

GPI65030DFN

N-channel 650V 30A GaN Power HEMT in 8X8 DFN package

Datasheet version: 3.0

Features

| BV_{dss} | R_{dson} | I_{ds} | Q_g |
|------------|---------------|----------|--------|
| 700 V | 55 m Ω | 30 A | 5.8 nC |

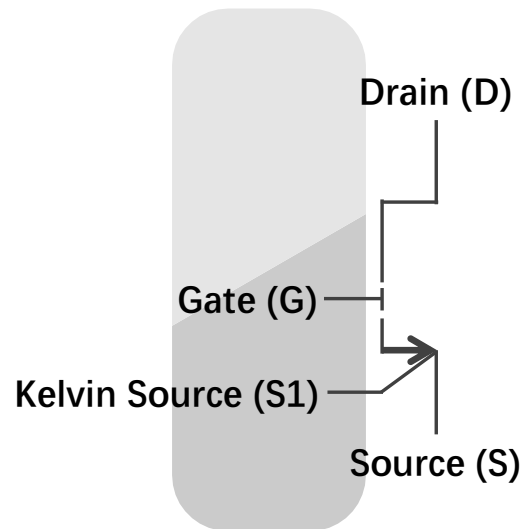
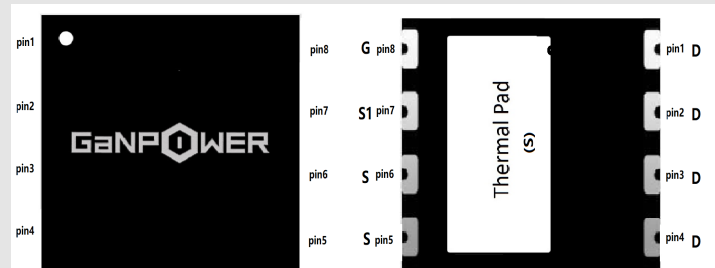
- Ultra-low $R_{DS(on)}$
- High dv/dt capability
- Extremely low input capacitance
- Zero Q_{rr}
- Outstanding switching performance
- Low Profile

Applications

- Switching Power Applications
- Adapters, Quick Chargers

Description

These devices are N-channel 650 V Power GaN HEMTs based on proprietary E-mode GaN on silicon technology. The resulting product has extremely low on state resistance, very low input capacitance and zero reverse recovery charge making it especially suitable for applications which require superior power density, ultra-high switching frequency and outstanding efficiency.





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 230 -3410 LOUGHEED HWY
 VANCOUVER, BC, V5M 2A4 CANADA

Device Characteristics

| Static Parameters | | | | Test data | | | |
|-----------------------|--------------|---|--------------------------------|-----------|---------|-----|------------|
| | Parameters | | Conditions | Min | Typical | Max | Unit |
| 1 | $V_{gs(TH)}$ | Gate threshold voltage | $V_{ds}=V_{gs}$ $I_d=21mA$ | 0.9 | 1.2 | 2.9 | V |
| 2 | BV_{dss} | Drain-Source breakdown voltage | $V_{gs}=0V$ $I_d<50\ \mu A$ | | 700 | | V |
| 3 | I_{dss} | Zero gate voltage drain current, $T_c = 25\ ^\circ C$ | $V_{gs}=0V$ $V_{ds}=650V$ | | 0.13 | 50 | μA |
| 4 | I_{gss} | Gate-Source Leakage | $V_{gs} = 6V$ $V_{ds} = 0V$ | | 0.05 | 3 | mA |
| 5 | R_{dson} | Static drain-source on resistance, $T_c = 25\ ^\circ C$ | $V_{gs}=6V$ $I_d=6A$ | 29 | 55 | 70 | m Ω |
| 6 | V_{sd} | Reverse conduction voltage | $I_{sd}=0.8A$ $V_{gs}=0V$ | 1.5 | 1.85 | 3.0 | V |
| 7 | R_g | Gate resistance | $F=25MHz$ | | 1.2 | | Ω |
| Dynamic Parameters | | | | Test data | | | |
| | Parameters | | Conditions | Min | Typical | Max | Unit |
| 1 | C_{iss} | Input capacitance | $V_{gs}=0V$ | | 241 | | pf |
| | C_{oss} | Output capacitance | $V_{ds}=400V$ | | 61 | | pf |
| | C_{rss} | Reverse transfer capacitance | $f=1MHz$ | | 8.4 | | pf |
| 3 | Q_g | Gate charge | $V_{ds}=400V$ | | 5.8 | | nC |
| | Q_{gs} | Gate to source charge | $I_d=7.5A$ | | 1.2 | | nC |
| | Q_{gd} | Gate to drain charge | $V_{gs}=6V$ | | 1.5 | | nC |
| 2 | Q_{rr} | Reverse recovery charge | | | 0 | | nC |
| Switching Performance | | | | Test data | | | |
| | Parameters | | Conditions | Min | Typical | Max | Unit |
| 1 | $t_{d(on)}$ | Turn-on delay time | $V_{ds}=400V$ | | 6 | | ns |
| 2 | t_r | Rise time | $I_d=2.5A$ | | 12 | | ns |
| 3 | $t_{d(off)}$ | Turn-off delay time | $R_g=10\Omega$ | | 15 | | ns |
| 4 | t_f | Fall time | $V_{gs}=6V$ | | 13 | | ns |



