

### Features

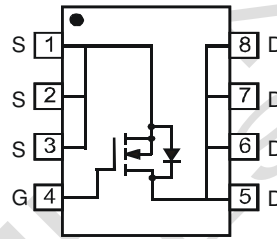
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

### 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: See Diagram Below
- Weight: 0.072 grams (approximate)



Top View



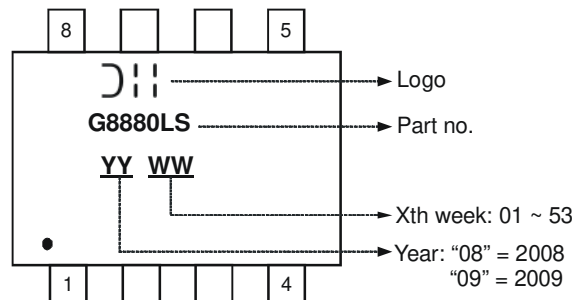
Top View  
Internal Schematic

### Ordering Information (Note 4)

Part Number	Case	Packaging
DMG8880LSS-13	SO-8	2500 / Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See <http://www.diodes.com> 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>.

### Marking Information



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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			$V_{DSS}$	30	V
Gate-Source Voltage			$V_{GSS}$	$\pm 20$	V
Continuous Drain Current (Note 5)	Steady State	$T_A = 25^\circ\text{C}$	$I_D$	11.6	A
		$T_A = 70^\circ\text{C}$		8.5	
Pulsed Drain Current (Note 6)			$I_{DM}$	80	A

