

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

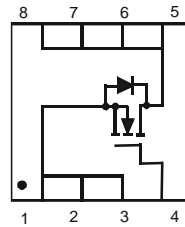
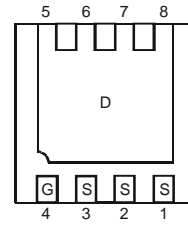
- Case: DFN3030-8
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - NiPdAu over Copper lead frame. Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Marking Information: 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}	± 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.
 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
OFF CHARACTERISTICS (Note 5)						
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	μA	$V_{DS} = 30V, V_{GS} = 0V$
Gate-Source Leakage	I_{GSS}	-	-	± 100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 5)						
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 Ω	$V_{GS} = 10V, I_D = 9A$
			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	$V_{GS} = 0V, I_S = 1A$
DYNAMIC CHARACTERISTICS (Note 6)						
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	-	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1\text{MHz}$
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.

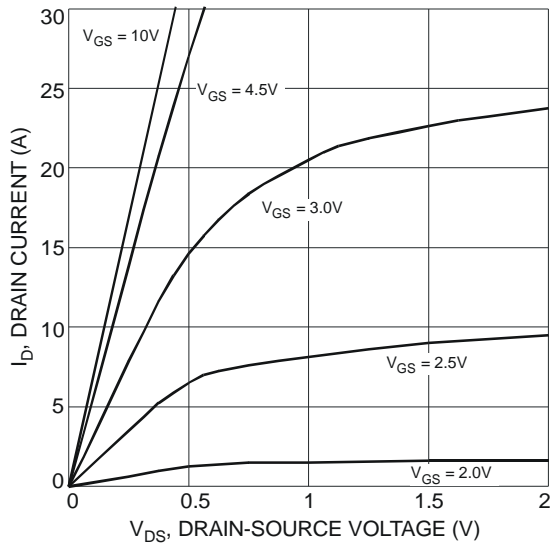


Fig. 1 Typical Output Characteristic

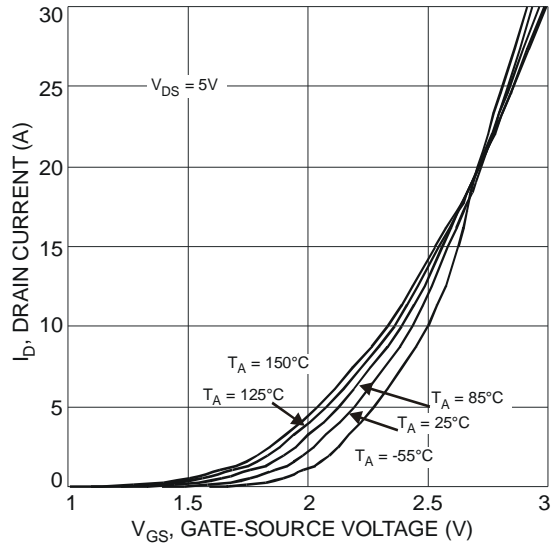


Fig. 2 Typical Transfer Characteristic

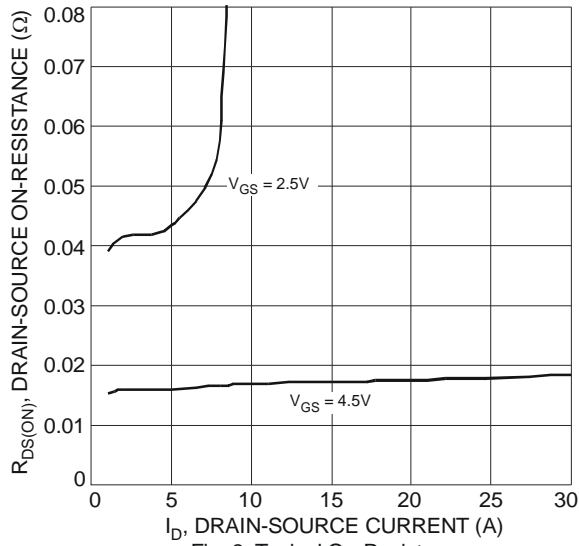


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

