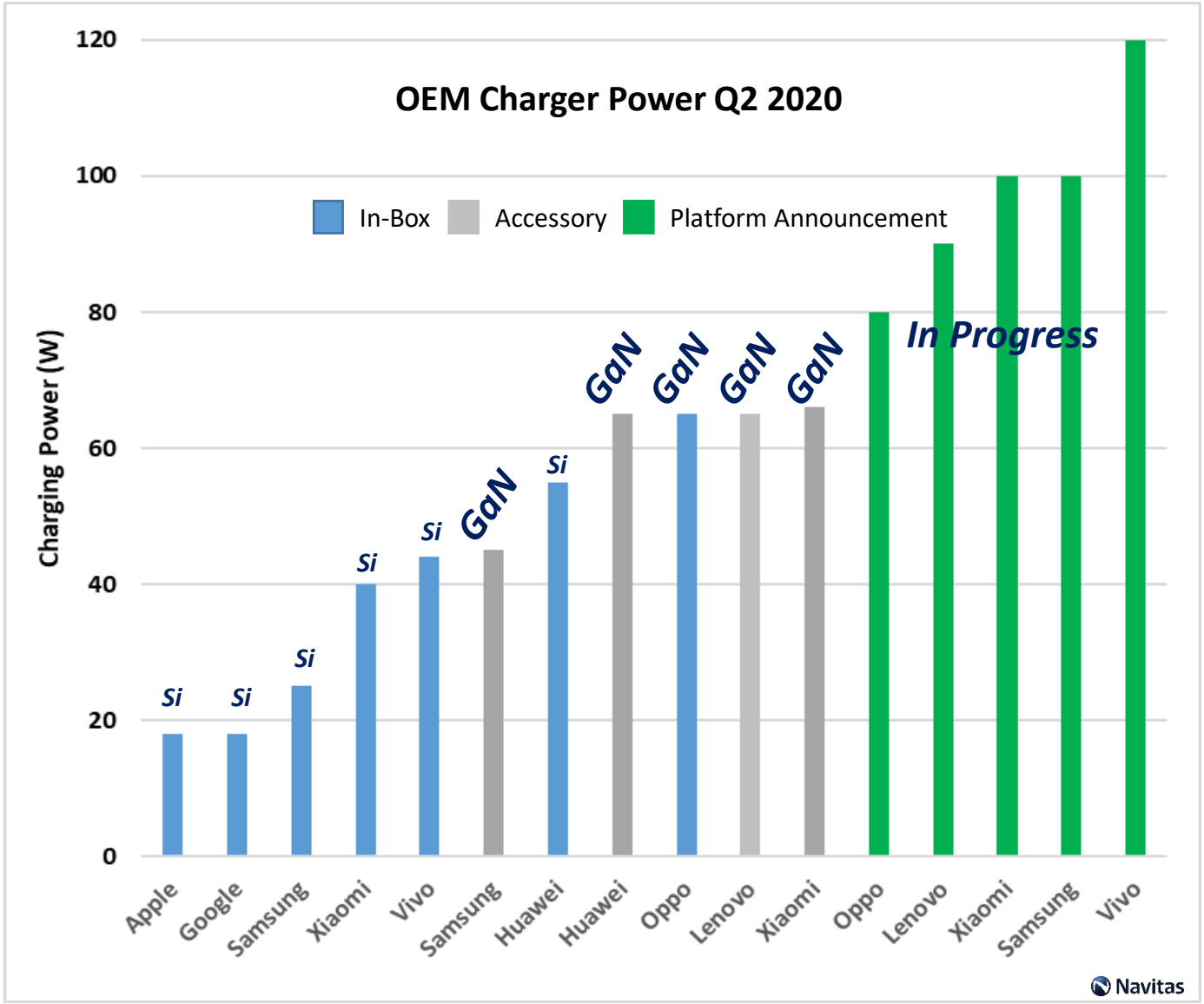
GaN Chargers: Smaller & Lower Cost



More Power, Faster Charge



Vivo's Super FlashCharge 120W technology, claims 100% charge of a 4,000 mAhr phone battery in just 13 minutes.



Source: Navitas

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www.Navitassemi.com



Here come the GaN chargers

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