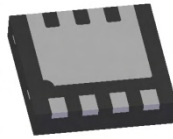


Features

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **ESD Protected Up To 2KV**
- **"Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**



ESD PROTECTED TO 2KV



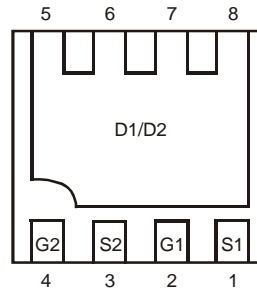
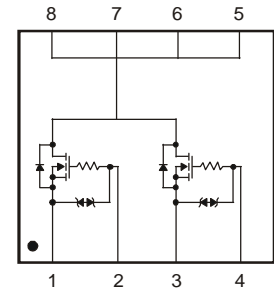
Top View



Bottom View

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-020D
- 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)


 BOTTOM VIEW
Pin Configuration

 TOP VIEW
Equivalent Circuit

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	20	V
Gate-Source Voltage			V_{GSS}	± 12	V
Continuous Drain Current (Note 1)	Steady State	$T_A = 25^\circ\text{C}$	I_D	6.1	A
		$T_A = 70^\circ\text{C}$		5.2	
Pulsed Drain Current			I_{DM}	27	A

Thermal Characteristics

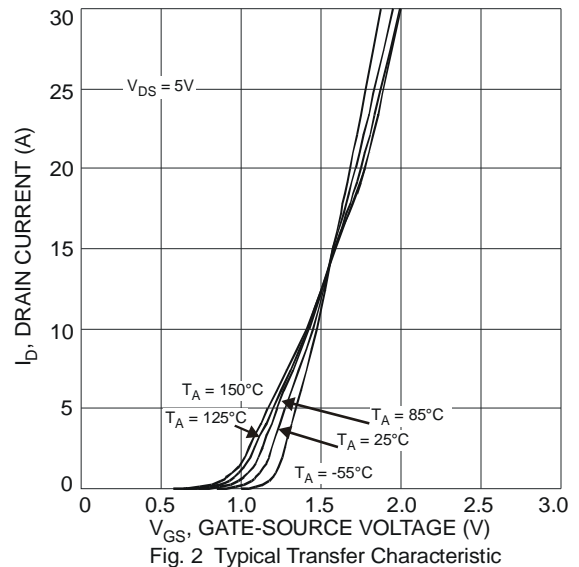
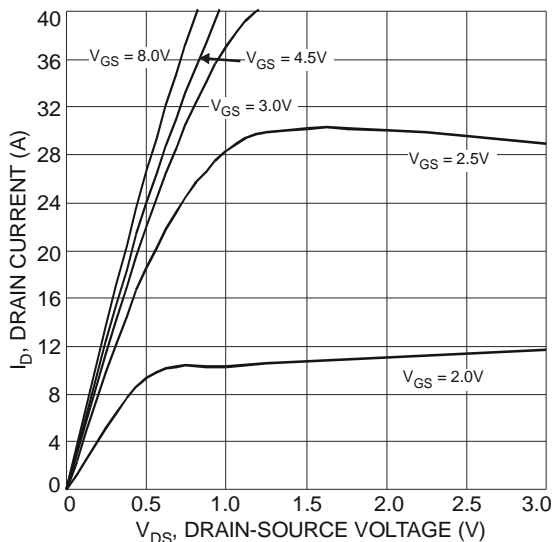
Characteristic			Symbol	Value	Unit
Power Dissipation (Note 1)			P_D	0.92	W
Thermal Resistance, Junction to Ambient @ $T_A = 25^\circ\text{C}$			$R_{\theta JA}$	136	$^\circ\text{C/W}$
Operating and Storage Temperature Range			T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

