

## 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

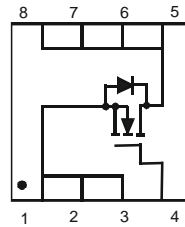
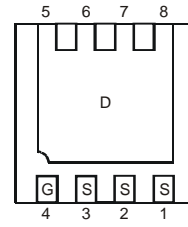
- Case: DFN3030-8
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - NiPdAu over Copper lead frame. Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Marking Information: 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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic			Symbol	Value	Units
Drain-Source Voltage			$V_{DSS}$	30	V
Gate-Source Voltage			$V_{GSS}$	$\pm 25$	V
Drain Current (Note 3)	Steady State	$T_A = 25^\circ\text{C}$	$I_D$	7.44	A
		$T_A = 85^\circ\text{C}$		4.82	
Pulsed Drain Current (Note 4)			$I_{DM}$	40	A

## Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

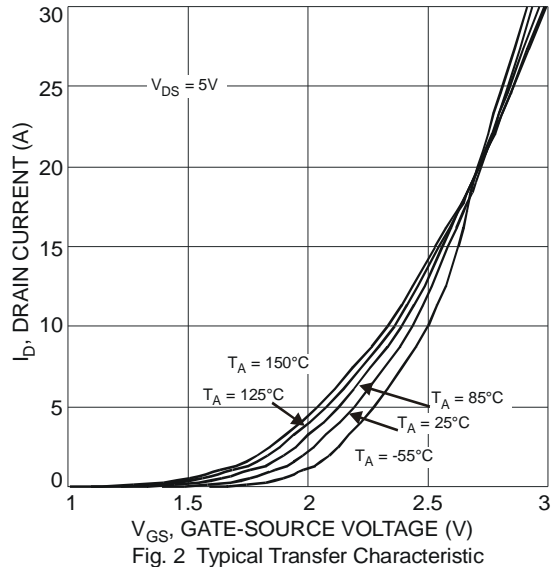
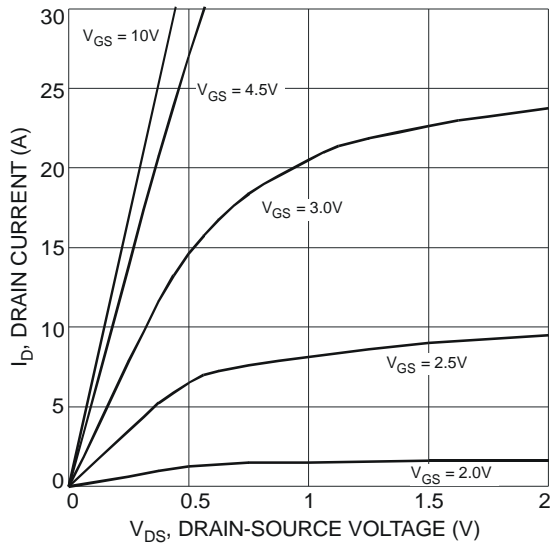
Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 3)	$P_D$	0.94	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	133	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

- 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** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 5)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	30	-	-	V	$V_{GS} = 0V, I_D = 250\mu A$
Zero Gate Voltage Drain Current $T_J = 25^\circ\text{C}$	$I_{DSS}$	-	-	1.0	$\mu A$	$V_{DS} = 30V, V_{GS} = 0V$
Gate-Source Leakage	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
<b>ON CHARACTERISTICS (Note 5)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	0.8	-	1.5	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	11	17	m $\Omega$	$V_{GS} = 10V, I_D = 9A$
		-	15	24		$V_{GS} = 4.5V, I_D = 7A$
Forward Transfer Admittance	$ Y_{fs} $	-	8	-	S	$V_{DS} = 10V, I_D = 9A$
Diode Forward Voltage	$V_{SD}$	-	0.7	1.0	V	$V_{GS} = 0V, I_S = 1A$
<b>DYNAMIC CHARACTERISTICS (Note 6)</b>						
Input Capacitance	$C_{iss}$	-	798	-	pF	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	-	128	-	pF	
Reverse Transfer Capacitance	$C_{rss}$	-	122	-	pF	
Gate Resistance	$R_g$	-	1.37	-	$\Omega$	$V_{DS} = 0V, V_{GS} = 0V, f = 1\text{MHz}$
Total Gate Charge	$Q_g$	-	9.47	-	nC	$V_{GS} = 5V, V_{DS} = 15V,$ $I_D = 9A$
Gate-Source Charge	$Q_{gs}$	-	1.87	-	nC	
Gate-Drain Charge	$Q_{gd}$	-	5.60	-	nC	
Turn-On Delay Time	$t_{D(on)}$	-	5.03	-	ns	$V_{DD} = 15V, V_{GEN} = 10V,$ $R_L = 15\Omega, R_G = 6\Omega, I_D = 1A$
Turn-On Rise Time	$t_r$	-	4.50	-	ns	
Turn-Off Delay Time	$t_{D(off)}$	-	26.33	-	ns	
Turn-Off Fall Time	$t_f$	-	8.55	-	ns	