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Absolute Max. Ratings

| | Symbols | Parameters | Value | Unit |
|---|------------------------|---|-------------|------|
| 1 | V _{DS-max} | Breakdown voltage transient @ T _{case} =25°C | 800 | V |
| 2 | V _{GS-max} | Gate to source max. voltage @ T _{case} =25°C | -12 to +7.5 | V |
| 3 | I _{ds-max} | Drain to source DC current @ T _{case} =25°C | 30 | A |
| 4 | I _{ds-max} | Drain to source DC current @ T _{case} =100°C | 24 | A |
| 5 | dv/dt _{-max} | Drain to source voltage slew rate | 200 | V/nS |
| 6 | T _{J-max} | Max junction temperature | 150 | °C |
| 7 | T _{S-storage} | Storage temperature | -55 to 150 | °C |

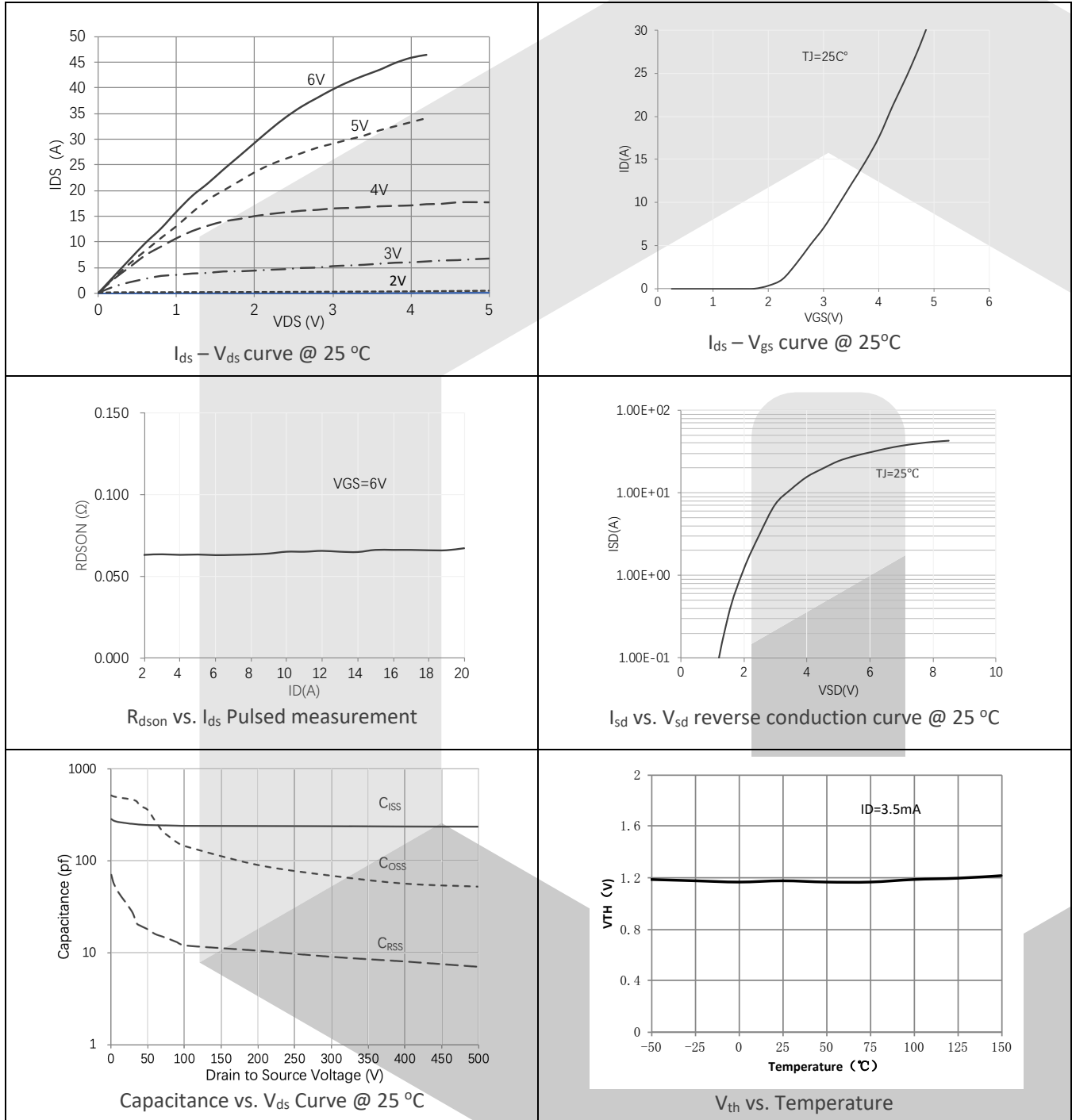
Thermal and Soldering Characteristics (Typical)