- Notes:
1. Device mounted on FR-4 PCB with minimum recommended pad layout.
 2. No purposefully added lead.
 3. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)						
Drain-Source Breakdown Voltage	BV _{DSS}	20	-	-	V	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current T _J = 25°C	I _{DSS}	-	-	1.0	μA	V _{DS} = 20V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	-	-	±10	μA	V _{GS} = ±10V, V _{DS} = 0V
Gate-Source Breakdown Voltage	BV _{SGS}	±12	-	-	V	V _{DS} = 0V, I _G = ±250μA
ON CHARACTERISTICS (Note 4)						
Gate Threshold Voltage	V _{GS(th)}	0.35	-	0.95	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(on)}	-	17	23	mΩ	V _{GS} = 4.5V, I _D = 6.5A
		-	20	27		V _{GS} = 2.5V, I _D = 5.5A
		-	25	34		V _{GS} = 1.8V, I _D = 3.5A
		-	-	-		-
Forward Transfer Admittance	Y _{fs}	-	10	-	S	V _{DS} = 10V, I _D = 5A
Diode Forward Voltage	V _{SD}	-	0.7	1.0	V	V _{GS} = 0V, I _S = 1A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	-	143	-	pF	V _{DS} = 10V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	-	74	-	pF	
Reverse Transfer Capacitance	C _{rss}	-	29	-	pF	
Gate Resistance	R _g	-	202	-	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge	Q _g	-	8.8	-	nC	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 6.5A
Gate-Source Charge	Q _{gs}	-	1.4	-	nC	
Gate-Drain Charge	Q _{gd}	-	3.0	-	nC	
Turn-On Delay Time	t _{D(on)}	-	53	-	ns	V _{DD} = 10V, V _{GS} = 4.5V, R _L = 10Ω, R _G = 6Ω
Turn-On Rise Time	t _r	-	78	-	ns	
Turn-Off Delay Time	t _{D(off)}	-	562	-	ns	
Turn-Off Fall Time	t _f	-	234	-	ns	

Notes: 4. Short duration pulse test used to minimize self-heating effect.