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



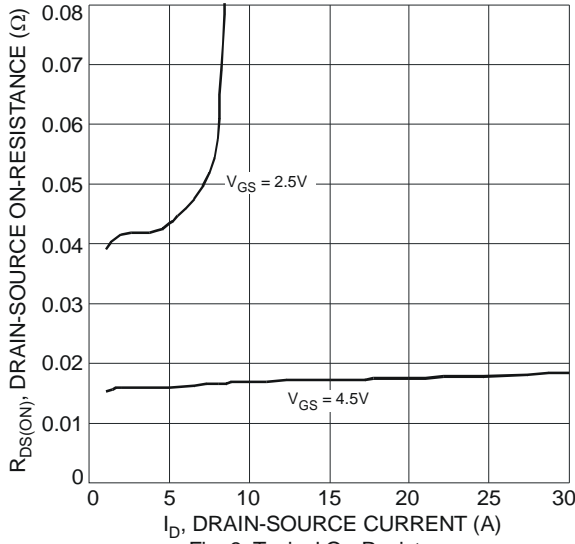


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

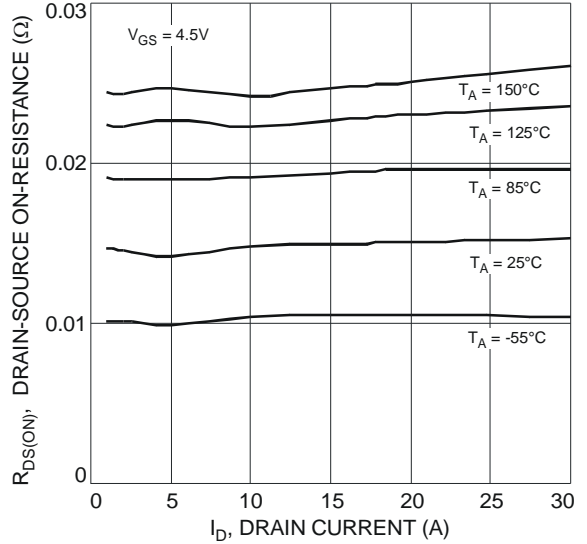


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

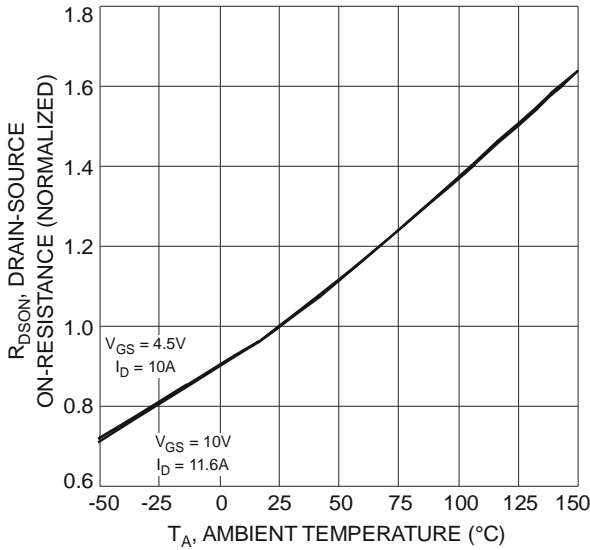


Fig. 5 On-Resistance Variation with Temperature

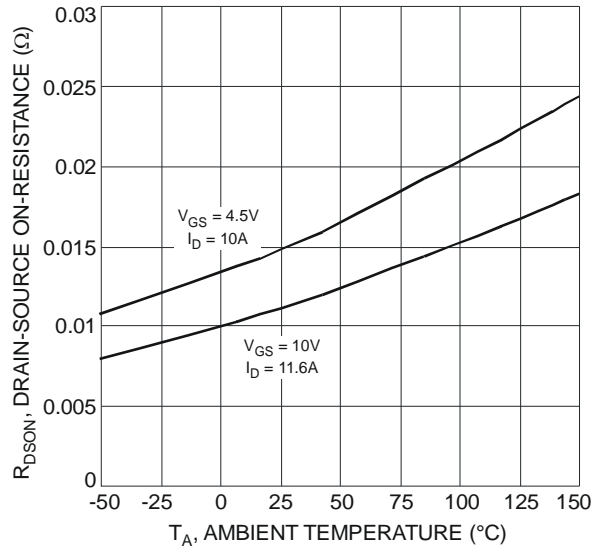


Fig. 6 On-Resistance Variation with Temperature