| | Symbols | Parameters | Value | Unit |
|---|---------------------|---------------------------------------|-------|-------|
| 1 | R _{thJC} | Thermal resistance (junction to case) | 0.95 | °C /W |
| 2 | T _{solder} | Reflow soldering temperature | 250 | °C |

Ordering

| Order Code | Package Type | Packaging Method | Qty |
|-------------|--|------------------|------|
| GPI65030DFO | DFN surface mount, bottom cooled, 8X8 mm | Tape and Reel | 3500 |

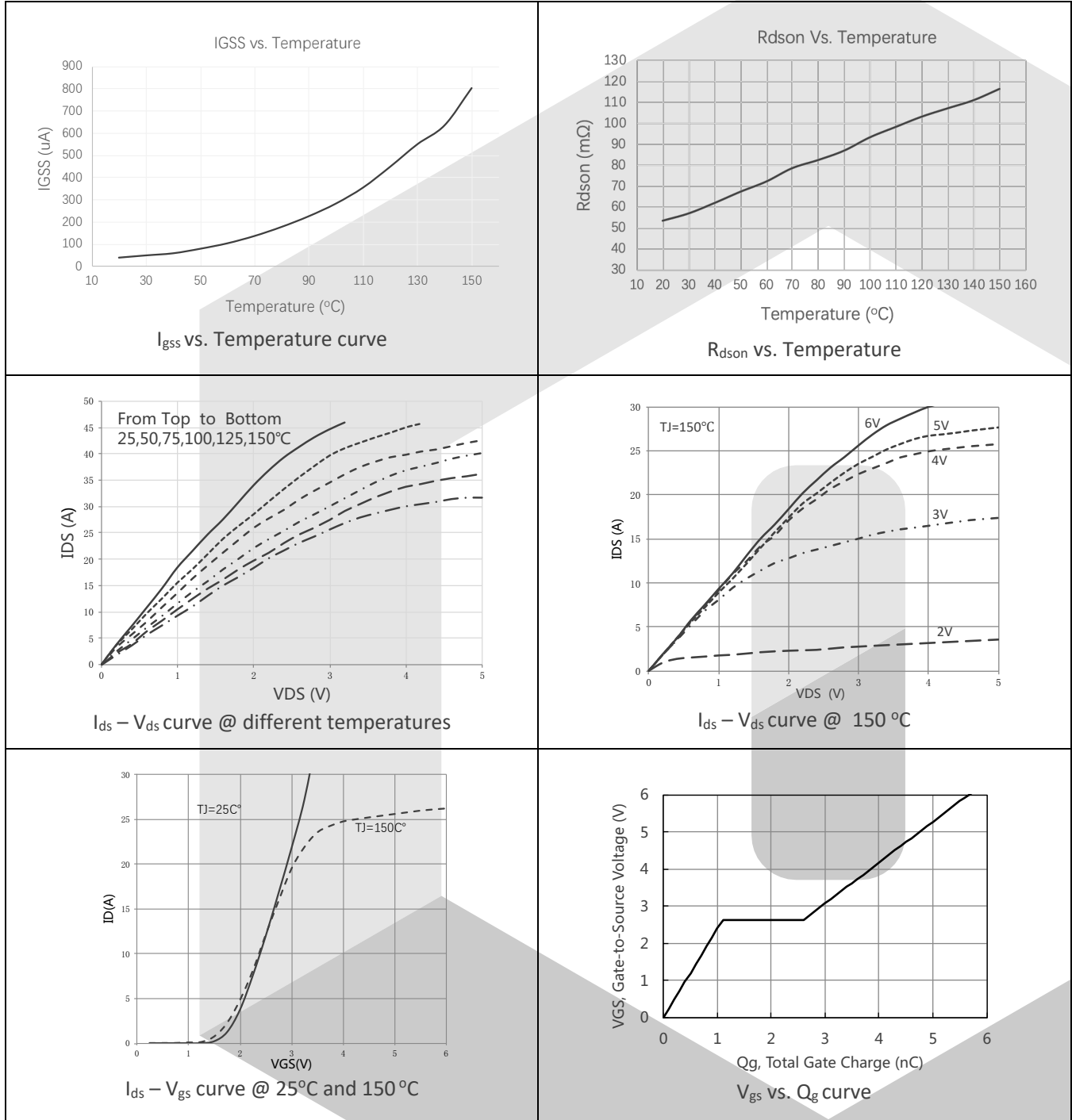
Electrical Performance





