

## Features

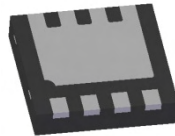
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

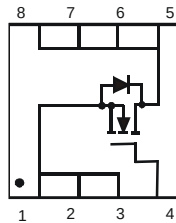
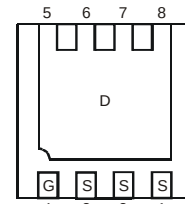
- Case: DFN3030-8
- Case Material: Molded Plastic, "Green" Molding Compound.  
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Page 5
- Ordering Information: See Page 5
- Weight: 0.0172 grams (approximate)



TOP VIEW



BOTTOM VIEW


 TOP VIEW  
Internal Schematic

 BOTTOM VIEW  
Pin Configuration

## Maximum Ratings @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                    |              |                       | Symbol           | Value | Unit |
|-----------------------------------|--------------|-----------------------|------------------|-------|------|
| Drain-Source Voltage              |              |                       | V <sub>DSS</sub> | 30    | V    |
| Gate-Source Voltage               |              |                       | V <sub>GSS</sub> | ±20   | V    |
| Continuous Drain Current (Note 3) | Steady State | T <sub>A</sub> = 25°C | I <sub>D</sub>   | 7.62  | A    |
|                                   |              | T <sub>A</sub> = 85°C |                  | 4.83  |      |
| Pulsed Drain Current (Note 4)     |              |                       | I <sub>DM</sub>  | 45.9  | A    |

## Thermal Characteristics

| Characteristic                                                          | Symbol                            | Value       | Unit |
|-------------------------------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 3)                                              | P <sub>D</sub>                    | 0.99        | W    |
| Thermal Resistance, Junction to Ambient @T <sub>A</sub> = 25°C (Note 3) | R <sub>θJA</sub>                  | 126.7       | °C/W |
| Operating and Storage Temperature Range                                 | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C   |

- Notes:
1. No purposefully added lead.
  2. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  3. Device mounted on FR-4 PCB, with minimum recommended pad layout.
  4. Repetitive rating, pulse width limited by junction temperature.

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                                        | Symbol              | Min | Typ      | Max        | Unit | Test Condition                                                                                                      |
|-------------------------------------------------------|---------------------|-----|----------|------------|------|---------------------------------------------------------------------------------------------------------------------|
| <b>OFF CHARACTERISTICS (Note 5)</b>                   |                     |     |          |            |      |                                                                                                                     |
| Drain-Source Breakdown Voltage                        | BV <sub>DSS</sub>   | 30  | -        | -          | V    | V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA                                                                        |
| Zero Gate Voltage Drain Current T <sub>J</sub> = 25°C | I <sub>DSS</sub>    | -   | -        | 1.0        | μA   | V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V                                                                         |
| Gate-Source Leakage                                   | I <sub>GSS</sub>    | -   | -        | ±100       | nA   | V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V                                                                        |
| <b>ON CHARACTERISTICS (Note 5)</b>                    |                     |     |          |            |      |                                                                                                                     |
| Gate Threshold Voltage                                | V <sub>GS(th)</sub> | 1.0 | -        | 2.0        | V    | V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA                                                          |
| Static Drain-Source On-Resistance                     | R <sub>DS(on)</sub> | -   | 10<br>17 | 15<br>23.5 | mΩ   | V <sub>GS</sub> = 10V, I <sub>D</sub> = 11.6A<br>V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 10A                       |
| Forward Transfer Admittance                           | Y <sub>fs</sub>     | -   | 8        | -          | S    | V <sub>DS</sub> = 10V, I <sub>D</sub> = 9A                                                                          |
| Diode Forward Voltage                                 | V <sub>SD</sub>     | -   | 0.7      | 1.0        | V    | V <sub>GS</sub> = 0V, I <sub>S</sub> = 1A                                                                           |
| <b>DYNAMIC CHARACTERISTICS (Note 6)</b>               |                     |     |          |            |      |                                                                                                                     |
| Input Capacitance                                     | C <sub>iss</sub>    | -   | 867      | -          | pF   | V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V,<br>f = 1.0MHz                                                          |
| Output Capacitance                                    | C <sub>oss</sub>    | -   | 85       | -          | pF   |                                                                                                                     |
| Reverse Transfer Capacitance                          | C <sub>rss</sub>    | -   | 81       | -          | pF   |                                                                                                                     |
| Gate Resistance                                       | R <sub>g</sub>      | -   | 1.39     | -          | Ω    | V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz                                                                |
| Total Gate Charge                                     | Q <sub>g</sub>      | -   | 18.85    | -          | nC   | V <sub>GS</sub> = 10V, V <sub>DS</sub> = 15V,<br>I <sub>D</sub> = 11.6A                                             |
| Gate-Source Charge                                    | Q <sub>gs</sub>     | -   | 2.59     | -          | nC   |                                                                                                                     |
| Gate-Drain Charge                                     | Q <sub>gd</sub>     | -   | 6.15     | -          | nC   |                                                                                                                     |
| Turn-On Delay Time                                    | t <sub>D(on)</sub>  | -   | 5.46     | -          | ns   | V <sub>DD</sub> = 15V, V <sub>GS</sub> = 10V,<br>R <sub>L</sub> = 1.3Ω, R <sub>G</sub> = 3Ω,<br>I <sub>D</sub> = 1A |
| Turn-On Rise Time                                     | t <sub>r</sub>      | -   | 14.53    | -          | ns   |                                                                                                                     |
| Turn-Off Delay Time                                   | t <sub>D(off)</sub> | -   | 18.84    | -          | ns   |                                                                                                                     |
| Turn-Off Fall Time                                    | t <sub>f</sub>      | -   | 6.01     | -          | ns   |                                                                                                                     |