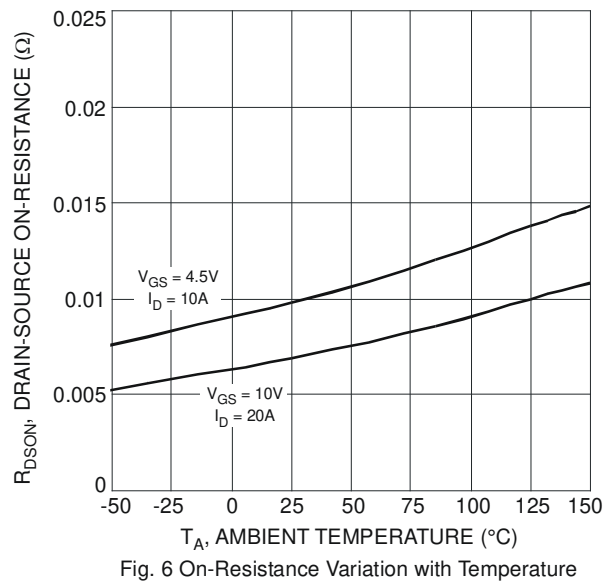
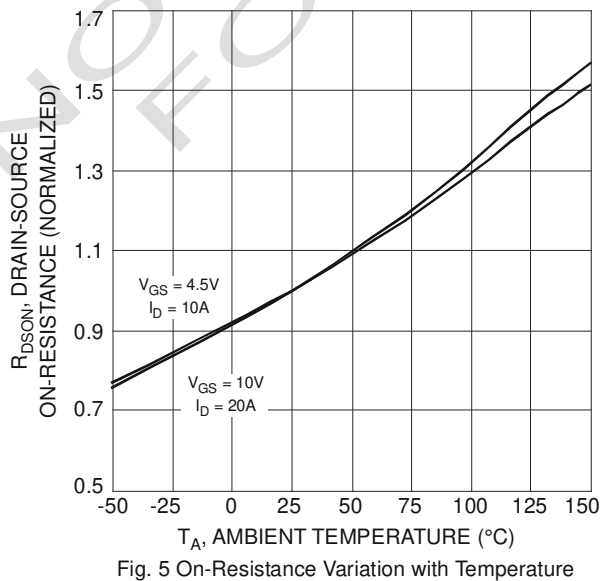
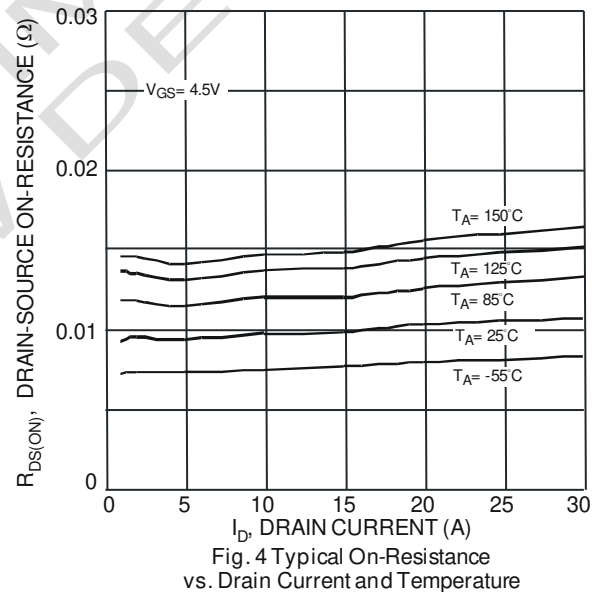
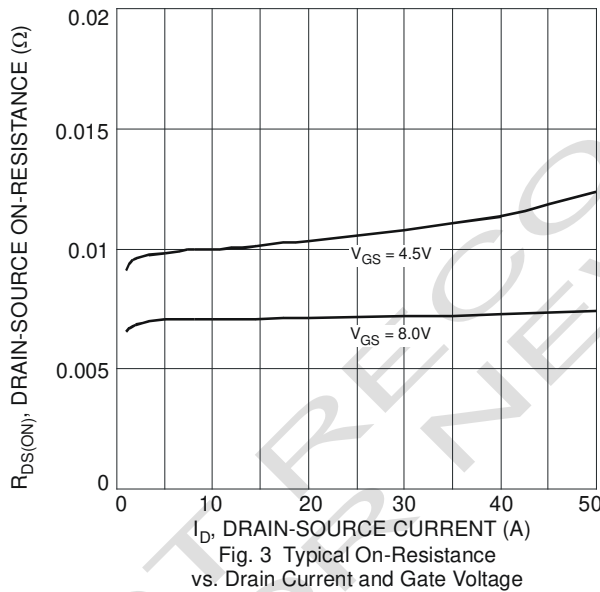
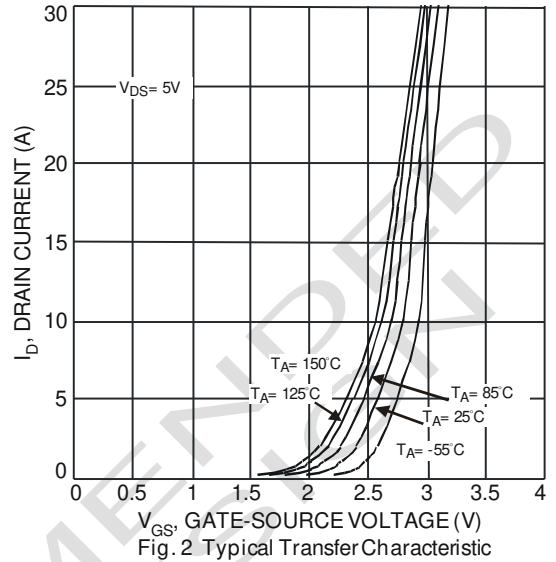
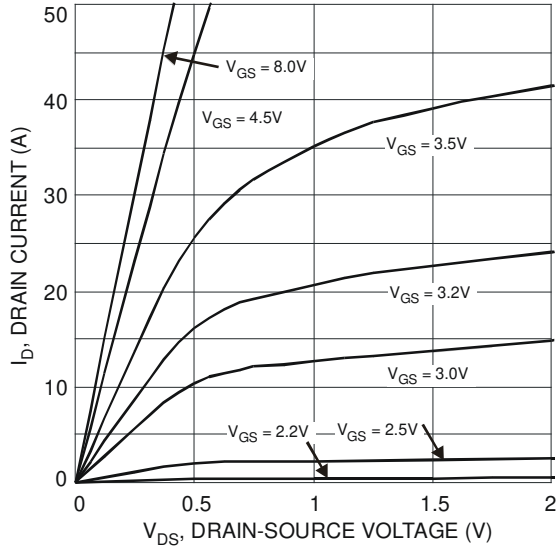
### Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	$P_D$	1.43	W
Thermal Resistance, Junction to Ambient @ $T_A = 25^\circ\text{C}$ (Note 5)	$R_{JA}$	87	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

### Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 7)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	30	-	-	V	$V_{GS} = 0V, I_D = 250\mu\text{A}$
Zero Gate Voltage Drain Current $T_J = 25^\circ\text{C}$	$I_{DSS}$	-	-	1.0	$\mu\text{A}$	$V_{DS} = 30V, V_{GS} = 0V$
Gate-Source Leakage	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
<b>ON CHARACTERISTICS (Note 7)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	1.0	1.5	2.0	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(on)}$	-	7.0	10	m $\Omega$	$V_{GS} = 10V, I_D = 11.6A$
		-	9.6	14		$V_{GS} = 4.5V, I_D = 10.7A$
Diode Forward Voltage	$V_{SD}$	-	0.7	1.0	V	$V_{GS} = 0V, I_S = 2.1A$
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	$C_{iss}$	-	1289	-	pF	$V_{DS} = 15V, V_{GS} = 0V, f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	-	187	-	pF	
Reverse Transfer Capacitance	$C_{rss}$	-	162	-	pF	
Gate Resistance	$R_g$	-	0.97	-	$\Omega$	$V_{DS} = 0V, V_{GS} = 0V, f = 1\text{MHz}$
Total Gate Charge at 10V	$Q_g$	-	27.6	-	nC	$V_{GS} = 10V, V_{DS} = 15V, I_D = 11.6A, I_G = 1.0\text{mA}$
Total Gate Charge at 5V	$Q_g$	-	14.4	-	nC	$V_{GS} = 5V, V_{DS} = 15V, I_D = 11.6A, I_G = 1.0\text{mA}$
Gate-Source Charge	$Q_{gs}$	-	3.6	-	nC	
Gate-Drain Charge	$Q_{gd}$	-	4.9	-	nC	
Turn-On Delay Time	$t_{D(on)}$	-	7.04	-	ns	$V_{DD} = 15V, V_{GS} = 10V, R_{GS} = 11\Omega, I_D = 11.6A$
Turn-On Rise Time	$t_r$	-	17.52	-	ns	
Turn-Off Delay Time	$t_{D(off)}$	-	36.13	-	ns	
Turn-Off Fall Time	$t_f$	-	19.67	-	ns	

- Notes:
5. Device mounted on FR-4 PCB, with minimum recommended pad layout.
  6. Repetitive rating, pulse width limited by junction temperature.
  7. Short duration pulse test used to minimize self-heating effect.
  8. Guaranteed by design. Not subject to production testing.