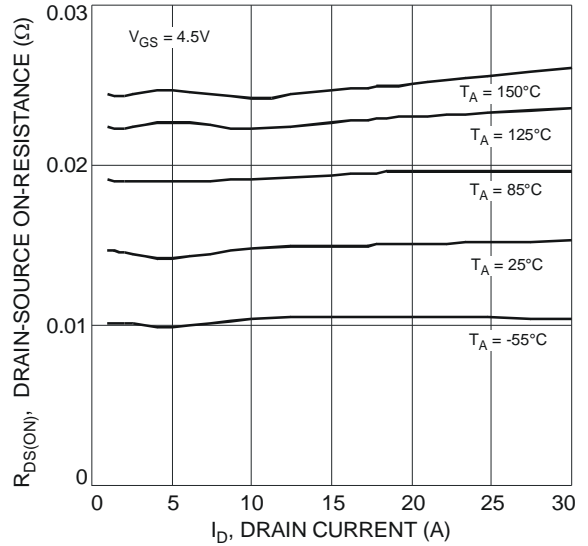


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

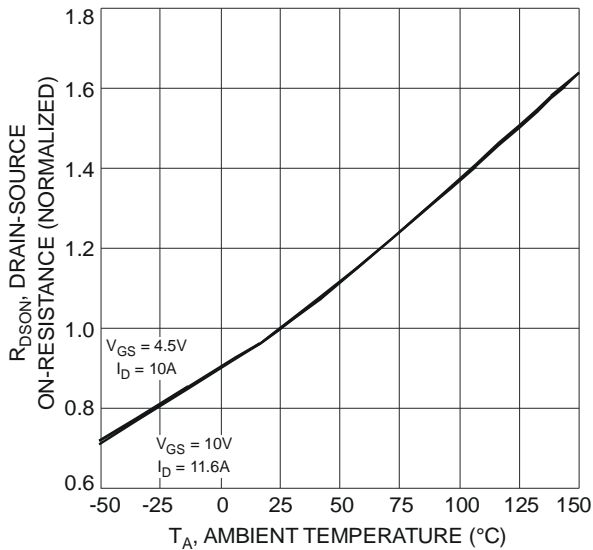


Fig. 5 On-Resistance Variation with Temperature

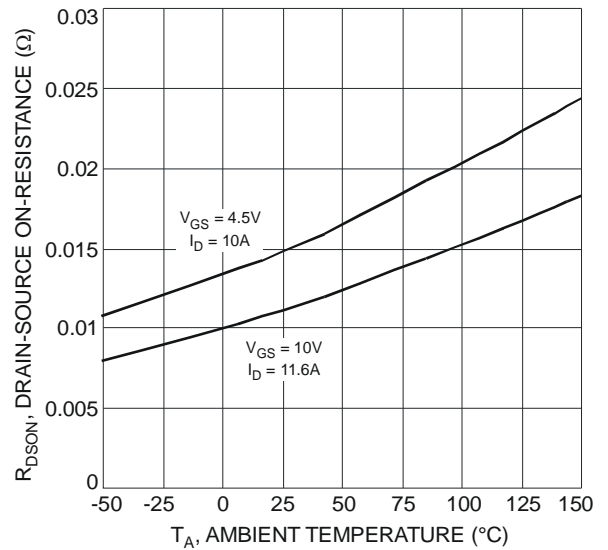


Fig. 6 On-Resistance Variation with Temperature

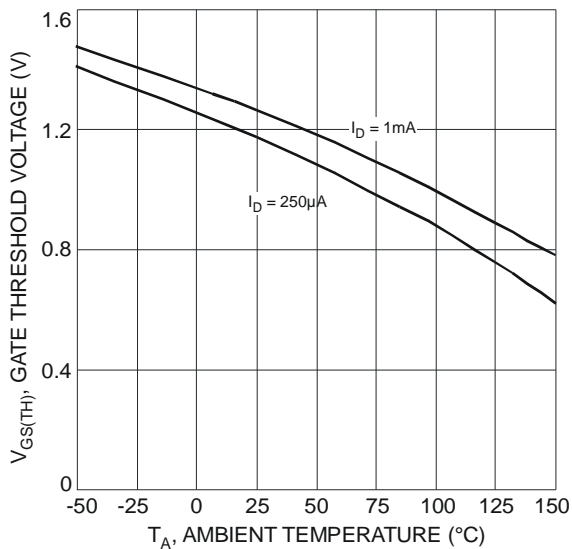


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

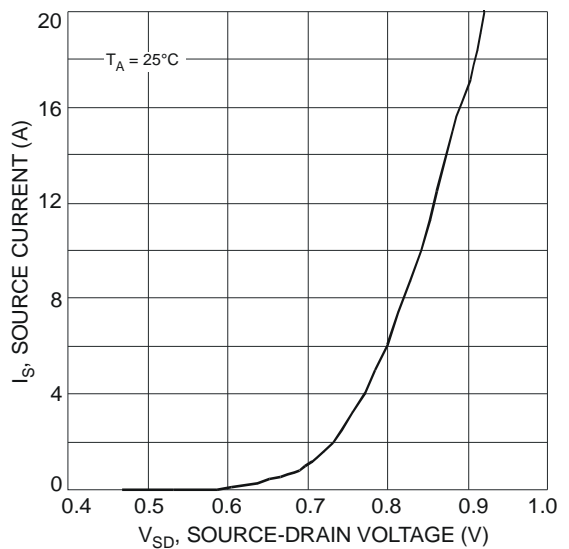


Fig. 8 Diode Forward Voltage vs. Current

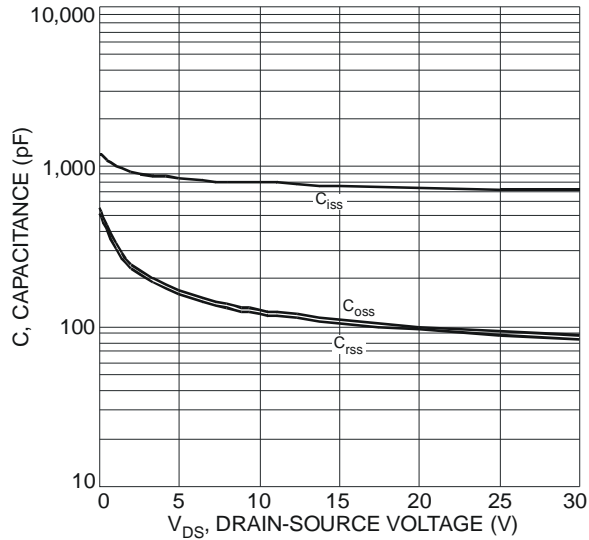


Fig. 9 Typical Total Capacitance

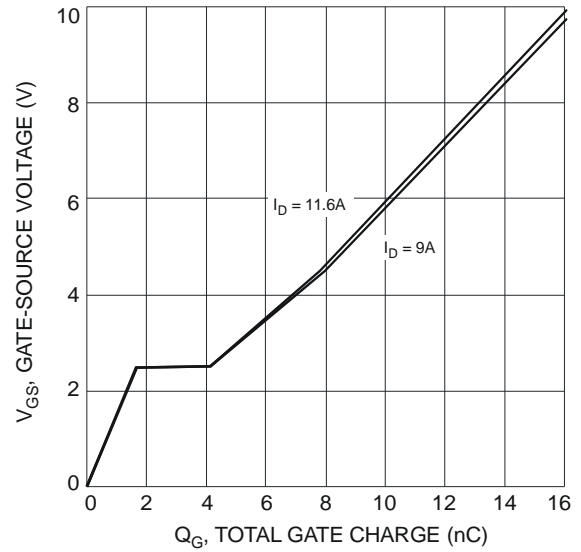


Fig. 10 Total Gate Charge

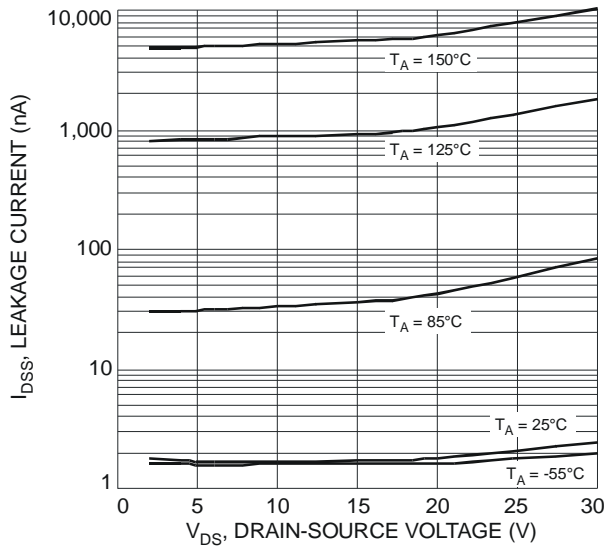


