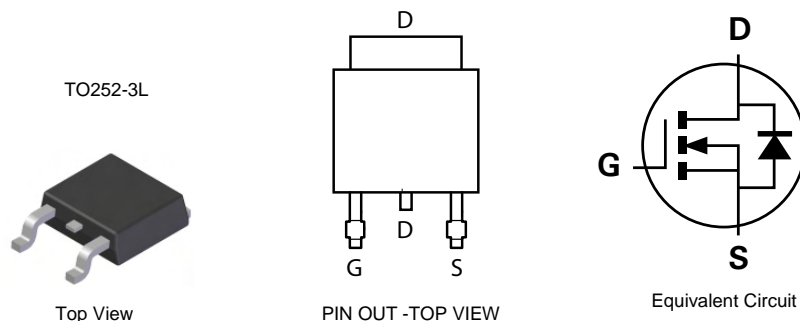


Features

- 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: TO252-3L
- 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: 0.33 grams (approximate)

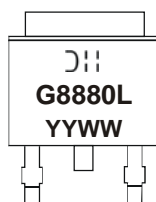



Ordering Information (Note 3)

Part Number	Case	Packaging
DMG8880LK3-13	TO252-3L	2500 / Tape & Reel

- Notes:
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



G8880L = Product Type Marking Code
 = Manufacturer's Marking
 YYWW = Date Code Marking
 YY = Year (ex: 09 = 2009)
 WW = Week (01 ~ 53)

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 4) V _{GS} = 10V	Steady State	T _A = 25°C T _A = 85°C	I _D	11 8	A
Continuous Drain Current (Note 5) V _{GS} = 10V	Steady State	T _A = 25°C T _A = 85°C	I _D	16.5 12	A
Pulsed Drain Current (Note 6)			I _{DM}	48	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4)	P _D	1.68	W
Thermal Resistance, Junction to Ambient @T _A = 25°C (Note 4)	R _{θJA}	74.3	°C/W
Power Dissipation (Note 5)	P _D	4.1	W
Thermal Resistance, Junction to Ambient @T _A = 25°C (Note 5)	R _{θJA}	30.8	°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)}	1.2	1.5	2.3	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(on)}	-	5 8	7.5 12	mΩ	V _{GS} = 10V, I _D = 11.6A V _{GS} = 4.5V, I _D = 10.7A
Forward Transfer Admittance	Y _{fs}	-	22	-	S	V _{DS} = 15V, I _D = 15A
Diode Forward Voltage	V _{SD}	-	0.7	1.0	V	V _{GS} = 0V, I _{SD} = 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
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 _G = 11Ω, I _D = 11.6A, R _L = 1.3Ω
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	
Body Diode Reverse Recovery Time	t _{rr}	-	17.6	-	ns	I _F = 20A, dI/dt = 500A/μs
Body Diode Reverse Recovery Charge	Q _{rr}	-	65.9	-	nC	I _F = 20A, dI/dt = 500A/μs

- Notes:
4. Device mounted on FR-4 PCB, with minimum recommended pad layout, single sided.
 5. Device mounted on 2" x 2" FR-4 PCB with high coverage 2oz. copper, single sided.
 6. Repetitive rating, pulse width limited by junction temperature and current limited by package.
 7. Short duration pulse test used to minimize self-heating effect.
 8. Guaranteed by design. Not subject to production testing.

