

## Features

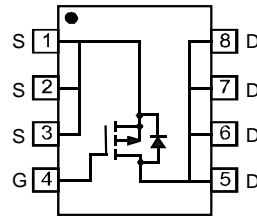
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: 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
- Marking Information: See Page 5
- Ordering Information: See Page 5
- Weight: 0.072 grams (approximate)



Top View



Top View  
Internal Schematic

## 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			$V_{GSS}$	$\pm 25$	V
Continuous Drain Current (Note 3)	Steady State ( $V_{GS} = -4.5$ )	$T_A = 25^\circ\text{C}$	$I_D$	-7.3	A
		$T_A = 85^\circ\text{C}$		-4.7	A
Pulsed Drain Current (Note 4)			$I_{DM}$	-80	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	$P_D$	1.3	W
Thermal Resistance, Junction to Ambient @ $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	96.5	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

- Notes:
1. No purposefully added lead.
  2. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  3. Device mounted on 1in. x 1in. FR-4 PCB with 2oz. Copper. The value in any given application depends on the user's specific board design.
  4. Repetitive rating, pulse width limited by junction temperature.

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 5)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	-30	-	-	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = -1mA
Zero Gate Voltage Drain Current T <sub>J</sub> = 25°C	I <sub>DSS</sub>	-	-	-1.0	μA	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	-	-	±100	nA	V <sub>GS</sub> = ±25V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 5)</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	-1.0	-1.7	-2.5	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	-	13	16	mΩ	V <sub>GS</sub> = -20V, I <sub>D</sub> = -11A
			15	20		V <sub>GS</sub> = -10V, I <sub>D</sub> = -10A
			21	29		V <sub>GS</sub> = -5V, I <sub>D</sub> = -5A
Forward Transfer Admittance	Y <sub>fs</sub>	-	22	-	S	V <sub>DS</sub> = -5V, I <sub>D</sub> = -10A
Diode Forward Voltage	V <sub>SD</sub>	-	-0.74	-1.0	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = -1A
<b>DYNAMIC CHARACTERISTICS (Note 6)</b>						
Input Capacitance	C <sub>iss</sub>	-	1614	-	pF	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	-	226	-	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	-	214	-	pF	
Gate Resistance	R <sub>g</sub>	-	6.8	-	Ω	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz
Total Gate Charge at 10V	Q <sub>g</sub>	-	35.4	-	nC	V <sub>GS</sub> = -10V, V <sub>DS</sub> = -15V, I <sub>D</sub> = -10A
Total Gate Charge at 5V	Q <sub>g</sub>	-	18.9	-	nC	
Gate-Source Charge	Q <sub>gs</sub>	-	4.6	-	nC	V <sub>GS</sub> = -5V, V <sub>DS</sub> = -15V, I <sub>D</sub> = -10A
Gate-Drain Charge	Q <sub>gd</sub>	-	5.7	-	nC	
Turn-On Delay Time	t <sub>D(on)</sub>	-	8.6	-	ns	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10V, R <sub>L</sub> = 1.5Ω, R <sub>GEN</sub> = 3Ω,
Turn-On Rise Time	t <sub>r</sub>	-	12.7	-	ns	
Turn-Off Delay Time	t <sub>D(off)</sub>	-	44.9	-	ns	
Turn-Off Fall Time	t <sub>f</sub>	-	22.8	-	ns	

Notes: 5. Short duration pulse test used to minimize self-heating effect.  
6. Guaranteed by design. Not subject to production testing.