Fig. 11 Typical Leakage Current vs. Drain-Source Voltage

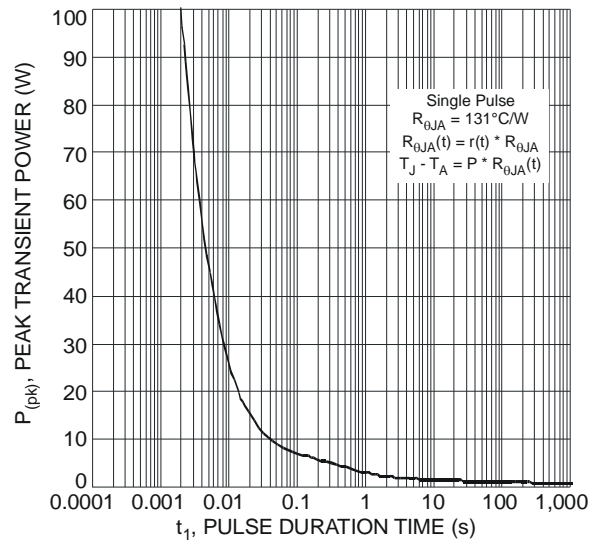


Fig. 12 Single Pulse Maximum Power Dissipation

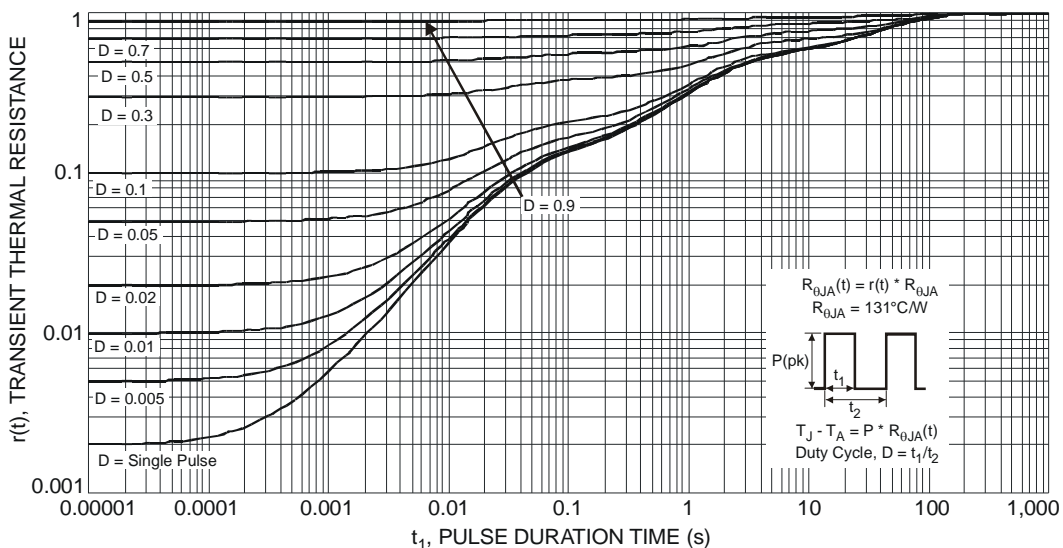
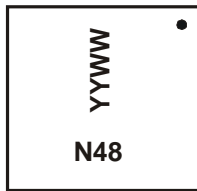


Fig. 13 Transient Thermal Response

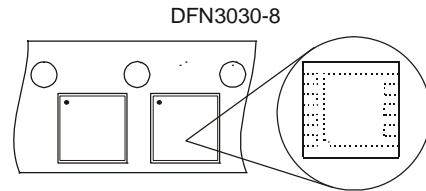
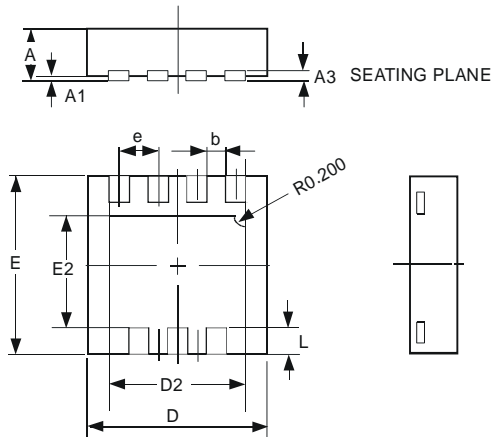
Ordering Information (Note 7)

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

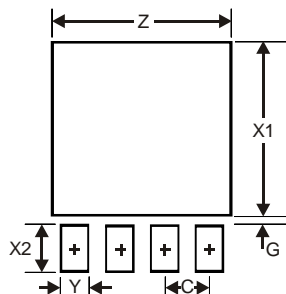
 Notes: 7. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

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
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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