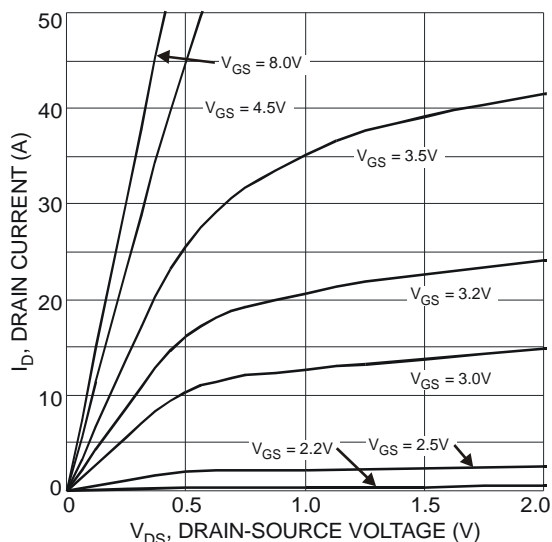


Fig. 1 Typical Output Characteristics

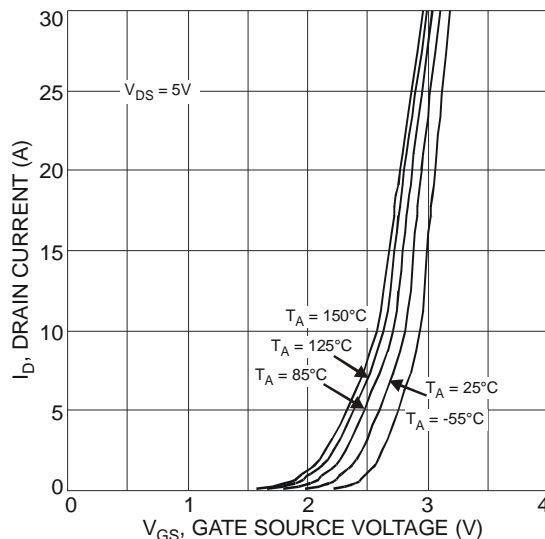


Fig. 2 Typical Transfer Characteristics

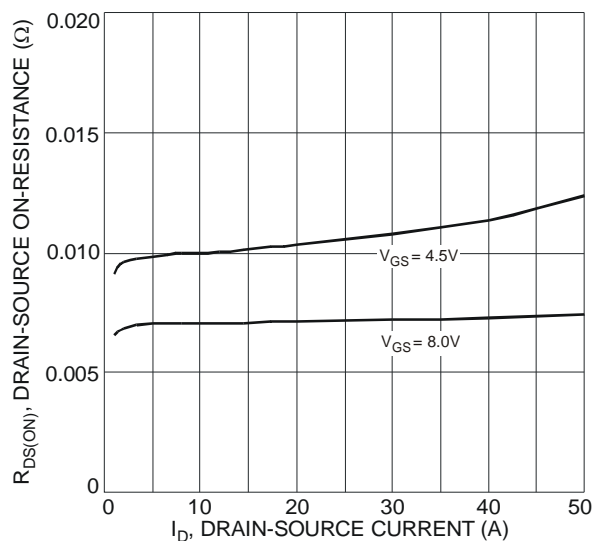


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

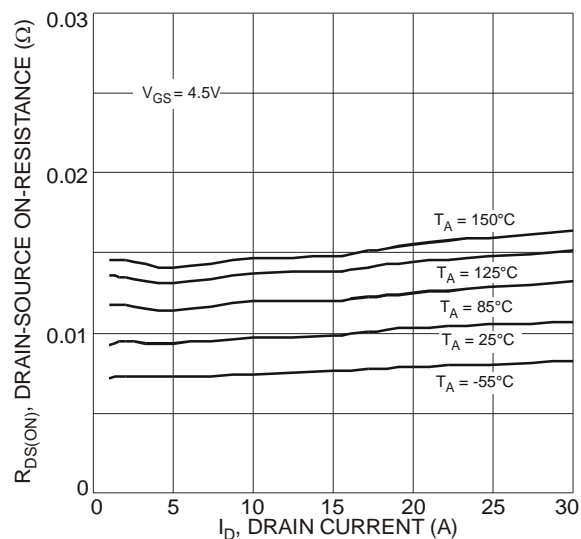


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

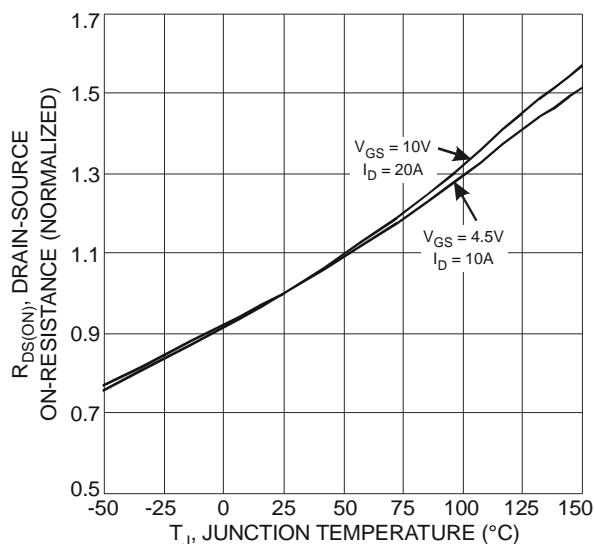


Fig. 5 On-Resistance Variation with Temperature

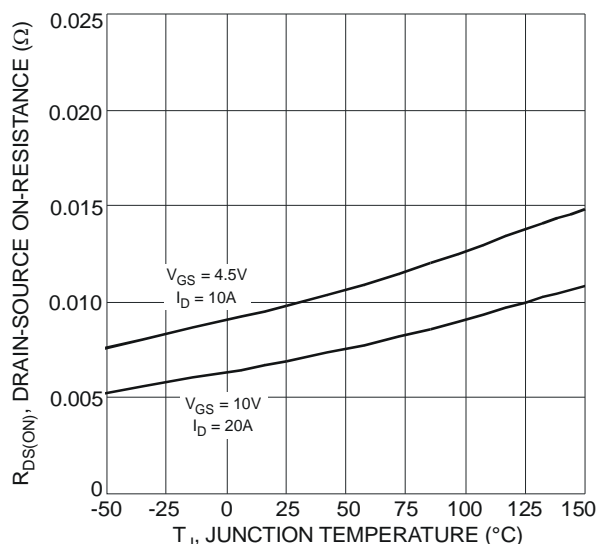


