N-CHANNEL ENHANCEMENT MODE MOSFET

Please click here to visit our online spice models database.

NEW PRODUCT

Features

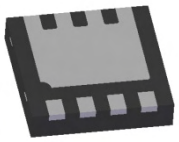
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

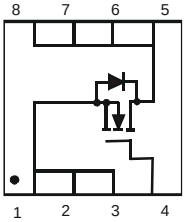
- Case: DFN3030-8
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Page 5
- Ordering Information: See Page 5
- Weight: 0.0172 grams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



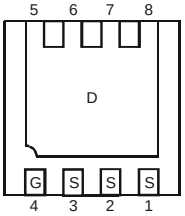
TOP VIEW



BOTTOM VIEW



TOP VIEW
Internal Schematic



BOTTOM VIEW
Pin Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	30	V
Gate-Source Voltage			V_{GSS}	±20	V
Continuous Drain Current (Note 3)	Steady State	T_A = 25°C T_A = 85°C	I_D	7.62 4.83	A
Pulsed Drain Current (Note 4)			I_{DM}	45.9	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	P_D	0.99	W
Thermal Resistance, Junction to Ambient @TA = 25°C (Note 3)	$R_{\theta JA}$	126.7	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-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.
3. Device mounted on FR-4 PCB, with minimum recommended pad layout.
4. Repetitive rating, pulse width limited by junction temperature.

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Electrical Characteristics @T_A = 25°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 = 250µA
Zero Gate Voltage Drain Current T_J = 25°C	I_{DSS}	-	-	1.0	µA	V_{DS} = 30V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	-	-	±100	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	$V_{GS(th)}$	1.0	-	2.0	V	V_{DS} = V_{GS}, I_D = 250µA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	-	10 17	15 23.5	mΩ	V_{GS} = 10V, I_D = 11.6A V_{GS} = 4.5V, I_D = 10A
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}	-	867	-	pF	V_{DS} = 10V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	-	85	-	pF	
Reverse Transfer Capacitance	C_{rss}	-	81	-	pF	
Gate Resistance	R_g	-	1.39	-	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz
Total Gate Charge	Q_g	-	18.85	-	nC	V_{GS} = 10V, V_{DS} = 15V, I_D = 11.6A
Gate-Source Charge	Q_{gs}	-	2.59	-	nC	
Gate-Drain Charge	Q_{gd}	-	6.15	-	nC	
Turn-On Delay Time	$t_{D(on)}$	-	5.46	-	ns	V_{DD} = 15V, V_{GS} = 10V, R_L = 1.3Ω, R_G = 3Ω, I_D = 1A
Turn-On Rise Time	t_r	-	14.53	-	ns	
Turn-Off Delay Time	$t_{D(off)}$	-	18.84	-	ns	
Turn-Off Fall Time	t_f	-	6.01	-	ns	