Notes: 5. Short duration pulse test used to minimize self-heating effect.  
6. Guaranteed by design. Not subject to production testing.

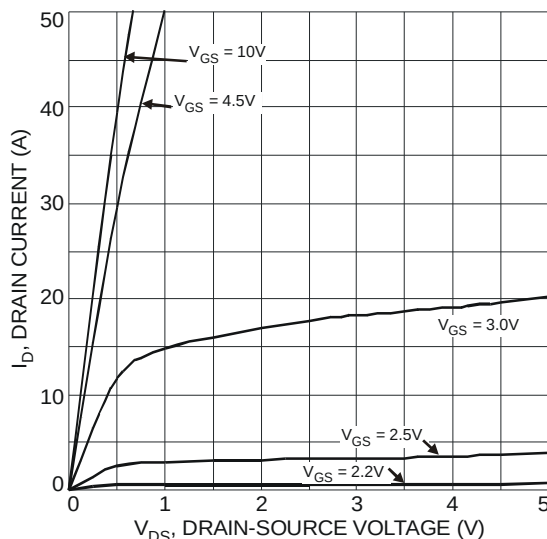


Fig. 1 Typical Output Characteristic

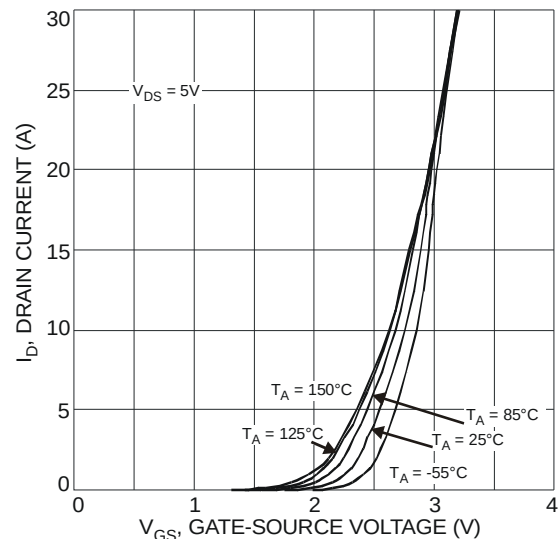


Fig. 2 Typical Transfer Characteristic

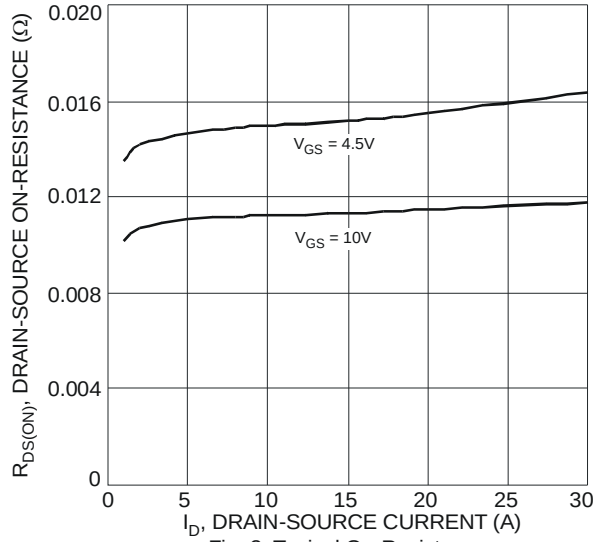


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

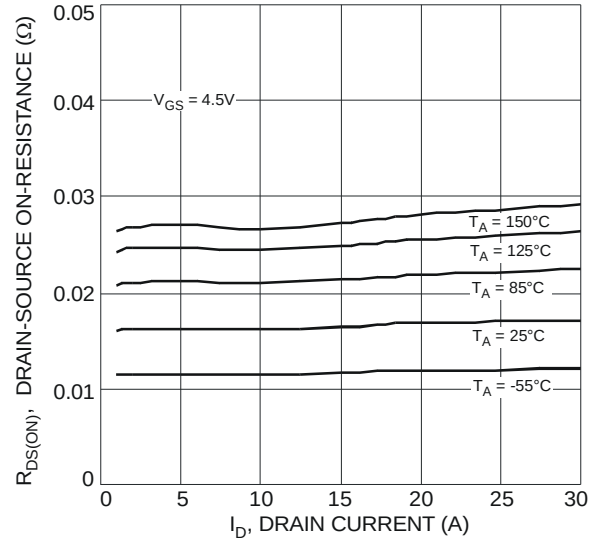


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

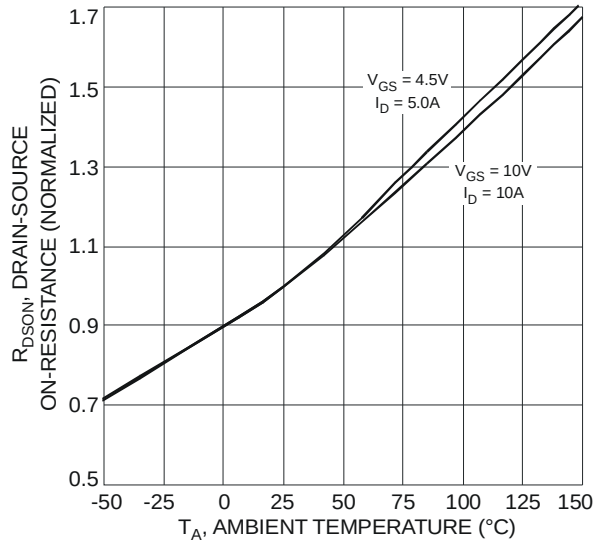


Fig. 5 On-Resistance Variation with Temperature

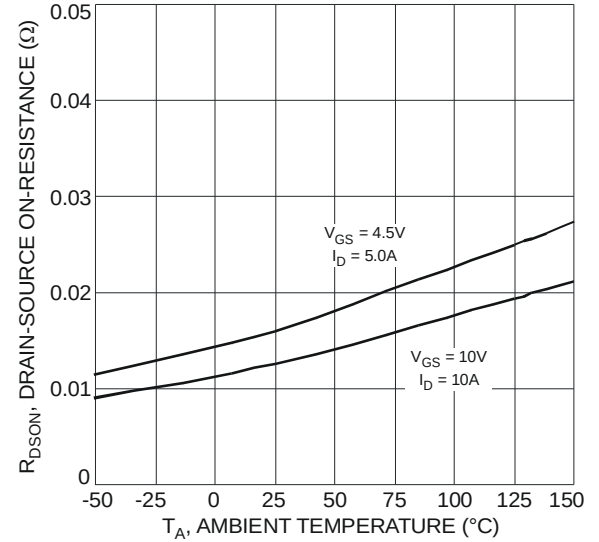


Fig. 6 On-Resistance Variation with Temperature