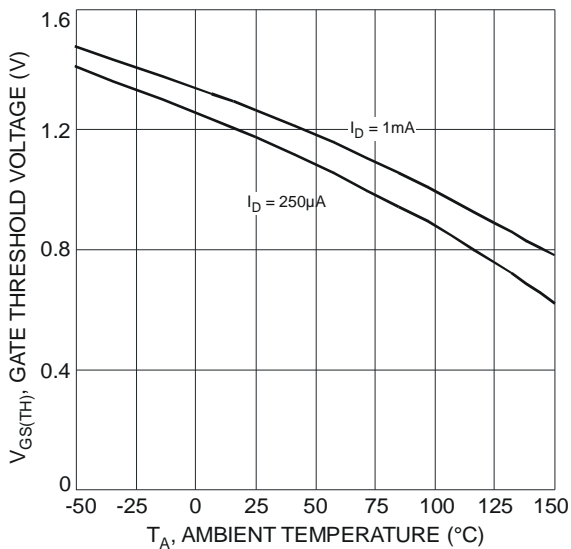


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

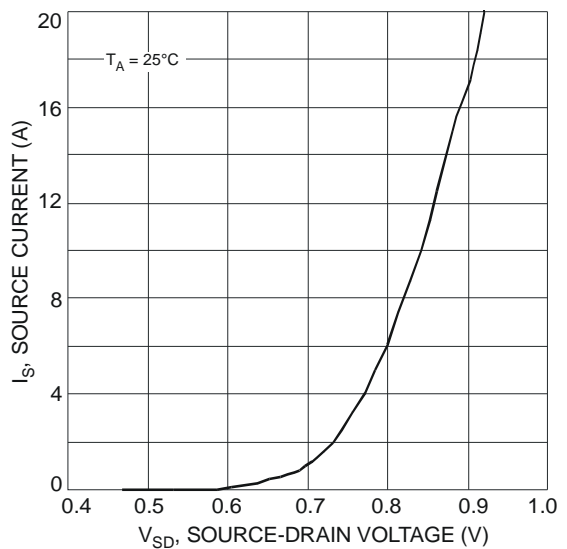


Fig. 8 Diode Forward Voltage vs. Current

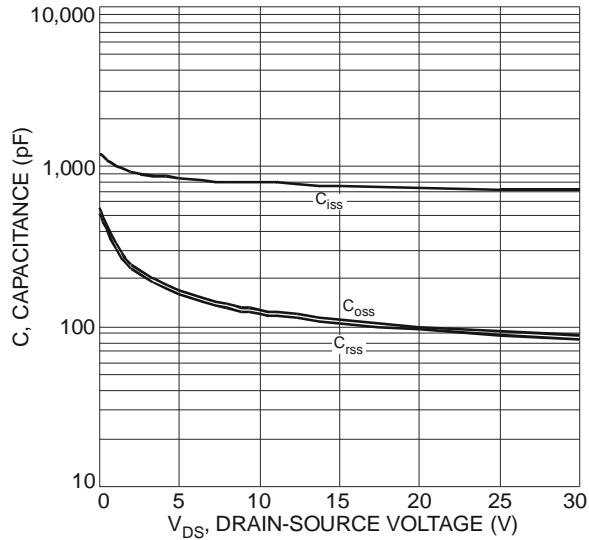


Fig. 9 Typical Total Capacitance

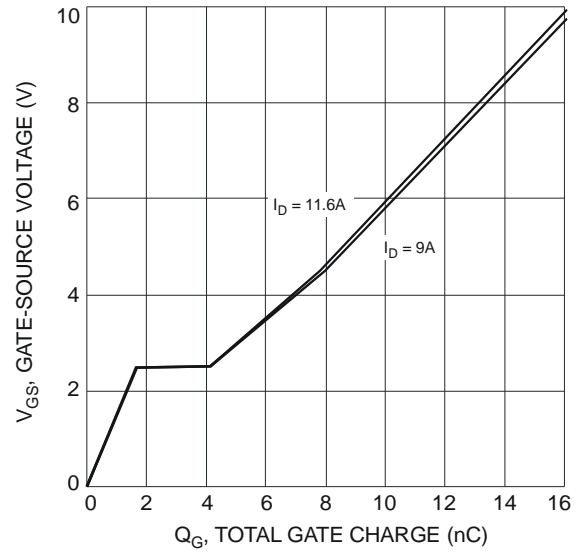


Fig. 10 Total Gate Charge

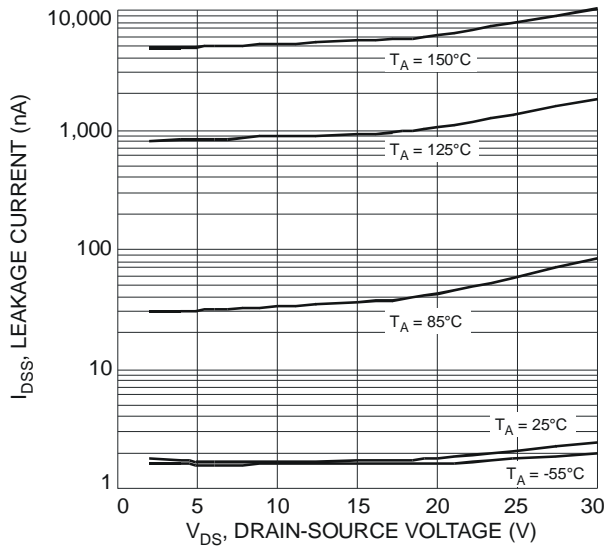


Fig. 11 Typical Leakage Current vs. Drain-Source Voltage