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

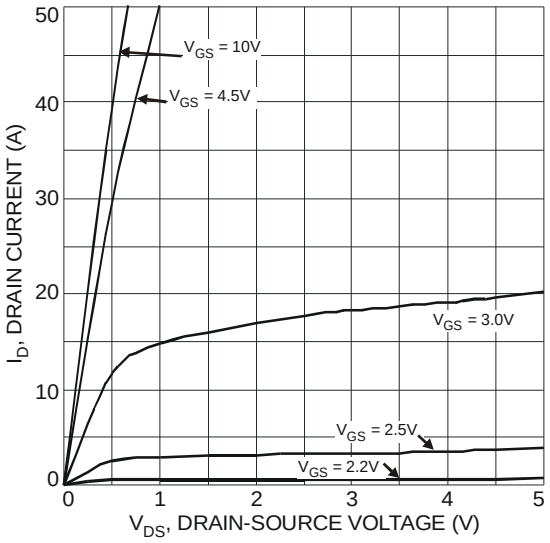


Fig. 1 Typical Output Characteristic

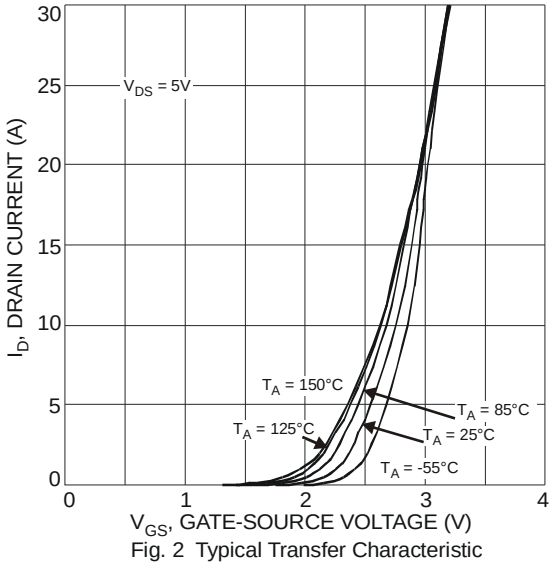


Fig. 2 Typical Transfer Characteristic

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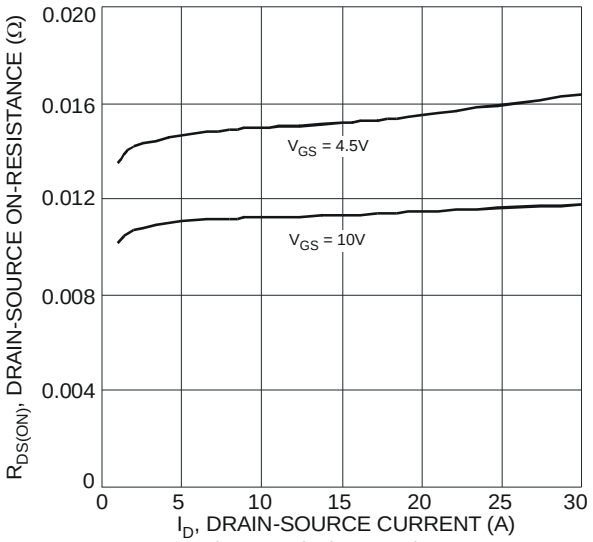


