



DUAL N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

V _{(BR)DSS}	R _{DS(on)} max	I _D max T _A = +25°C
201/	16mΩ @ V _{GS} = 10V	9.8A
30V	22mΩ @ V _{GS} = 4.5V	8.4A

Description

This MOSFET has been designed to minimize the on-state resistance $(R_{DS(on)})$ and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

Applications

- Backlighting
- Power Management Functions
- DC-DC Converters

Features and Benefits

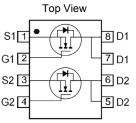
- 100% avalanche rated part
- Low R_{DS(on)} minimizes conduction losses
- Low Q_q minimizes switching losses
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 standards for High Reliability

Mechanical Data

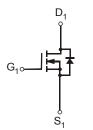
- Case: SO-8
- Case Material: Molded Plastic, "Green" Molding Compound.
 UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections Indicator: See diagram
- Terminals: Finish Matte Tin annealed over Copper leadframe.
 Solderable per MIL-STD-202, Method 208@3)
- Weight: 0.076 grams (approximate)



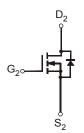




Pin Configuration Internal Schematic



N-Channel MOSFET



N-Channel MOSFET

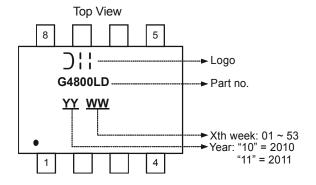
Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
DMG4800LSD-13	Standard	SO-8	2500 / Tape & Reel
DMG4800LSDQ-13	Automotive	SO-8	2500 / Tape & Reel

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- 4. For packaging details, go to our website at http"//www.diodes.com/products/packages.html.

Marking Information





Maximum Ratings ($@T_A = +25^{\circ}C$, unless otherwise specified.)

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	30	V
Gate-Source Voltage			V _{GSS}	±25	V
		$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	I _D	7.5 6.0	Α
Continuous Drain Current (Note 6) V _{GS} = 10V	t<10s	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	I _D	9.8 7.7	А
Continuous Drain Current (Note C) / - 4.5)	Steady State	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	I _D	6.4 5.0	Α
Continuous Drain Current (Note 6) V _{GS} = 4.5V	t<10s	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	I _D	8.4 6.6	Α
Maximum Continuous Body Diode Forward Current (Note 6)			I _S	2	Α
Pulsed Drain Current (10µs pulse, duty cycle = 1%)			I _{DM}	42	Α
Avalanche Current (Notes 7 & 8) L = 0.1mH			I _{AR}	17	Α
Repetitive Avalanche Energy (Notes 7 & 8) L = 0.1mH			E _{AR}	14	mJ

Thermal Characteristics

Characteristic		Symbol	Value	Units	
Total Power Dissipation (Note 5)		P_{D}	1.17	W	
Thermal Desistance, Junction to Ambient (Note E)	Steady State	П	107	°C/W	
Thermal Resistance, Junction to Ambient (Note 5)	t<10s	$R_{\theta JA}$	61		
Total Power Dissipation (Note 6)		P_{D}	1.5	W	
Thermal Begintance, Junction to Ambient (Note 6)		В	83		
Thermal Resistance, Junction to Ambient (Note 6)	t<10s	$R_{\theta JA}$	49	°C/W	
Thermal Resistance, Junction to Case		R _{0JC}	14.5		
Operating and Storage Temperature Range		T _{J,} T _{STG}	-55 to 150	°C	

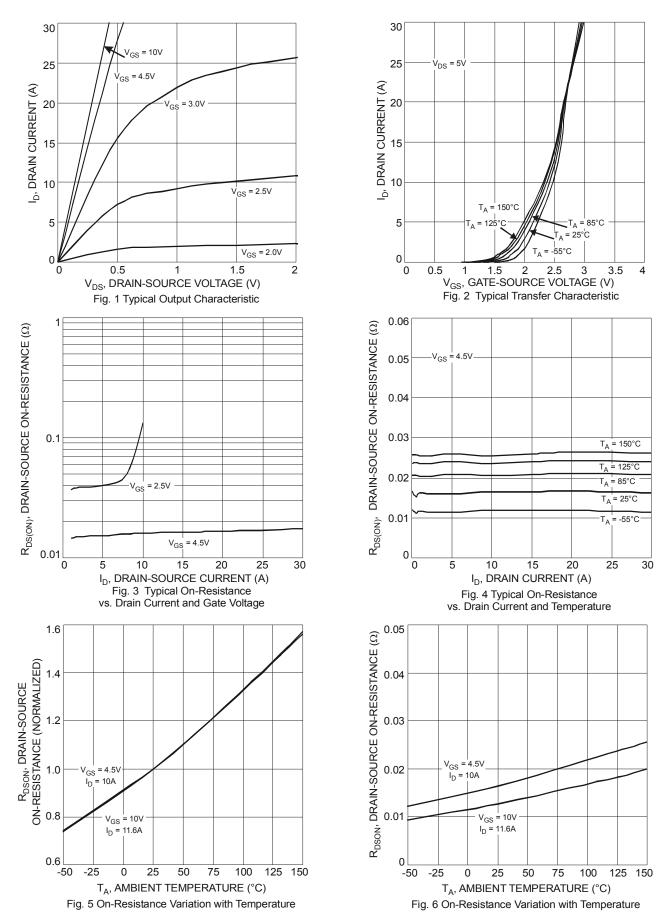
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 9)							
Drain-Source Breakdown Voltage	BV _{DSS}	30	-	-	V	$V_{GS} = 0V, I_D = 250\mu A$	
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	-	-	1.0	μΑ	$V_{DS} = 30V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	1	-	±100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 9)							
Gate Threshold Voltage	$V_{GS(th)}$	8.0	-	1.6	V	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	
Static Drain-Source On-Resistance			12	16	mΩ	$V_{GS} = 10V, I_D = 9A$	
Static Drain-Source On-Resistance	R _{DS(on)}	-	16	22		$V_{GS} = 4.5V, I_D = 7A$	
Forward Transfer Admittance	Y _{fs}	-	8	-	S	$V_{DS} = 10V, I_{D} = 9A$	
Diode Forward Voltage	V _{SD}	-	0.72	0.94	V	$V_{GS} = 0V, I_{S} = 1A$	
DYNAMIC CHARACTERISTICS (Note 10)							
Input Capacitance	C _{iss}	1	798	-	рF	V _{DS} = 10V, V _{GS} = 0V, f = 1.0MHz	
Output Capacitance	Coss	-	128	-	рF		
Reverse Transfer Capacitance	C _{rss}	1	122	-	рF		
Gate Resistance	Rg	-	1.37	-	Ω	$V_{DS} = 0V$, $V_{GS} = 0V$, $f = 1MHz$	
Total Gate Charge	Qg	-	8.56	-	nC	V _{GS} = 5V, V _{DS} = 15V, I _D = 9A	
Gate-Source Charge	Q _{gs}	-	1.8	-	nC		
Gate-Drain Charge	Q_{gd}	-	2.5	-	nC		
Turn-On Delay Time	t _{D(on)}	-	5.03	-	ns	V _{DD} = 15V, V _{GEN} = 10V,	
Turn-On Rise Time	t _r	-	4.50	-	ns		
Turn-Off Delay Time	t _{D(off)}	-	26.33	-	ns	$R_L = 15\Omega$, $R_G = 6\Omega$, $I_D = 1A$	
Turn-Off Fall Time	t _f	-	8.55	-	ns		