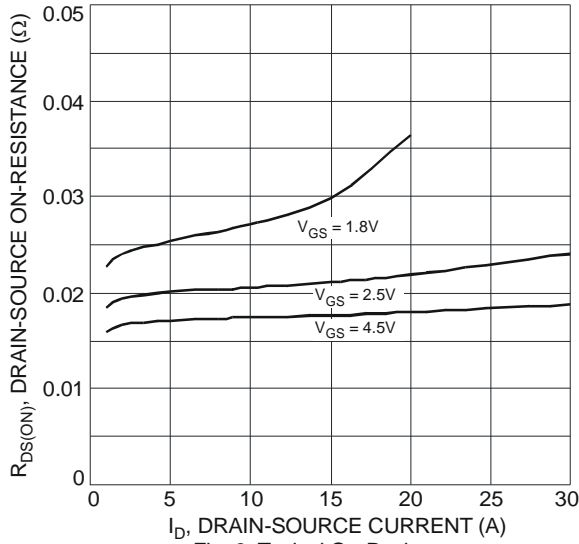


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

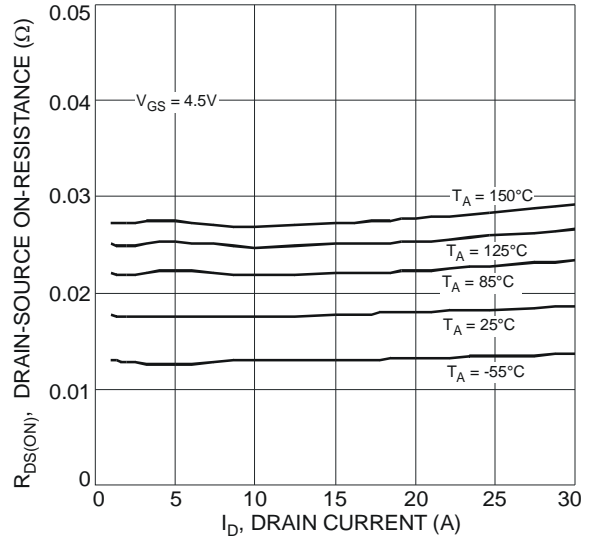


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

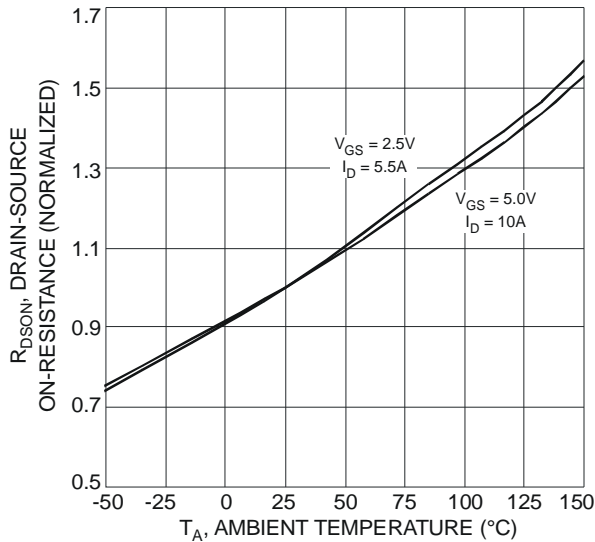


Fig. 5 On-Resistance Variation with Temperature

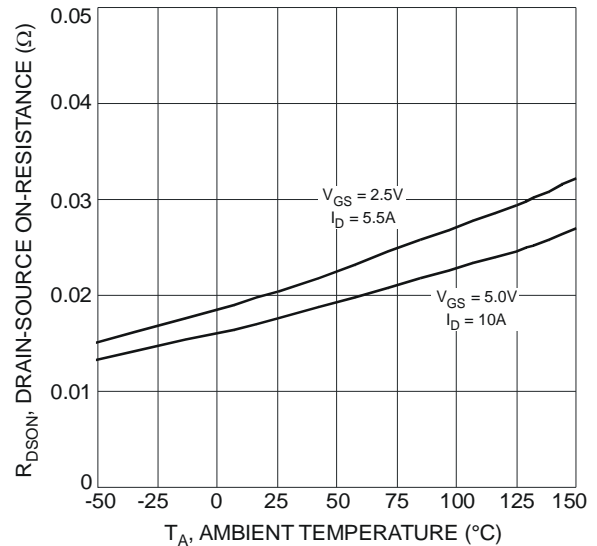


Fig. 6 On-Resistance Variation with Temperature

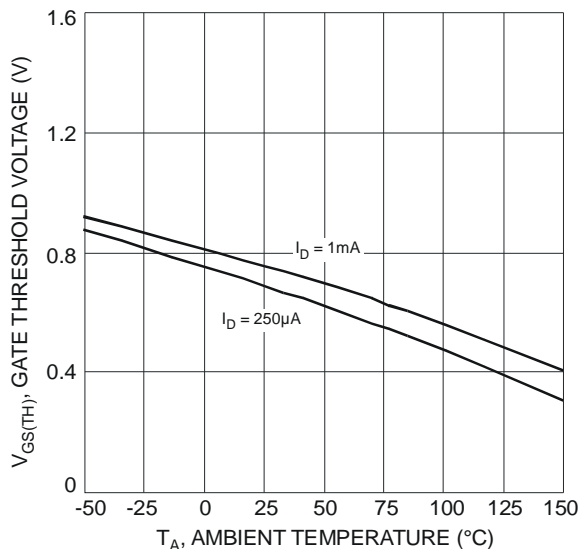


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

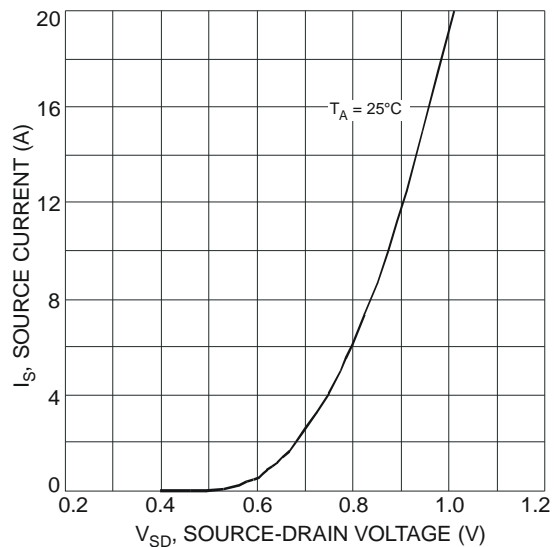


