

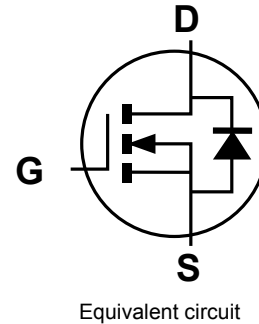
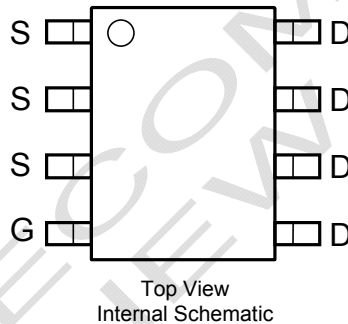
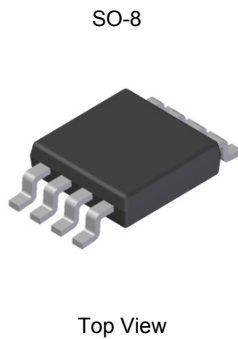
Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)}$ max	I_D max $T_A = 25^\circ\text{C}$
30V	10m Ω @ $V_{GS} = 10\text{V}$	11.6A
	14m Ω @ $V_{GS} = 4.5\text{V}$	10.7A

Description and Applications

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.

- Backlighting
- Power Management Functions
- DC-DC Converters
-



Features and Benefits

- 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

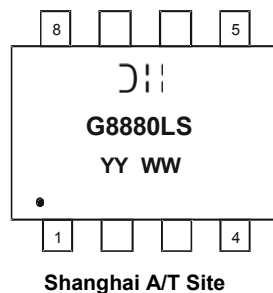
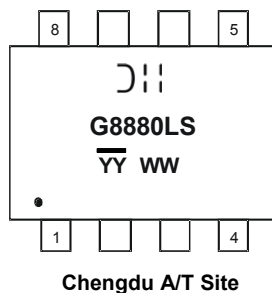
- Case: SO-8
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections Indicator: See diagram
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.074 grams (approximate)

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



⌋⌋ = Manufacturer's Marking
 G8880LS = Product Type Marking Code
 YYWW = Date Code Marking
 YY or \overline{YY} = Year (ex: 13 = 2013)
 WW = Week (01 - 53)
 \overline{YY} = Date Code Marking for SAT (Shanghai Assembly/ Test site)
 \overline{YY} = Date Code Marking for CAT (Chengdu Assembly/ Test site)

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 5)	Steady State	T _A = 25°C	I _D	11.6	A
		T _A = 70°C		8.5	A
Pulsed Drain Current (Note 6)			I _{DM}	80	A

