



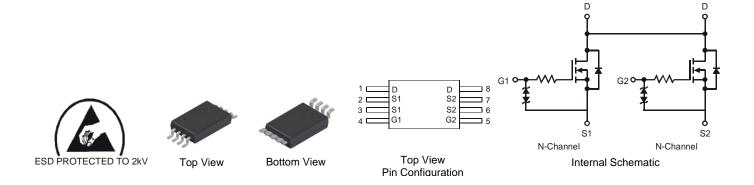
DUAL N-CHANNEL ENHANCEMENT MODE MOSFET

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)
- ESD Protected Up To 2KV
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

- Case: TSSOP-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
- Weight: 0.039 grams (approximate)



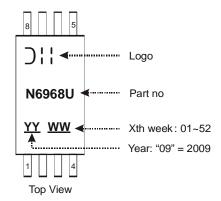
Ordering Information (Note 3)

Part Number	Case	Packaging
DMG6968UTS-13	TSSOP-8	2500 / 13" Tape & Reel

Notes:

- s: 1. No purposefully added lead.
 - 2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com.
 - 3. For packaging details, go to our website at http://www.diodes.com.

Marking Information





Maximum Ratings @T_A = 25°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 4)	Steady State	T _A = 25°C T _A = 70°C	I _D	5.2 3.5	Α
Pulsed Drain Current		I _{DM}	30	Α	

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4)	P _D	1.0	W
Thermal Resistance, Junction to Ambient @T _A = 25°C	R _{0JA}	125	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

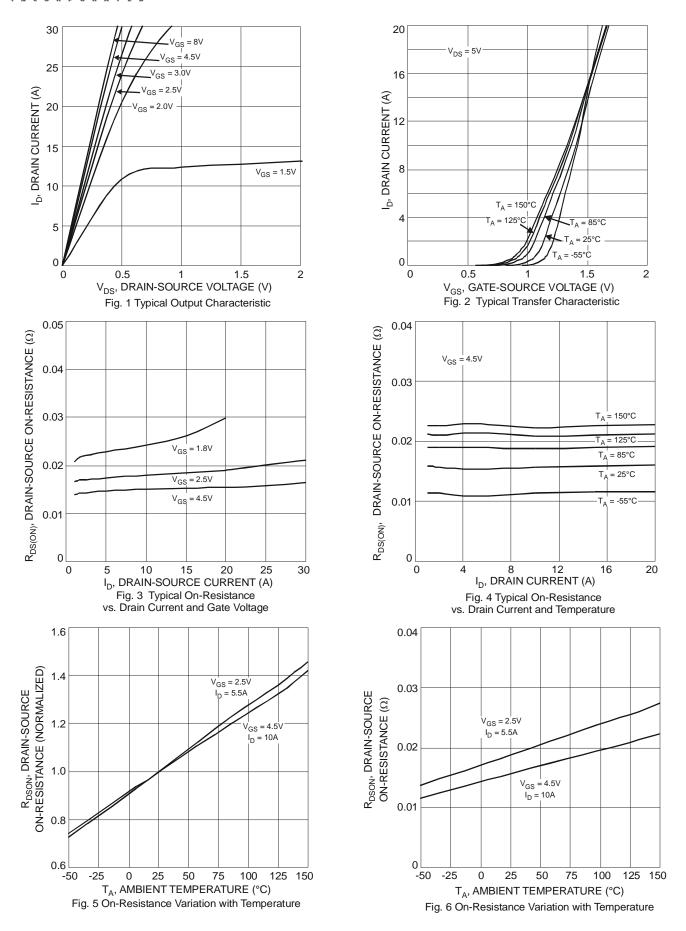
Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 5)							
Drain-Source Breakdown Voltage	BV _{DSS}	20	-	-	V	$V_{GS} = 0V, I_D = 250\mu A$	
Zero Gate Voltage Drain Current	I _{DSS}	-	-	1.0	μΑ	$V_{DS} = 20V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	-	-	10	μΑ	$V_{GS} = \pm 10V, V_{DS} = 0V$	
Gate-Source Breakdown Voltage	BV _{SGS}	±12	-	-	V	$V_{DS} = 0V, I_G = \pm 250 \mu A$	
ON CHARACTERISTICS (Note 5)	-						
Gate Threshold Voltage	V _{GS(th)}	0.35	-	0.95	V	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	
		-	18	23		$V_{GS} = 4.5V, I_D = 6.5A$	
Static Drain-Source On-Resistance	R _{DS} (ON)	-	21	27	mΩ	$V_{GS} = 2.5V, I_D = 5.5A$	
		-	26	34		$V_{GS} = 1.8V, I_D = 3.5A$	
Forward Transfer Admittance	Y _{fs}	-	13	-	S	$V_{DS} = 5V$, $I_D = 5A$	
Diode Forward Voltage	V_{SD}	-	0.7	1.0	V	$V_{GS} = 0V, I_{S} = 1A$	
DYNAMIC CHARACTERISTICS							
Input Capacitance	Ciss	-	143	-	pF		
Output Capacitance	Coss	-	74	-	pF	$V_{DS} = 10V, V_{GS} = 0V f = 1.0MHz$	
Reverse Transfer Capacitance	C _{rss}	-	29	-	pF		
Gate Resistance	Rg	-	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		
Turn-On Rise Time	t _r	-	78	-	ns	$\begin{aligned} V_{DD} &= 10 \text{V}, V_{GS} = 4.5 \text{V}, \\ R_L &= 10 \Omega, R_G = 6 \Omega \end{aligned}$	
Turn-Off Delay Time	t _{D(off)}	-	562	-	ns		
Turn-Off Fall Time	tf	-	234	-	ns		