Fig. 8 Diode Forward Voltage vs. Current

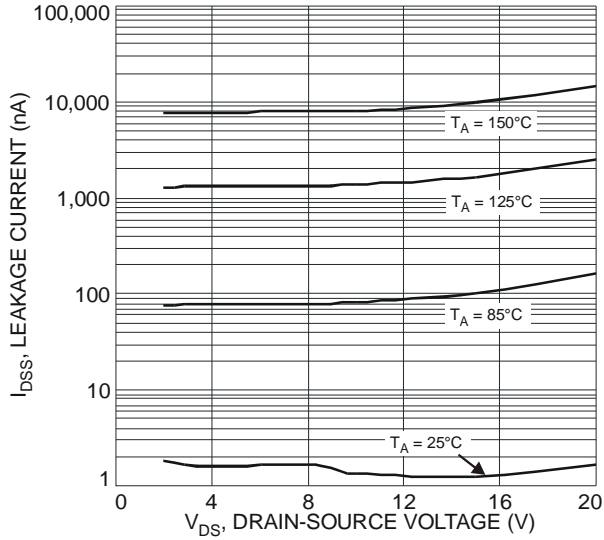


Fig. 9 Typical Leakage Current vs. Drain-Source Voltage

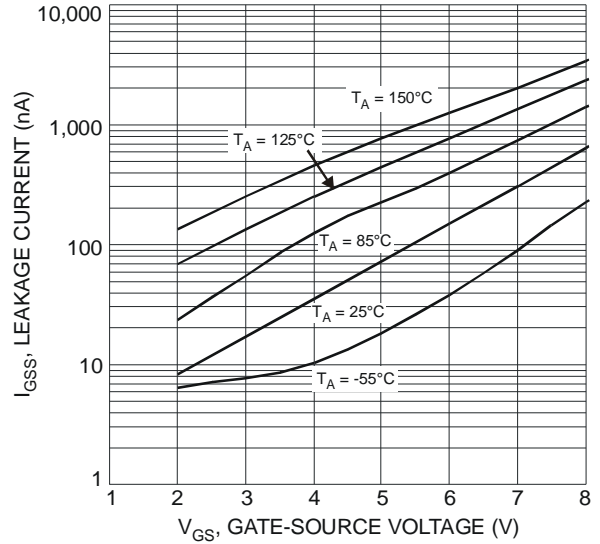


Fig. 10 Gate-Source Leakage Current vs. Voltage

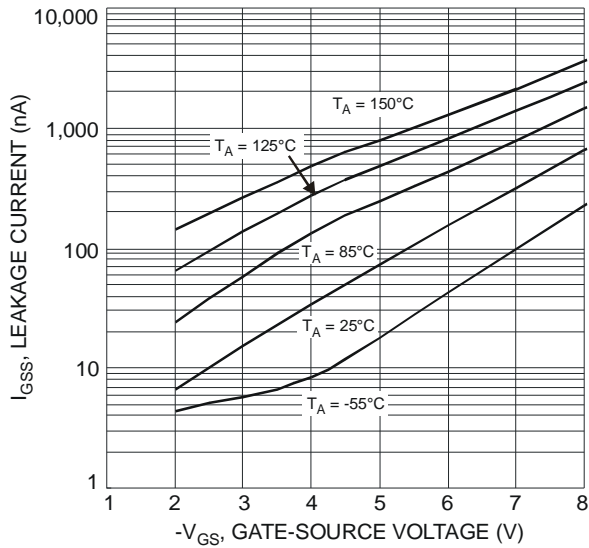


Fig. 11 Gate-Source Leakage Current vs. Voltage

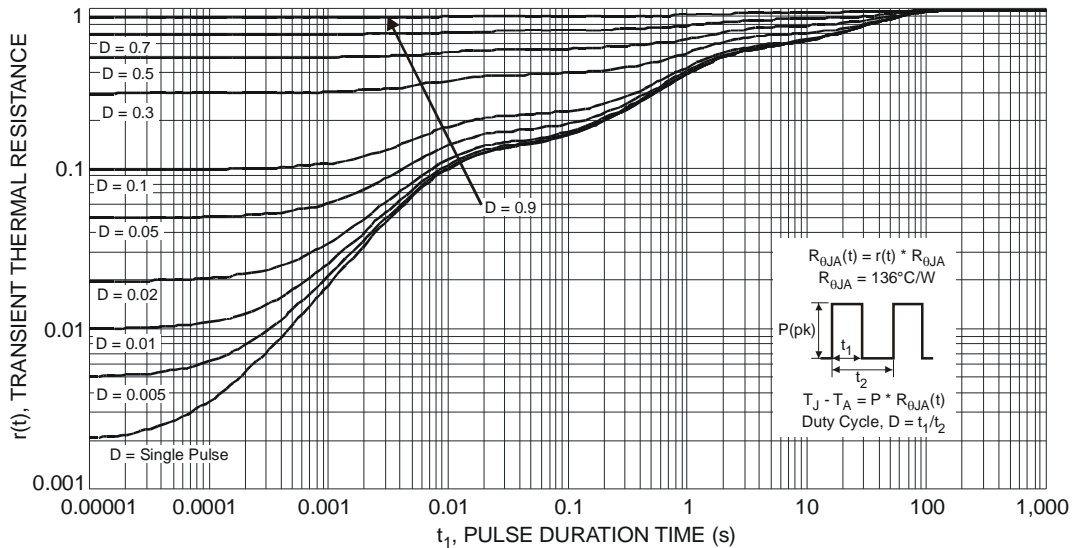


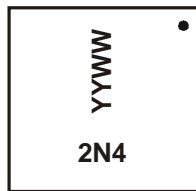
Fig. 12 Transient Thermal Response

Ordering Information (Note 5)