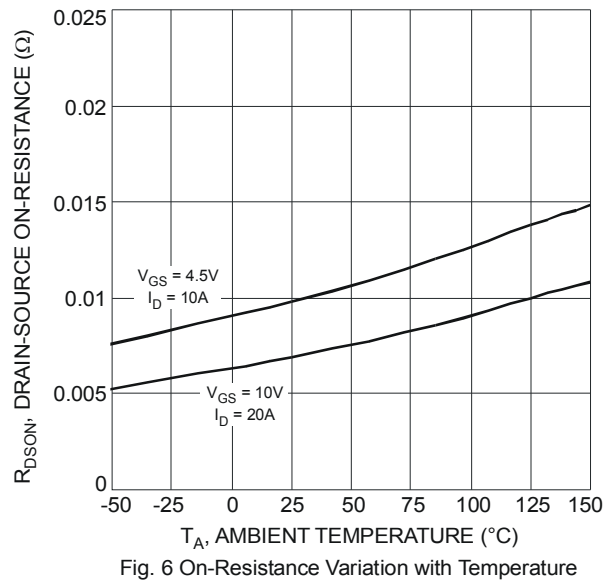
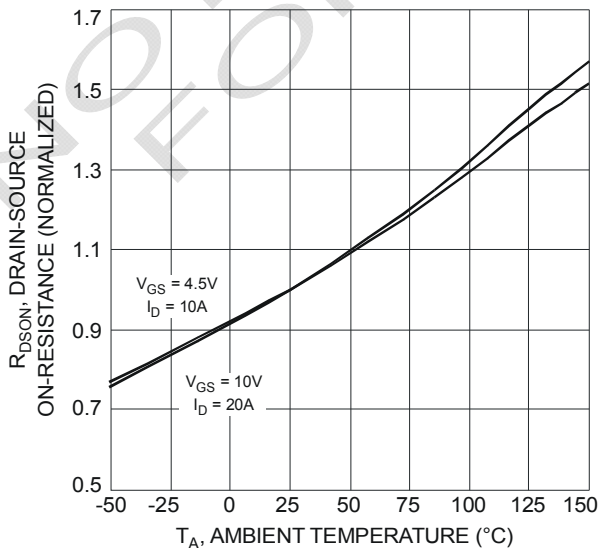
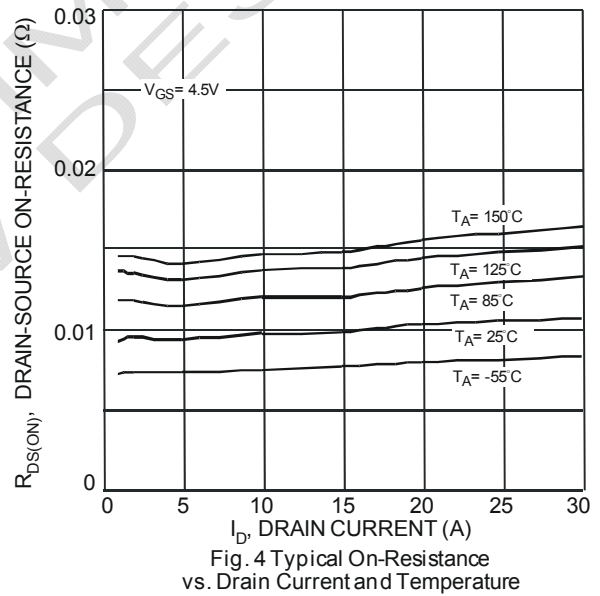
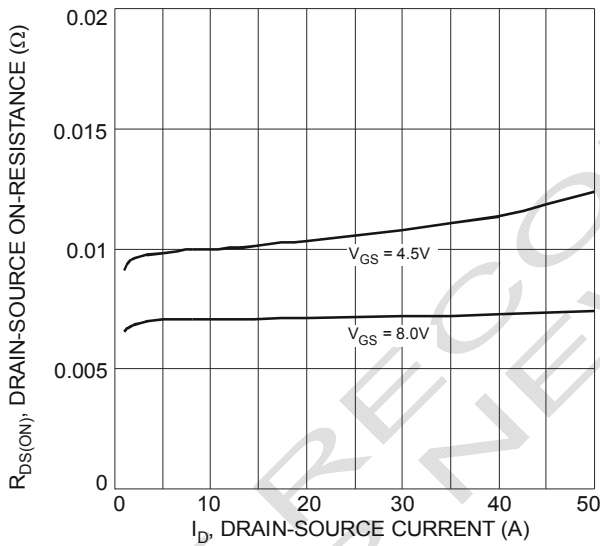
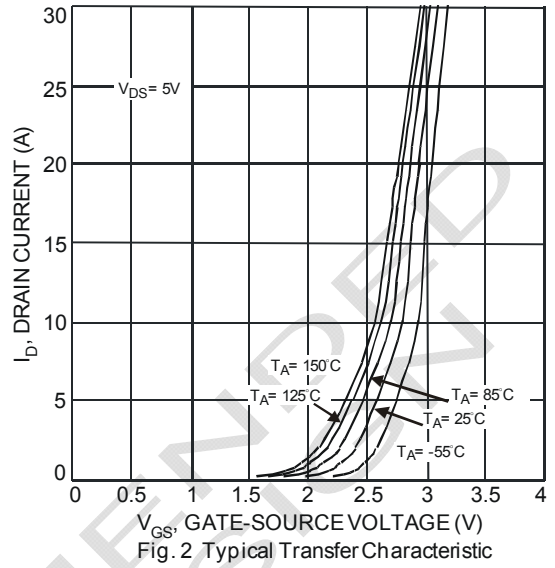
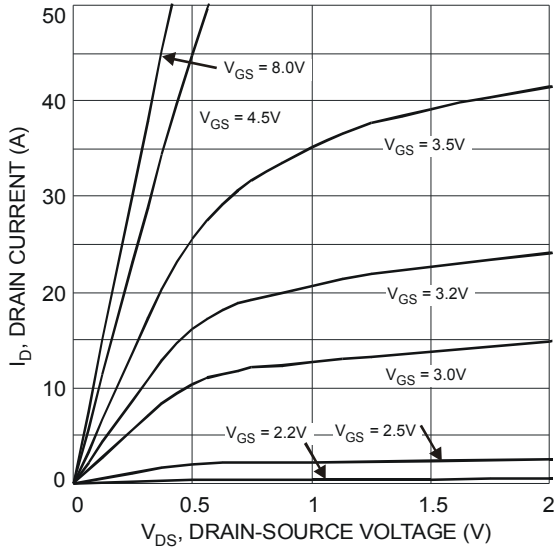
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	1.43	W
Thermal Resistance, Junction to Ambient @T _A = 25°C (Note 5)	R _{θJA}	87	°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	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
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 7)						
Gate Threshold Voltage	V _{GS(th)}	1.0	1.5	2.0	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(on)}	-	7.0	10	mΩ	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
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	-	1289	-	pF	V _{DS} = 15V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	-	187	-	pF	
Reverse Transfer Capacitance	C _{rss}	-	162	-	pF	
Gate Resistance	R _g	-	0.97	-	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge at 10V	Q _g	-	27.6	-	nC	V _{GS} = 10V, V _{DS} = 15V, I _D = 11.6A, I _G = 1.0mA
Total Gate Charge at 5V	Q _g	-	14.4	-	nC	V _{GS} = 5V, V _{DS} = 15V, I _D = 11.6A, I _G = 1.0mA
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} = 11Ω, 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.