Notes:

- 4. Device mounted on FR-4 PCB.
- 5. Short duration pulse test used to minimize self-heating effect.







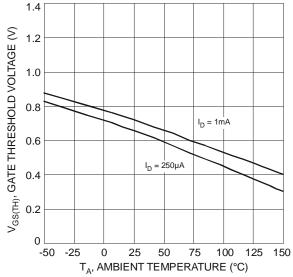
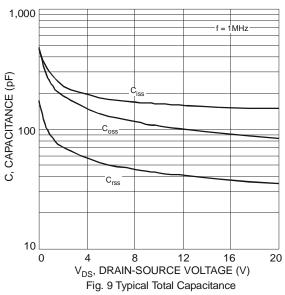
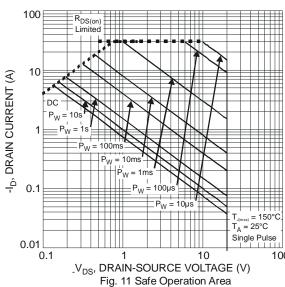
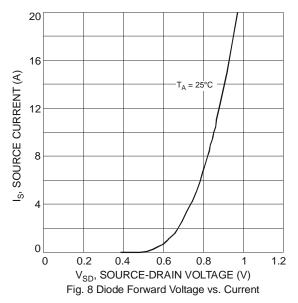


Fig. 7 Gate Threshold Variation vs. Ambient Temperature







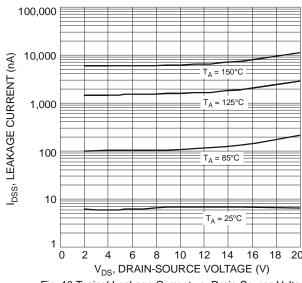


Fig. 10 Typical Leakage Current vs. Drain-Source Voltage

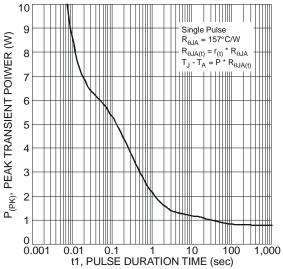


Fig. 12 Single Pulse Maximum Power Dissipation



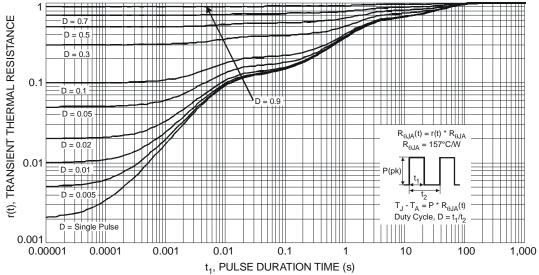
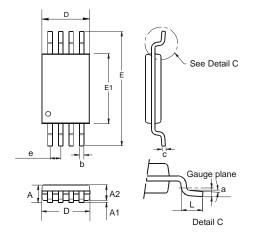


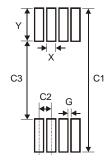
Fig. 13 Transient Thermal Response

Package Outline Dimensions



TSSOP-8L					
Dim	Min	Max	Тур		
а	0.09	-	-		
Α	_	1.20	_		
A1	0.05	0.15	_		
A2	0.825	1.025	0.925		
b	0.19	0.30	-		
С	0.09	0.20	_		
D	2.90	3.10	3.025		
е	-	-	0.65		
Е	_	_	6.40		
E1	4.30	4.50	4.425		
L	0.45	0.75	0.60		
All Dimensions in mm					

Suggested Pad Layout



Dimensions	Value (in mm)
Х	0.45
Υ	1.78
C1	7.72
C2	0.65
C3	4.16
G	0.20



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