Fig. 3 Typical On-Resistance
vs. Drain Current and Gate Voltage

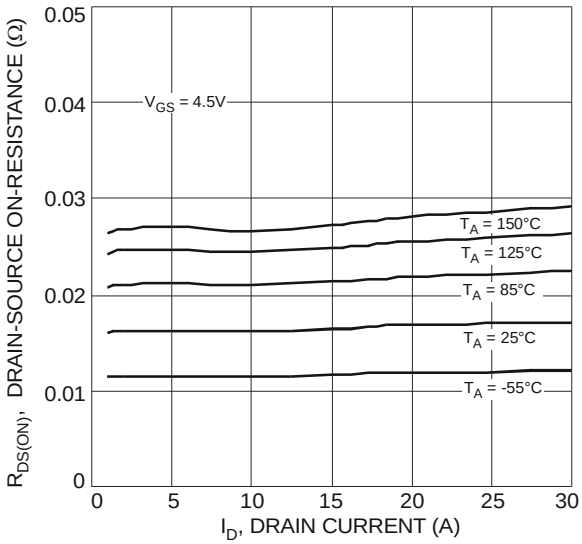


Fig. 4 Typical On-Resistance
vs. Drain Current and Temperature

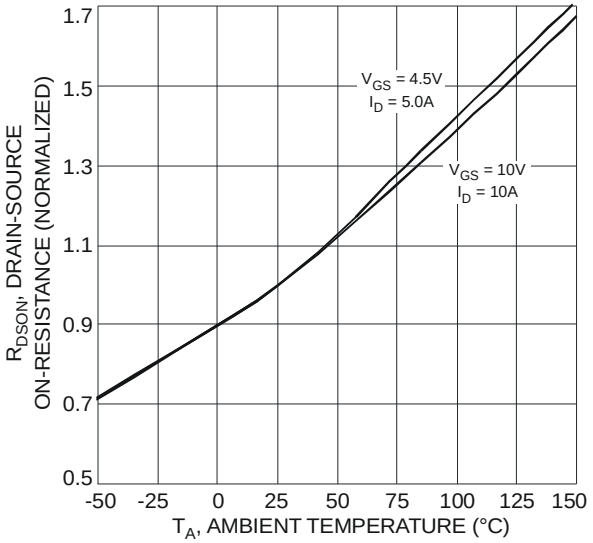


Fig. 5 On-Resistance Variation with Temperature

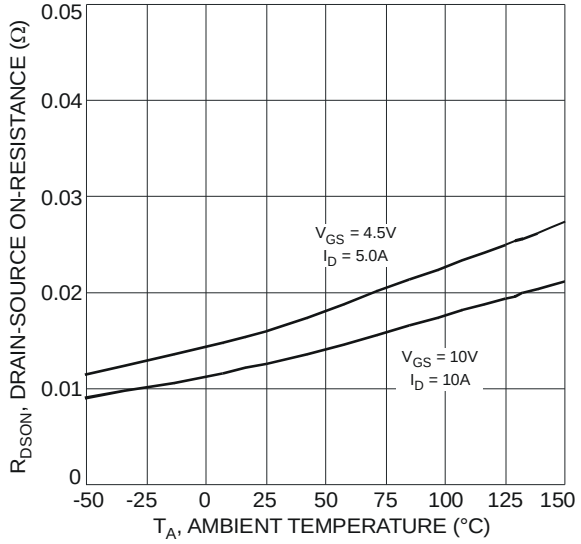


Fig. 6 On-Resistance Variation with Temperature

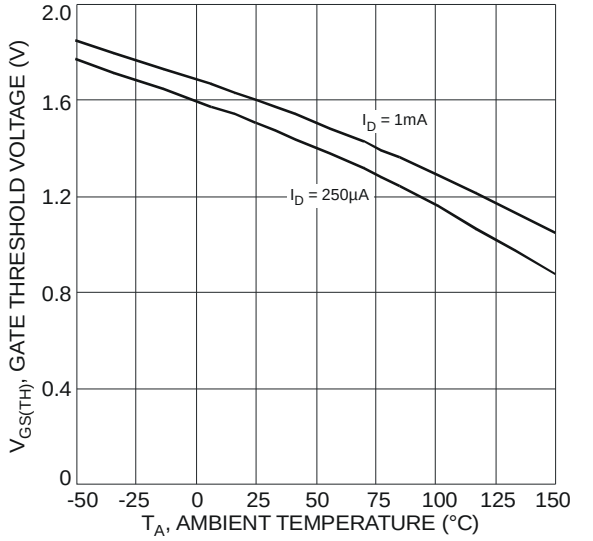


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

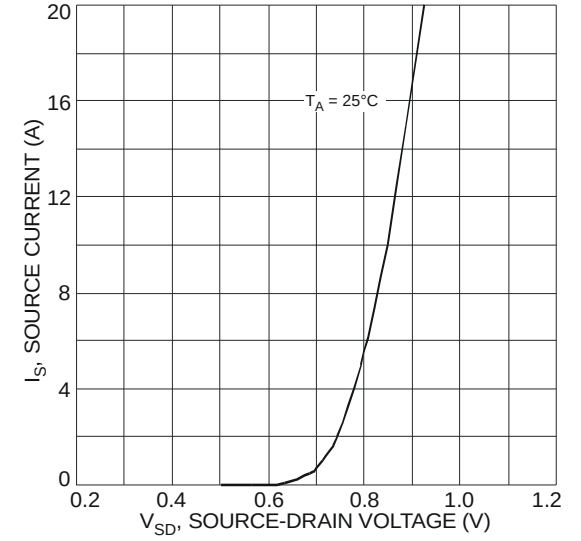


Fig. 8 Diode Forward Voltage vs. Current

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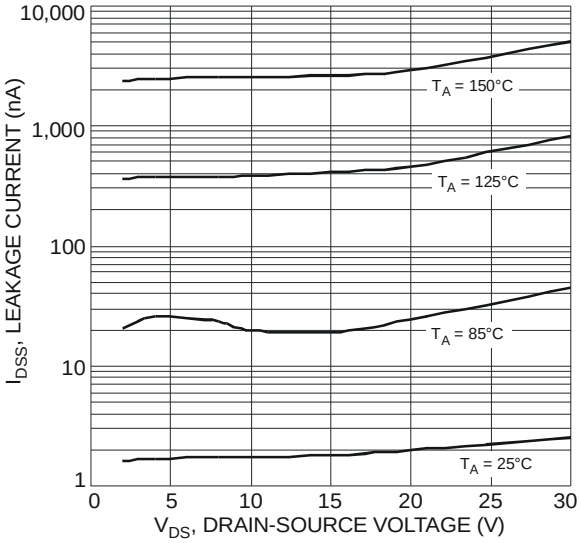