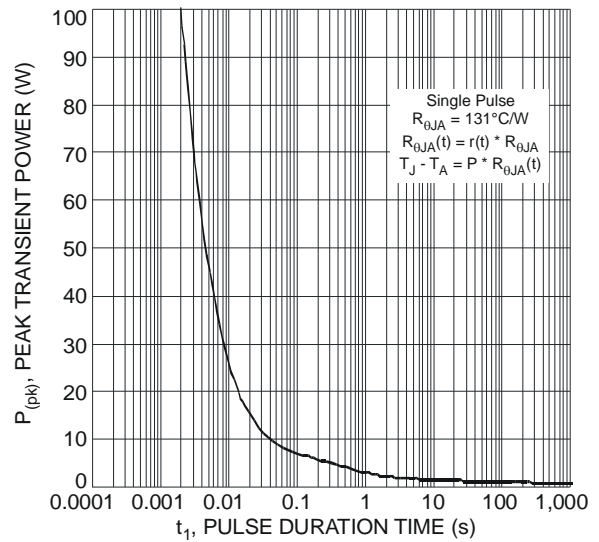


Fig. 12 Single Pulse Maximum Power Dissipation

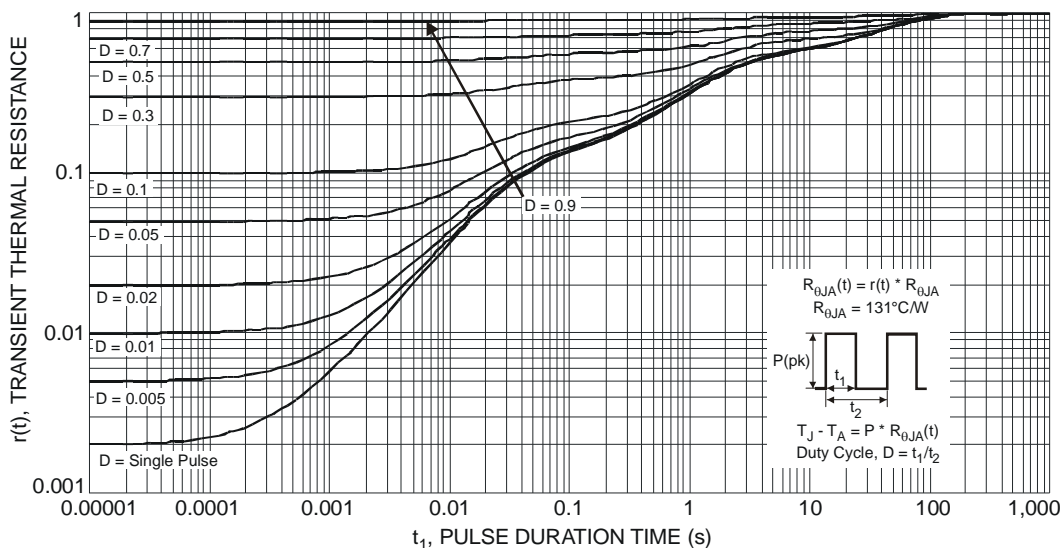


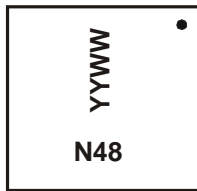
Fig. 13 Transient Thermal Response

**Ordering Information** (Note 7)

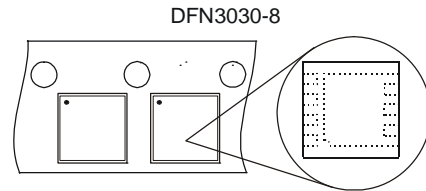
Part Number	Case	Packaging
DMG4800LFG-7	DFN3030-8	3000/Tape & Reel

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

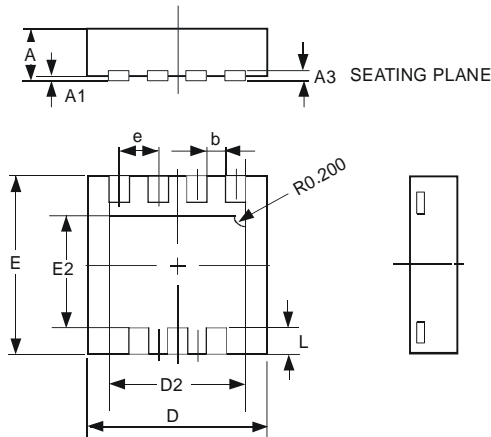
**Marking Information**



N48 = Product marking code  
 YYWW = Date code marking  
 YY = Last digit of year (ex: 09 for 2009)  
 WW = Week code 01 to 52

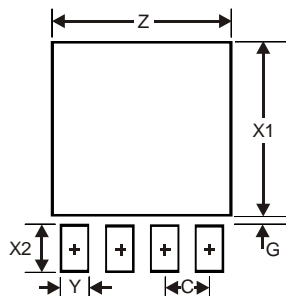


**Package Outline Dimensions**



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
<b>All Dimensions in mm</b>			

**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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