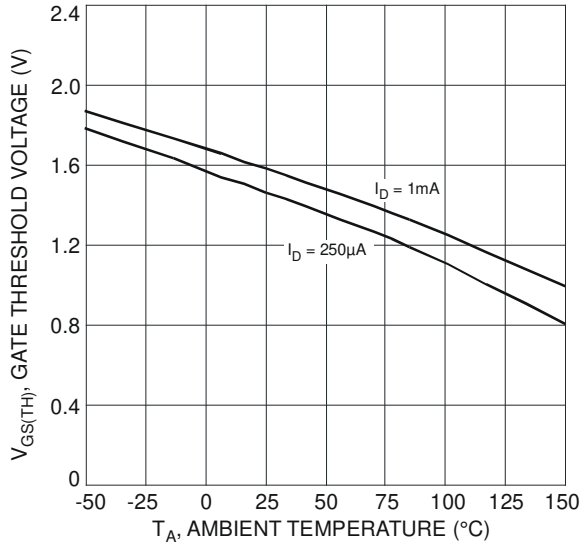


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

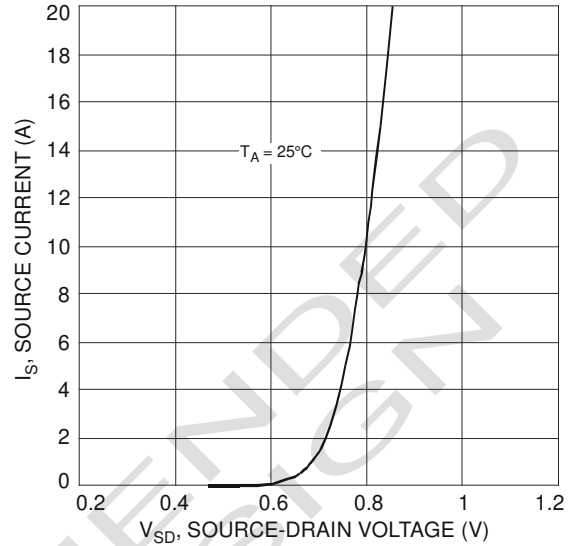


Fig. 8 Diode Forward Voltage vs. Current

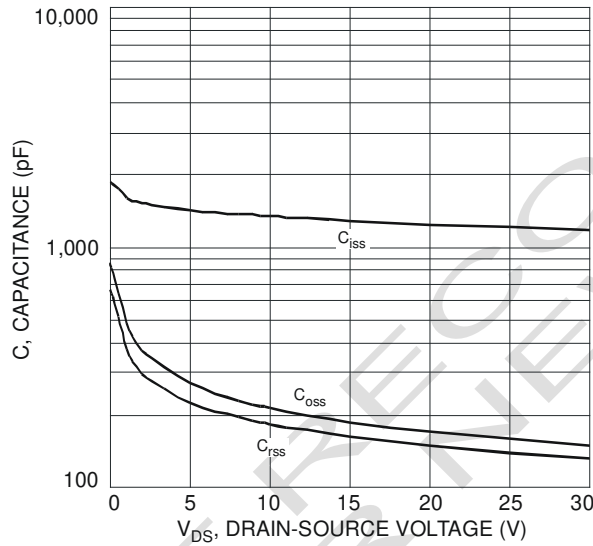


Fig. 9 Typical Total Capacitance

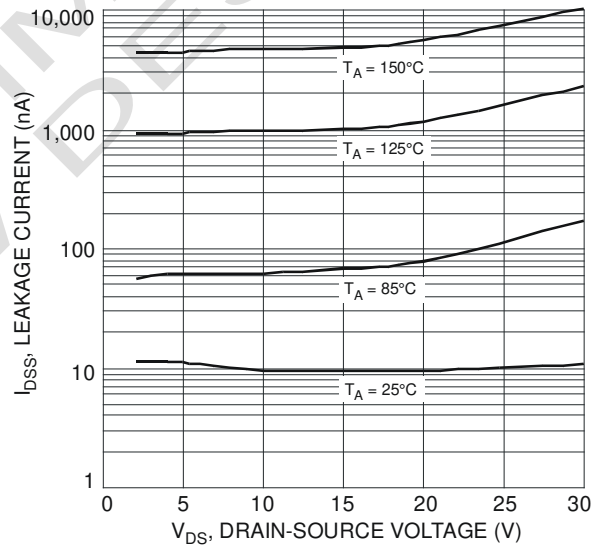


Fig. 10 Typical Leakage Current vs. Drain-Source Voltage

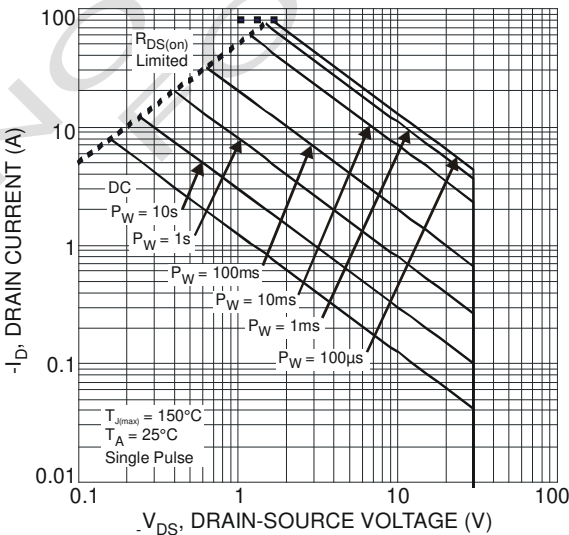


Fig. 11 Safe Operation Area