Fig. 6 On-Resistance Variation with Temperature

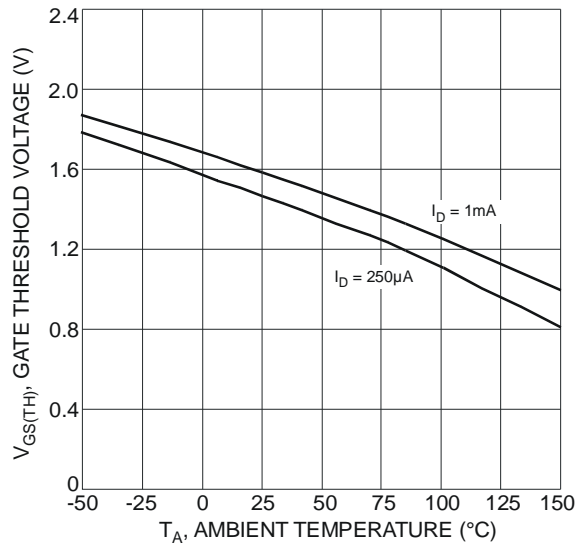


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

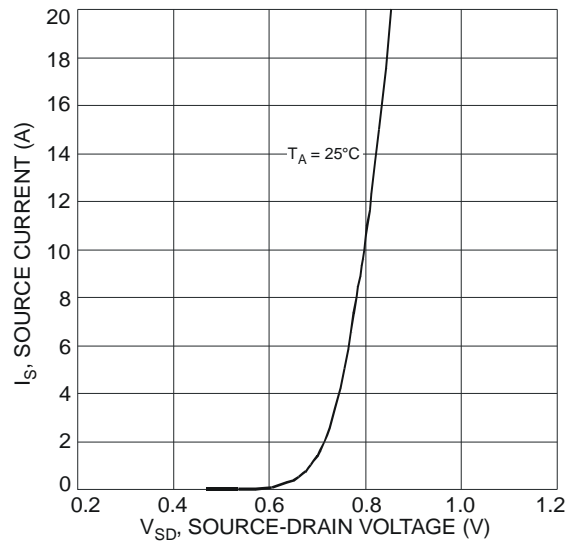


Fig. 8 Diode Forward Voltage vs. Current

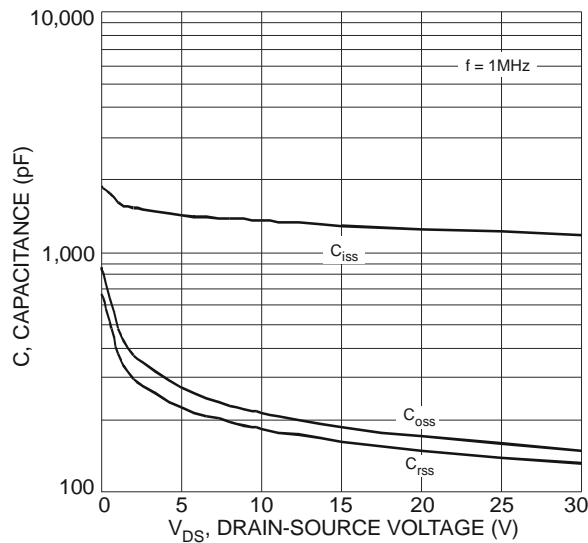


Fig. 9 Typical Capacitance

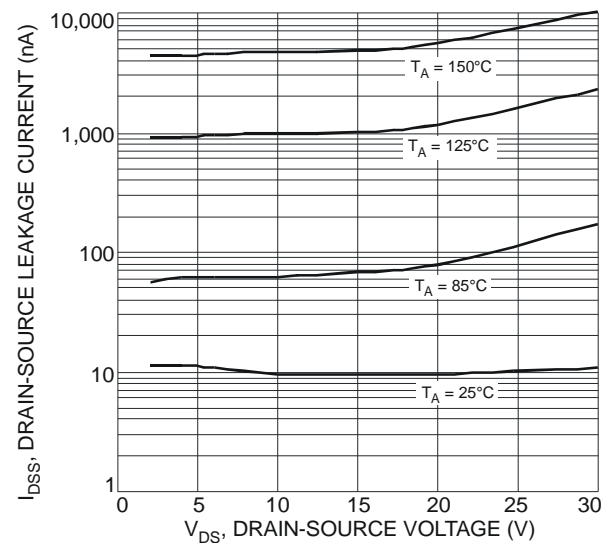


Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

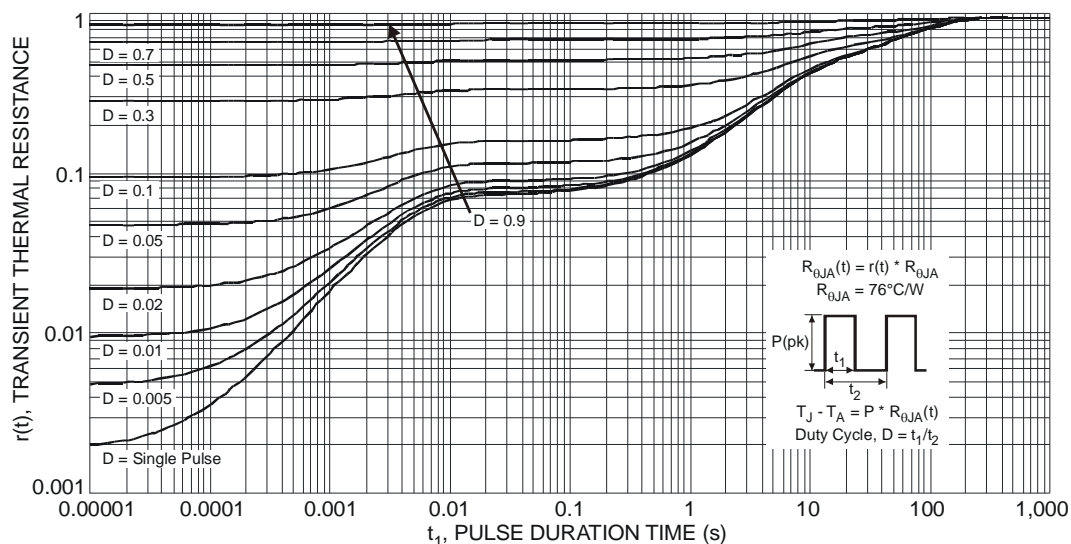
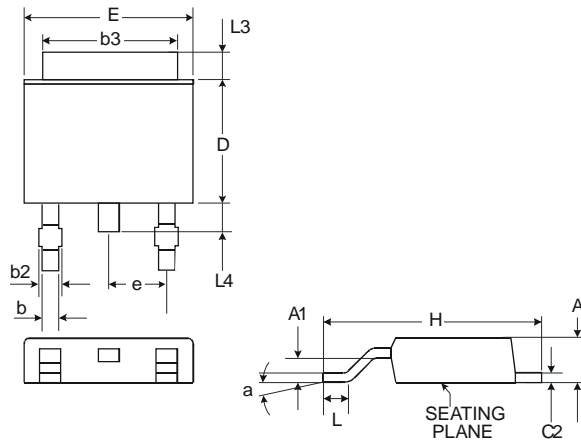


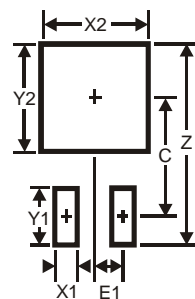
Fig. 11 Transient Thermal Response

Package Outline Dimensions



TO252-3L			
Dim	Min	Typ	Max
A	2.19	2.29	2.39
A1	0.97	1.07	1.17
b	0.64	0.76	0.88
b2	0.76	0.95	1.14
b3	5.21	5.33	5.50
C2	0.45	0.51	0.58
D	6.00	6.10	6.20
E	6.45	6.58	6.70
e	2.286 Typ.		
H	9.40	9.91	10.41
L	1.40	1.59	1.78
L3	0.88	1.08	1.27
L4	0.64	0.83	1.02
a	0°	-	10°
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	11.6
X1	1.5
X2	7.0
Y1	2.5
Y2	7.0
C	6.9
E1	2.3

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