Fig. 9 Typical Leakage Current vs. Drain-Source Voltage

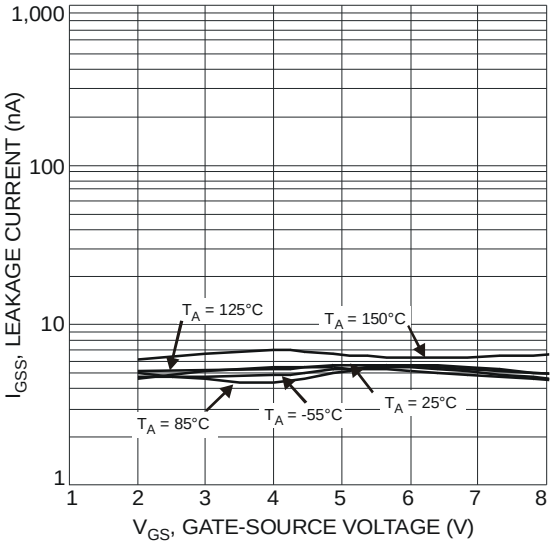


Fig.10 Gate-Source Leakge Current vs Voltage

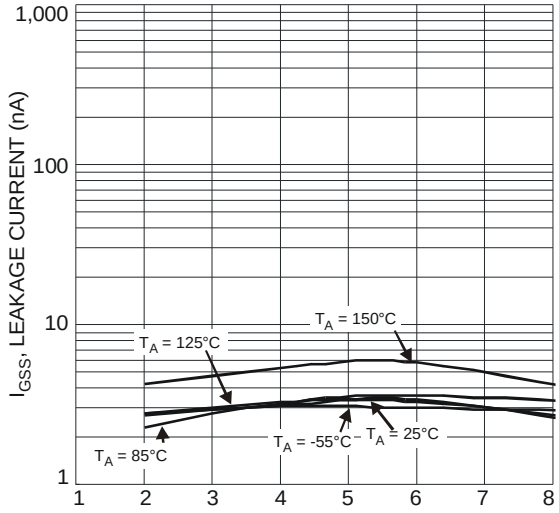


Fig.11 Gate-Source Leakge Current vs Voltage

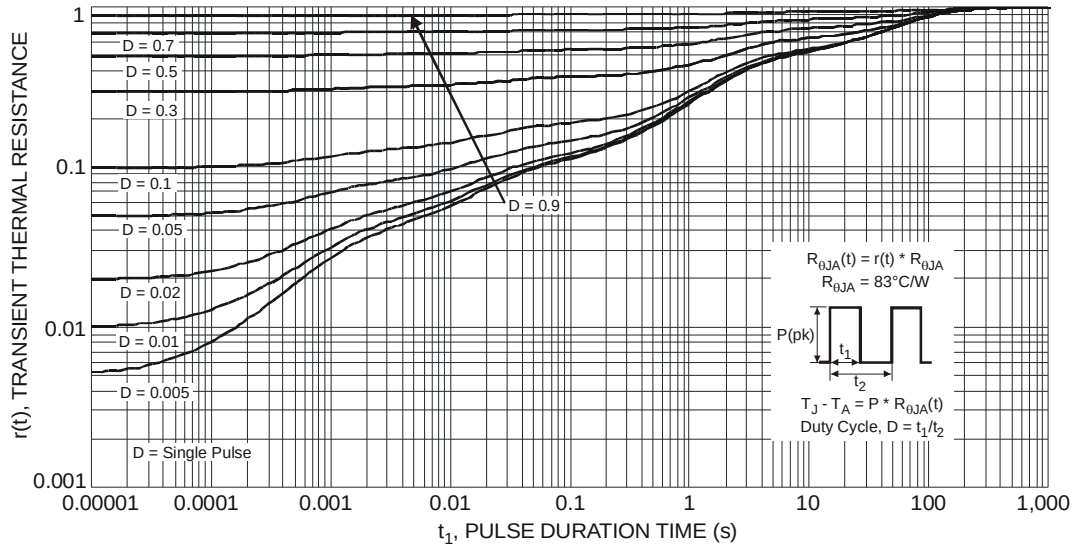


Fig. 12 Transient Thermal Response

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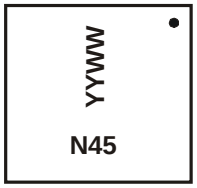
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Ordering Information (Note 7)

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

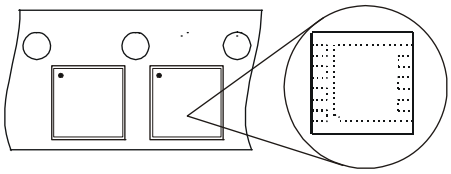
Notes: 7. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information

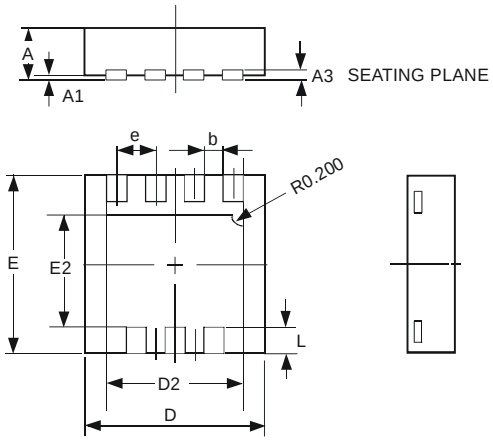


N45 = Product Type Marking Code
YYWW = Date Code Marking
YY = Last digit of year, ex: 09 for 2009
WW = Week code 01 to 52

DFN3030-8

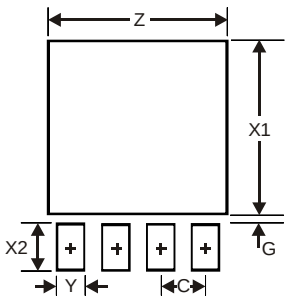


Package Outline Dimensions



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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