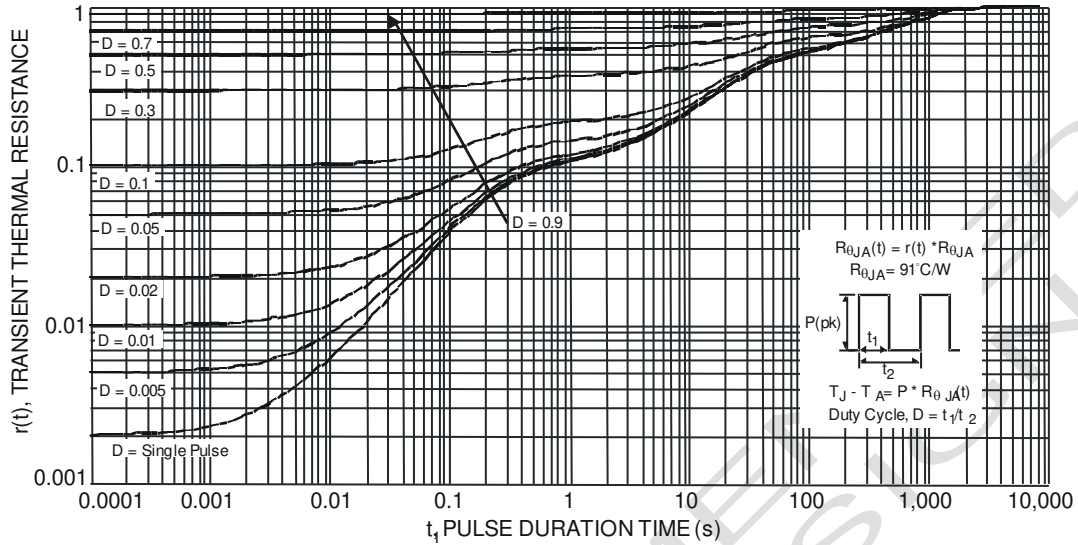
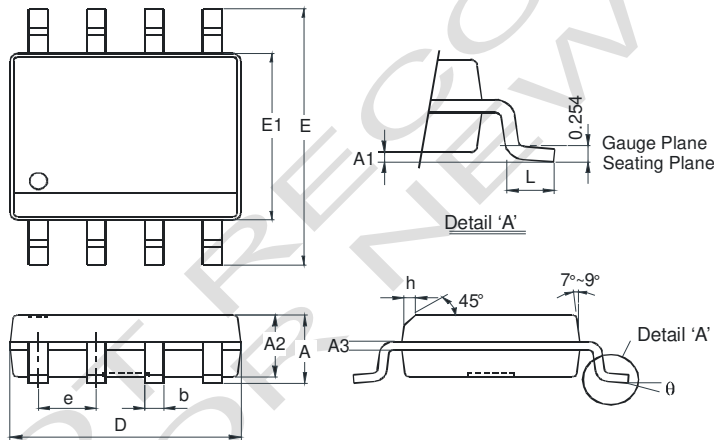


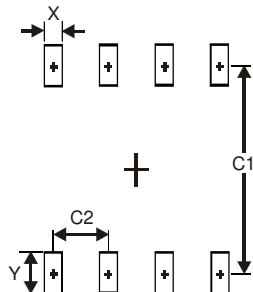
Fig. 12 Transient Thermal Response

Package Outline Dimensions



SO-8		
Dim	Min	Max
A	-	1.75
A1	0.10	0.20
A2	1.30	1.50
A3	0.15	0.25
b	0.3	0.5
D	4.85	4.95
E	5.90	6.10
E1	3.85	3.95
e	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)
X	0.60
Y	1.55
C1	5.4
C2	1.27

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