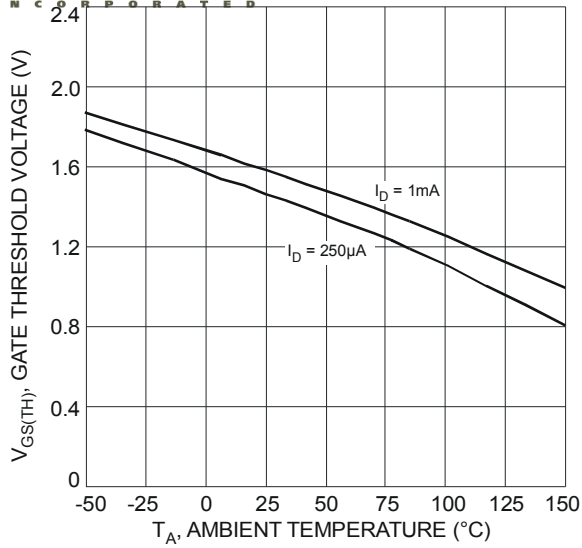


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

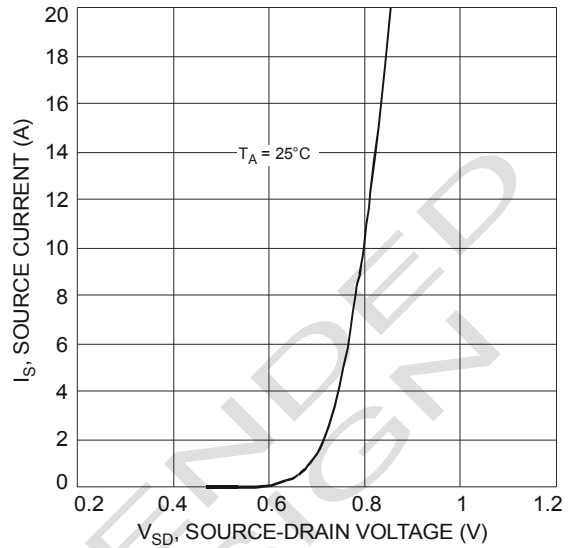


Fig. 8 Diode Forward Voltage vs. Current

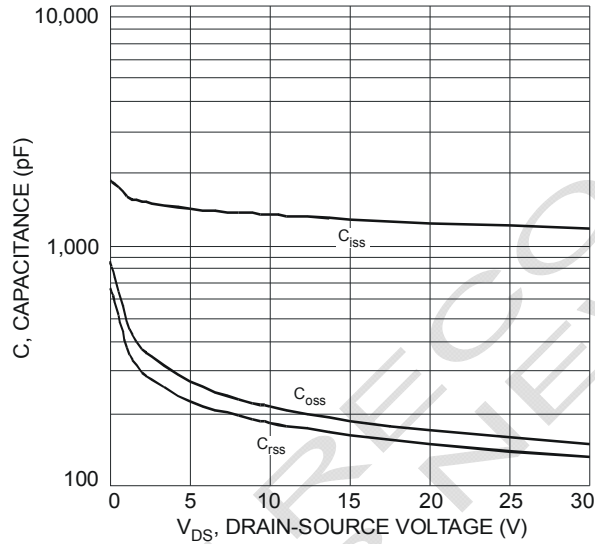


Fig. 9 Typical Total Capacitance

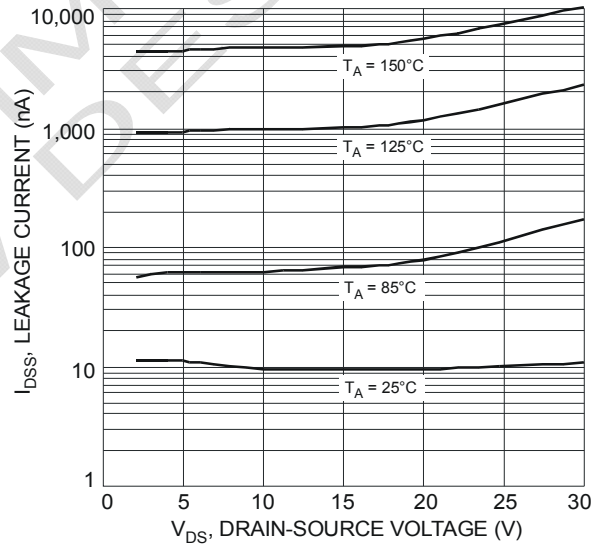


Fig. 10 Typical Leakage Current vs. Drain-Source Voltage