Notes:

- 5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
- 6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
- 7. I_{AR} and E_{AR} rating are based on low frequency and duty cycles to keep T_J = +25°C.
 8. Applicable to products manufactured with Data Code "1146" (Nov, 2011) and newer.
- 9. Short duration pulse test used to minimize self-heating effect.
- 10. Guaranteed by design. Not subject to product testing.







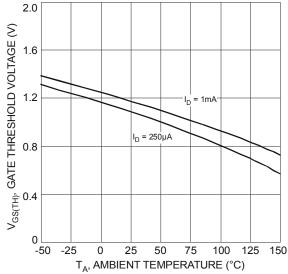
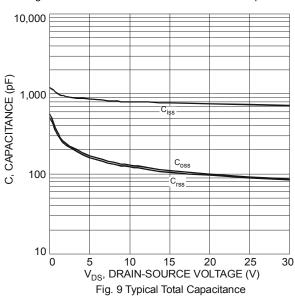


Fig. 7 Gate Threshold Variation vs. Ambient Temperature



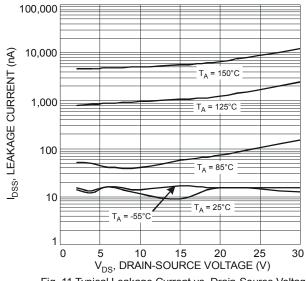
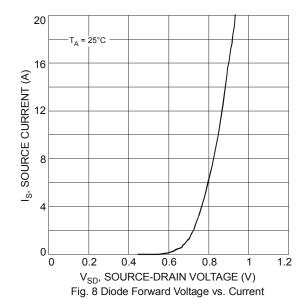
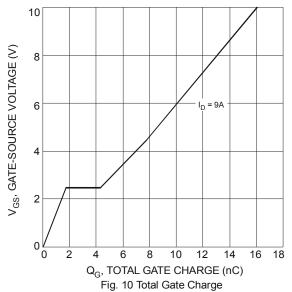
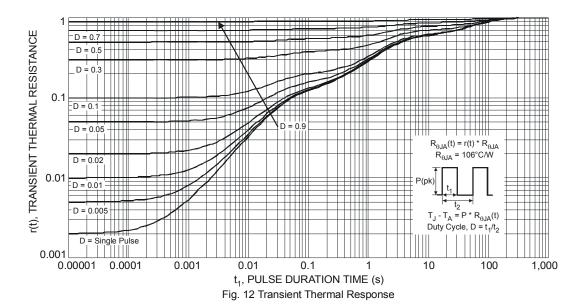


Fig. 11 Typical Leakage Current vs. Drain-Source Voltage

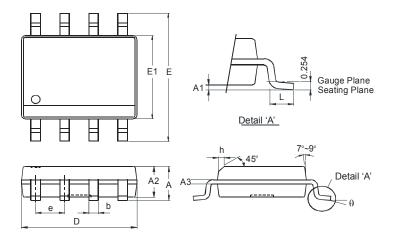






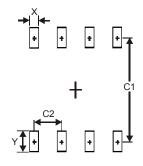


Package Outline Dimensions



SO-8					
Dim	Min	Max			
Α	-	1.75			
A 1	0.10	0.20			
A2	1.30	1.50			
A3	0.15	0.25			
b	0.3	0.5			
D	4.85	4.95			
Е	5.90	6.10			
E1	3.85 3.95				
е	1.27 Typ				
h	- 0.35				
L	0.62	0.82			
θ	0°	8°			
All Dimensions in mm					

Suggested Pad Layout



Dimensions	Value (in mm)			
Х	0.60			
Υ	1.55			
C1	5.4			
C2	1.27			



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Офис по работе с юридическими лицами:

105318, г. Москва, ул. Щербаковская д. 3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru moschip.ru_6 moschip.ru 4 moschip.ru 9