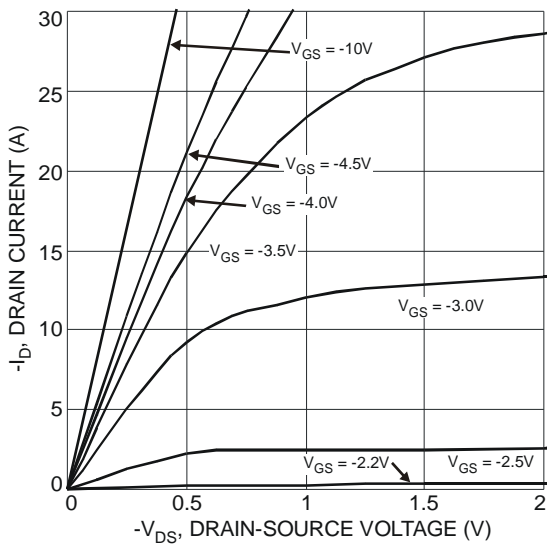


Fig. 1 Typical Output Characteristic

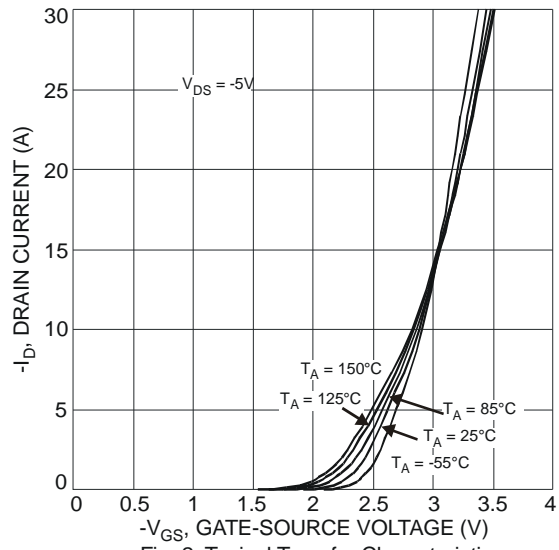


Fig. 2 Typical Transfer Characteristic

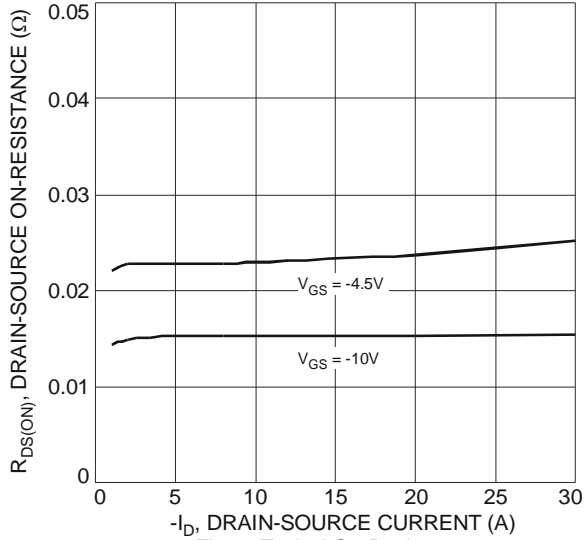


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

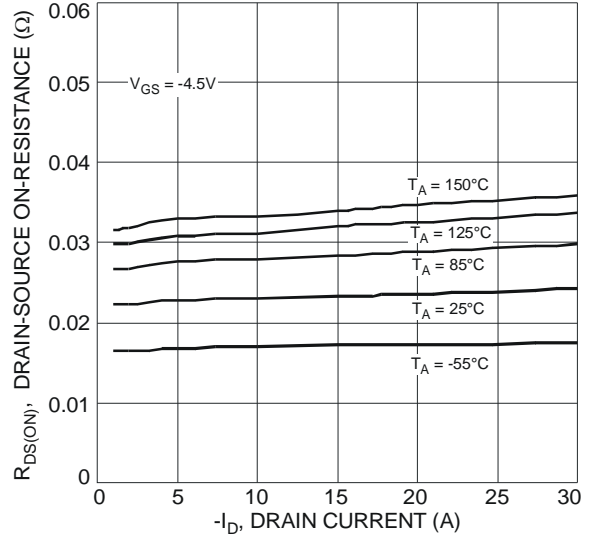


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

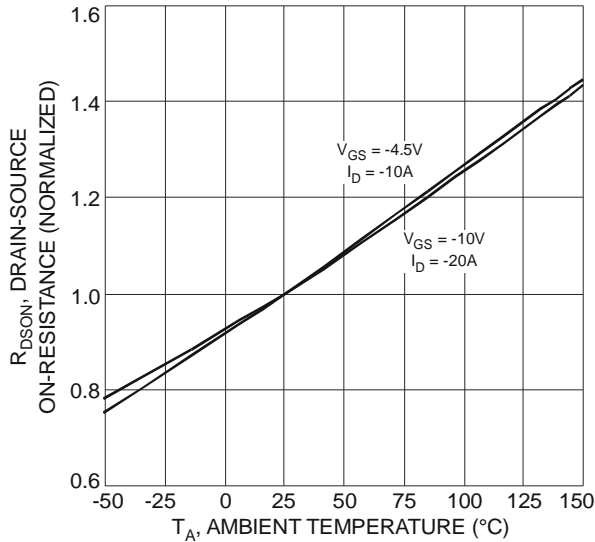


Fig. 5 On-Resistance Variation with Temperature