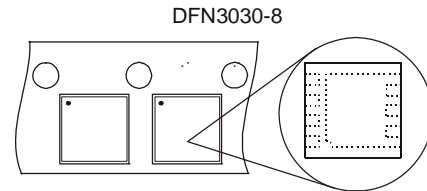
Part Number	Case	Packaging
DMG8601UFG-7	DFN3030-8	3000/Tape & Reel

Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

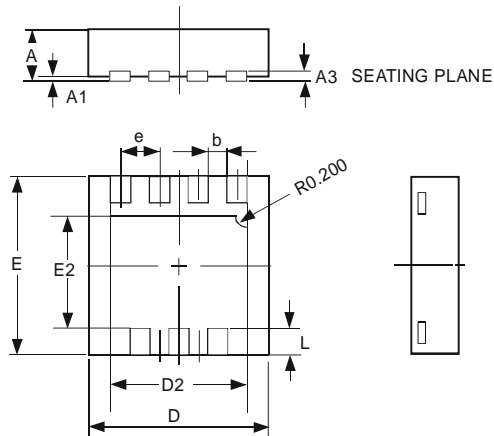
Marking Information



2N4 = Product marking code
YYWW = Date code marking
YY = Last digit of year (ex: 09 for 2009)
WW = Week code 01 to 52

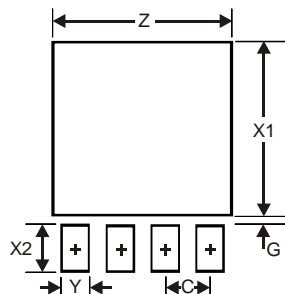


Package Outline Dimensions



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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