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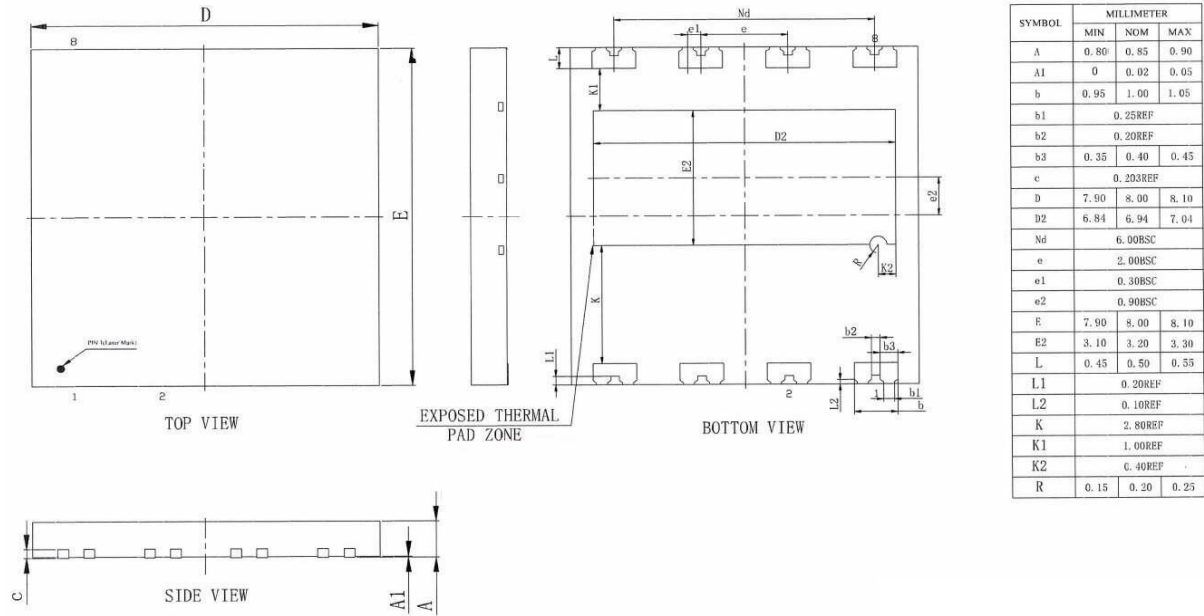




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Package Information



For more information, visit us at: www.iganpower.com, or contact us at sales@iganpower.com



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Data Source- Data here are based on recent tests but all parameters may not be up to date. Actual final test data from packaging production are available for selected customers upon request.