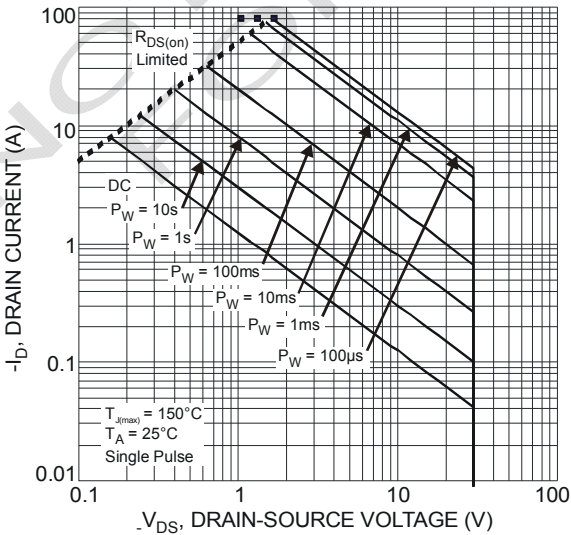


Fig. 11 Safe Operation Area

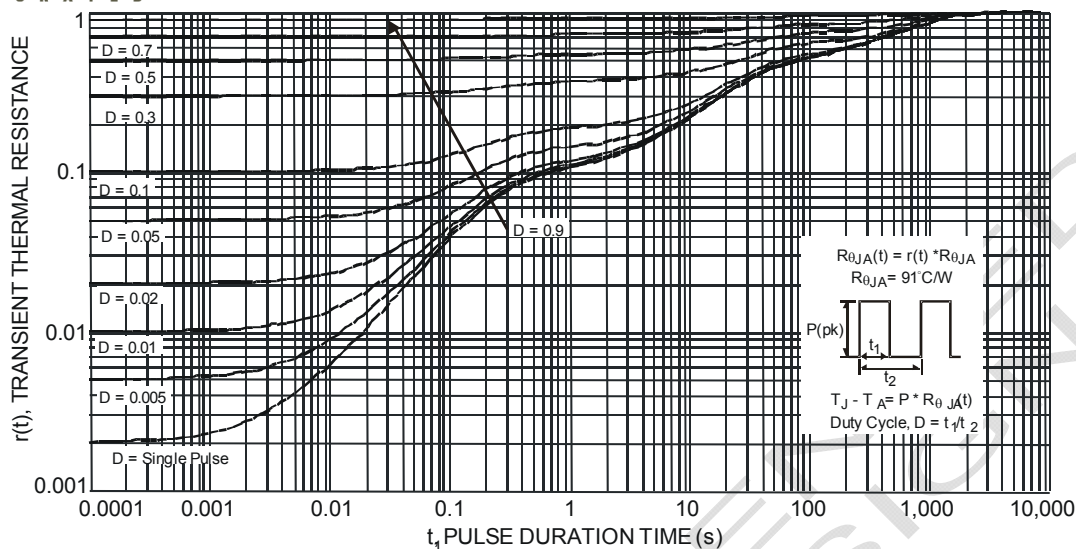
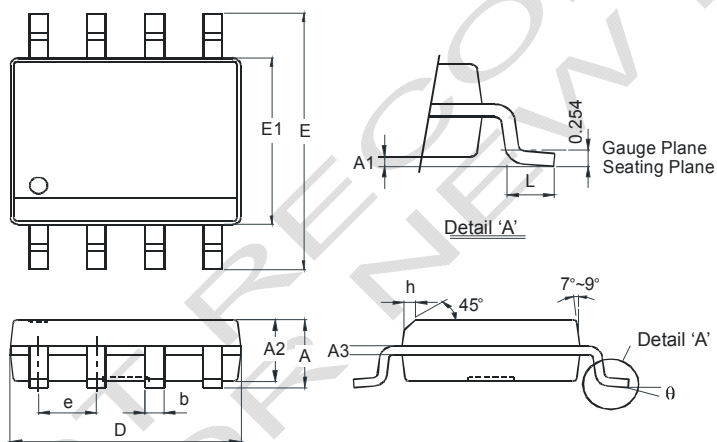


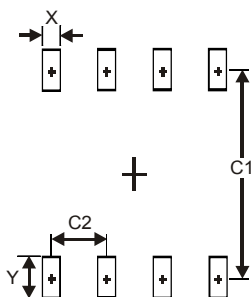
Fig. 12 Transient Thermal Response

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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