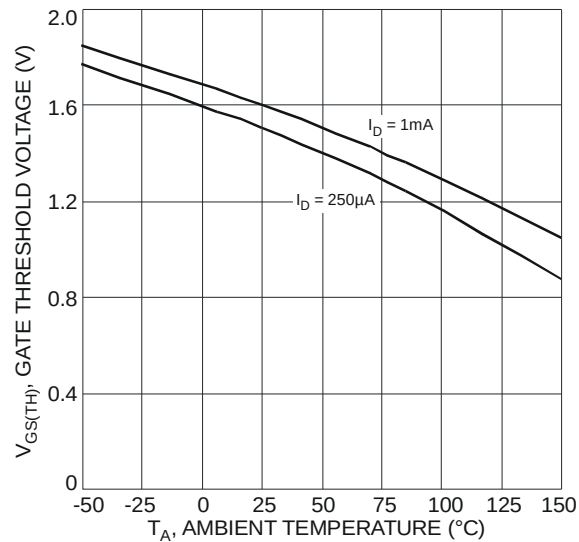


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

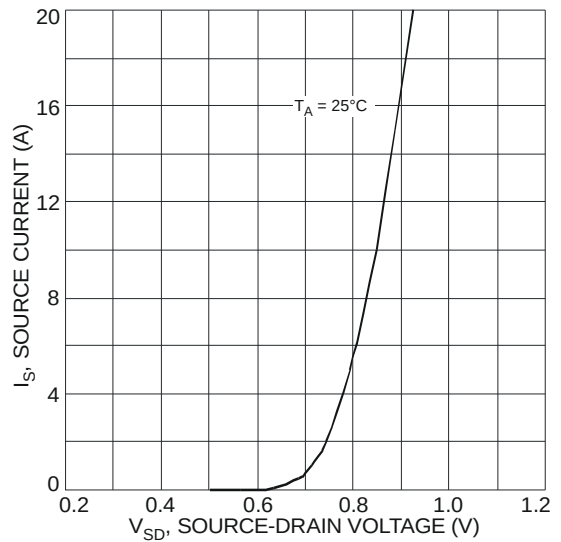


Fig. 8 Diode Forward Voltage vs. Current

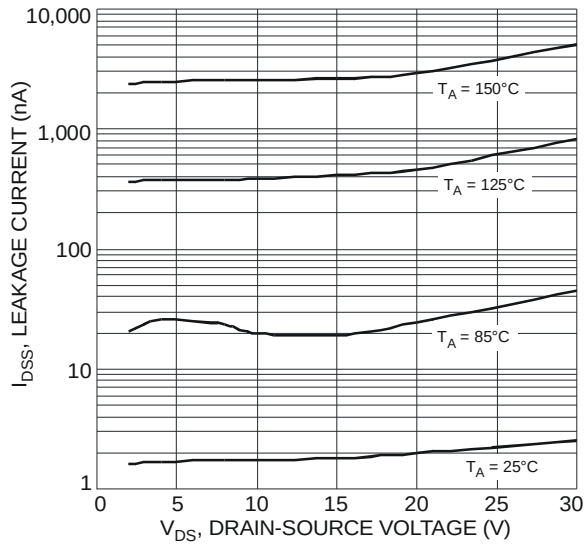


Fig. 9 Typical Leakage Current vs. Drain-Source Voltage

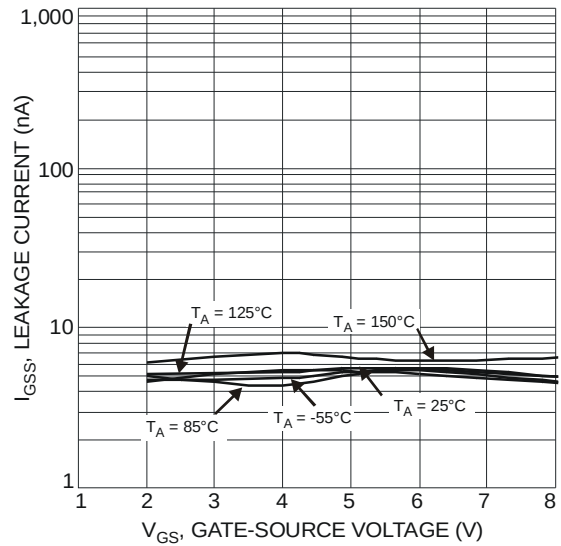


Fig. 10 Gate-Source Leakage Current vs Voltage

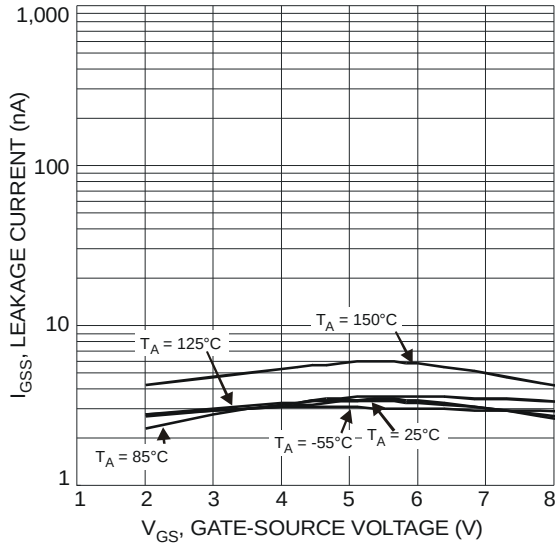


Fig. 11 Gate-Source Leakage Current vs Voltage

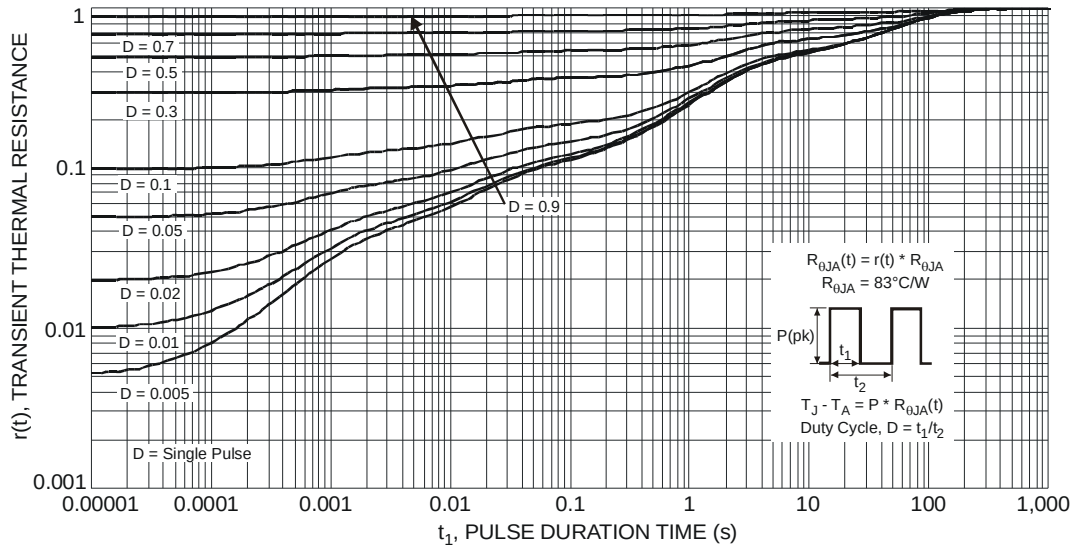


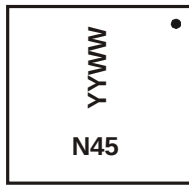
Fig. 12 Transient Thermal Response

## Ordering Information (Note 7)

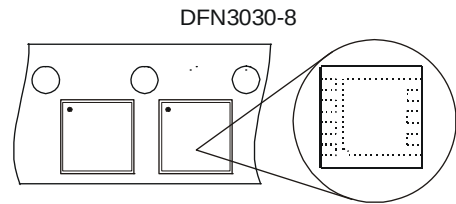
