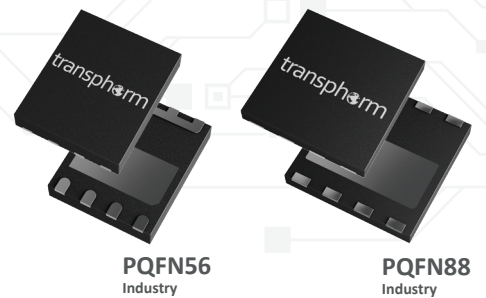
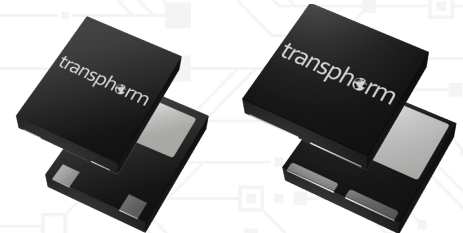
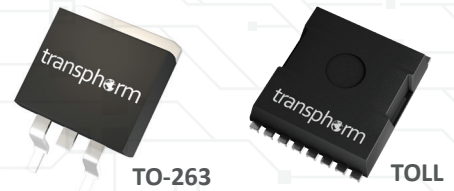
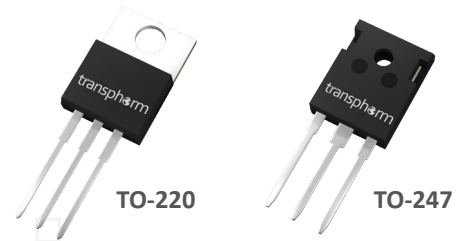


### Devices

| Part Number    | VDS (V)<br>min | Rds(on)<br>(mΩ) typ | Rds(on)<br>(mΩ) max | Id (25°C) (A)<br>max | Package | Package<br>Variation |
|----------------|----------------|---------------------|---------------------|----------------------|---------|----------------------|
| TP65H015G5WS   | 650            | 15                  | 18                  | 95                   | TO-247  | Source               |
| TP65H035G4WS   | 650            | 35                  | 41                  | 46.5                 | TO-247  | Source               |
| TP65H035G4WSQA | 650            | 35                  | 41                  | 46.5                 | TO-247  | Source               |
| TP65H035WS     | 650            | 35                  | 41                  | 46.5                 | TO-247  | Source               |
| TP65H035WSQA   | 650            | 35                  | 41                  | 47                   | TO-247  | Source               |
| TP65H050G4WS   | 650            | 50                  | 60                  | 34                   | TO-247  | Source               |
| TP65H050G4BS   | 650            | 50                  | 60                  | 34                   | TO-263  | Source               |
| TP65H050WSQA   | 650            | 50                  | 60                  | 36                   | TO-247  | Source               |
| TP65H050WS     | 650            | 50                  | 60                  | 36                   | TO-247  | Source               |
| TP65H070LSG    | 650            | 72                  | 85                  | 25                   | PQFN88  | Source               |
| TP65H070LDG    | 650            | 72                  | 85                  | 25                   | PQFN88  | Drain                |
| TP65H150G4PS   | 650            | 150                 | 180                 | 16                   | TO-220  | Source               |
| TP65H150G4LSG  | 650            | 150                 | 180                 | 16                   | PQFN88  | Source               |
| TP65H300G4LSG  | 650            | 240                 | 312                 | 6.5                  | PQFN88  | Source               |
| TP65H480G4JSG  | 650            | 480                 | 560                 | 3.6                  | PQFN56  | Source               |
| TP90H050WS     | 900            | 50                  | 63                  | 34                   | TO-247  | Source               |