| Part Number  | Case      | Packaging          |
|--------------|-----------|--------------------|
| DMG4468LFG-7 | DFN3030-8 | 3000 / Tape & Reel |

Notes: 7. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

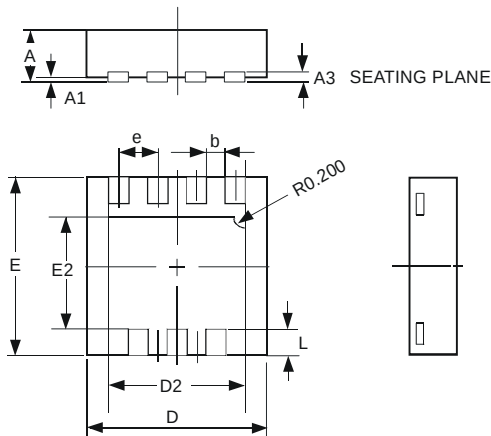
## Marking Information



N45 = Product Type Marking Code  
 YYWW = Date Code Marking  
 YY = Last digit of year, ex: 09 for 2009  
 WW = Week code 01 to 52

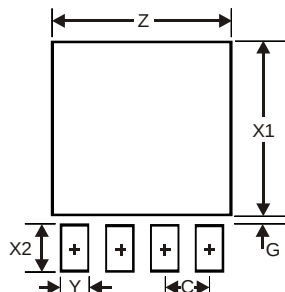


## Package Outline Dimensions



| DFN3030-8            |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A                    | 0.57 | 0.63 | 0.60 |
| A1                   | 0    | 0.05 | 0.02 |
| A3                   | —    | —    | 0.15 |
| b                    | 0.29 | 0.39 | 0.34 |
| D                    | 2.90 | 3.10 | 3.00 |
| D2                   | 2.19 | 2.39 | 2.29 |
| e                    | —    | —    | 0.65 |
| E                    | 2.90 | 3.10 | 3.00 |
| E2                   | 1.64 | 1.84 | 1.74 |
| L                    | 0.30 | 0.60 | 0.45 |
| All Dimensions in mm |      |      |      |

## Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 2.59          |
| G          | 0.11          |
| X1         | 2.49          |
| X2         | 0.65          |
| Y          | 0.39          |
| C          | 0.65          |

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