### Sampling

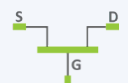
| Part Number    | VDS (V)<br>min | Rds(on)<br>(mΩ) typ | Rds(on)<br>(mΩ) max | Id (25°C) (A)<br>max | Package | Package<br>Variation |
|----------------|----------------|---------------------|---------------------|----------------------|---------|----------------------|
| TP65H035G4QS   | 650            | 35                  | 41                  | 46.5                 | TOLL    | Source               |
| TP65H050G4QS   | 650            | 50                  | 60                  | 34                   | TOLL    | Source               |
| TP65H070G4LSGB | 650            | 72                  | 85                  | 29                   | PQFN88  | Source               |
| TP65H070G4PS   | 650            | 72                  | 85                  | 29                   | TO-220  | Source               |
| TP65H150BG4JSG | 650            | 150                 | 180                 | 16                   | PQFN56  | Source               |
| TP65H150G4LSGB | 650            | 150                 | 180                 | 16                   | PQFN88  | Source               |
| TP65H300G4JSGB | 650            | 240                 | 312                 | 6.5                  | PQFN56  | Source               |
| TP65H300G4LSGB | 650            | 240                 | 312                 | 6.5                  | PQFN88  | Source               |
| TP65H480G4JSGB | 650            | 480                 | 560                 | 3.6                  | PQFN56  | Source               |



## Why Transphorm GaN

### Manufacturability

A vertically integrated supply chain allows for innovation at each critical stage of device development.



HEMT Design



EPI Wafer



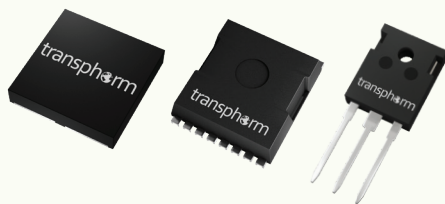
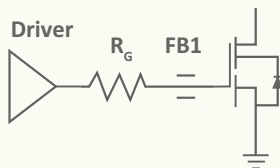
Wafer Process



GaN FET Die

### Drivability

A two-chip normally-off device allows for the use of well-known, off-the-shelf drivers and controllers.

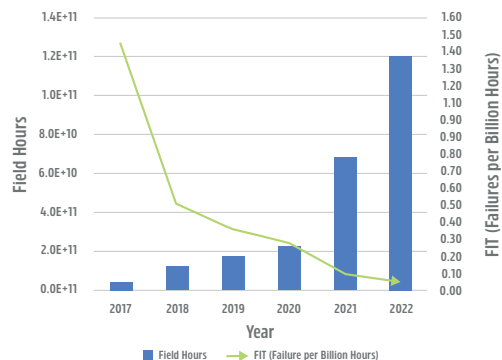


### Designability

Industry Standard packages and Performance packages require minimal peripheral circuitry. Firmware support is accessible worldwide.

### Reliability

Proven to deliver the highest reliability today with a < 0.05 FIT over 100+ billion hours of field operation in low to high power applications.



## Competitive Landscape

HIGH POWER

BROADEST RANGE OF POWER

LOW POWER



### TRANSPHORM GaN

Low thru high power breadth  
Easiest of design and drive  
Compatible with OTS drivers  
e-mode drop-in replacement  
Robust gate  
Two chip solution  
Best thermal solution (TO-xxx)  
Proven/document high rel.  
JEDEC and AEC-Q101 qualified  
650V | 900V | 1200V (R&D)



### SILICON

Easy to drive  
Older technology  
Slower technology  
Higher switching losses  
Lower power density

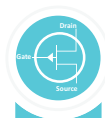


### SILICON CARBIDE

High power applications  
Low power prohibitive  
Higher switching losses  
Higher 3rd quadrant losses  
Requires negative drive  
Requires isolated supplies  
Substrate cost and sourcing challenges (long lead times)

### E-MODE GaN

Single die  
Exposed GaN gate  
dV/dt sensitivity  
PCB layout sensitivity  
Unproven field robustness  
Higher conduction losses (TCR)  
Not available in std. TO-xxx  
Only 650 V for HV



### INTEGRATED CIRCUIT GaN

Drive synchronization issues  
Poor switching control\*  
Lower power density  
Higher conduction losses (TCR)  
High power app. prohibitive  
Unproven field reliability\*\*  
JEDEC qualified only  
Not available in std. TO-xxx  
650V only for HV



\*To provide additional device control, gate driver is sometimes removed making it a discrete solution.

\*\*Currently available reliability statements based on lower power consumer applications for which failures are not typically reported.