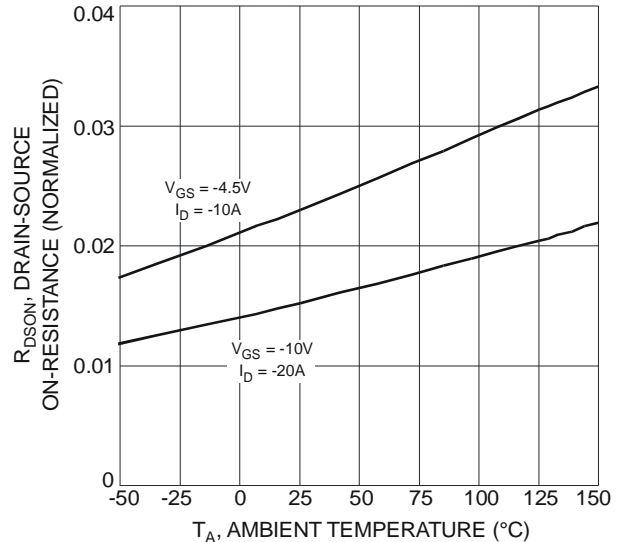


Fig. 6 On-Resistance Variation with Temperature

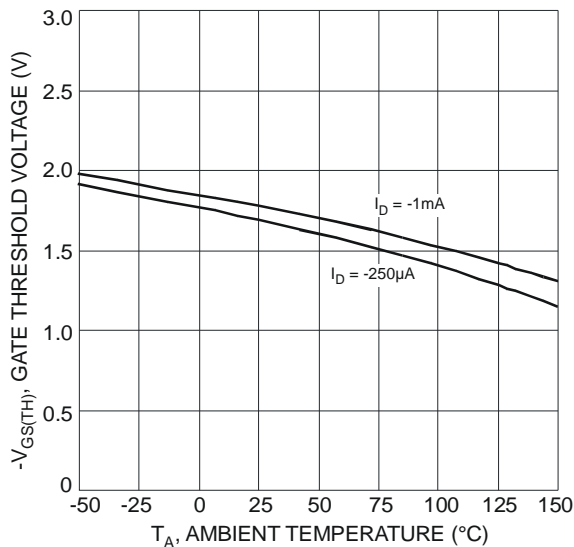


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

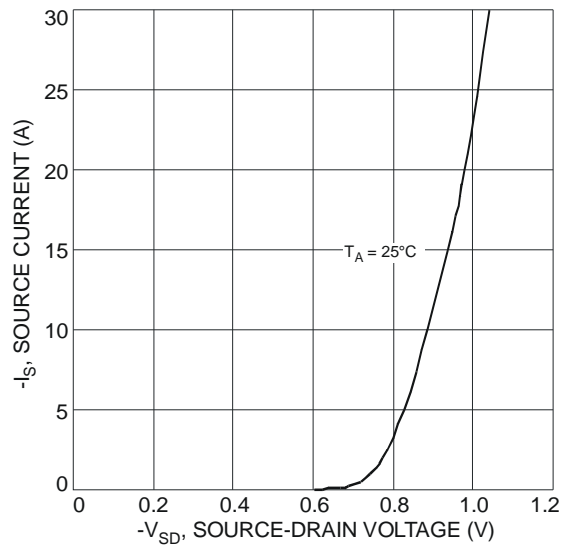


Fig. 8 Diode Forward Voltage vs. Current

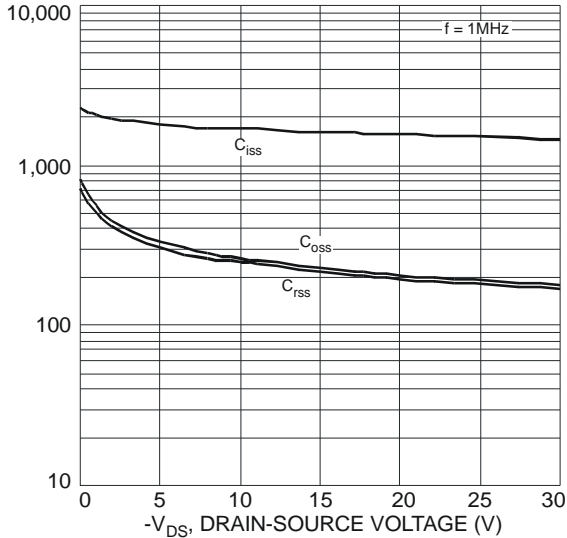


Fig. 9 Typical Total Capacitance

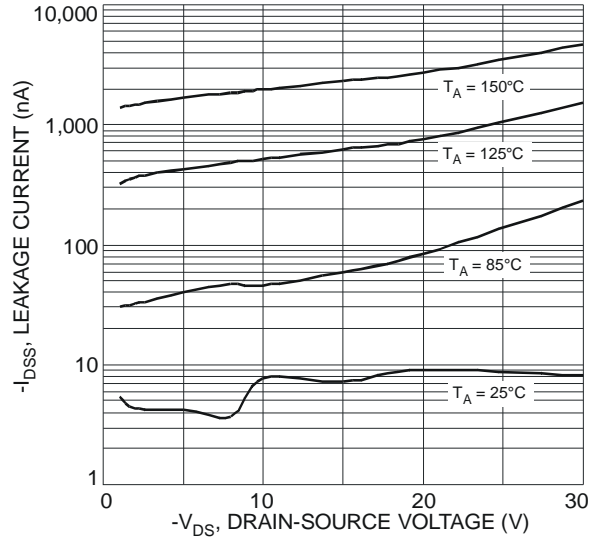


Fig. 10 Typical Leakage Current vs. Drain-Source Voltage

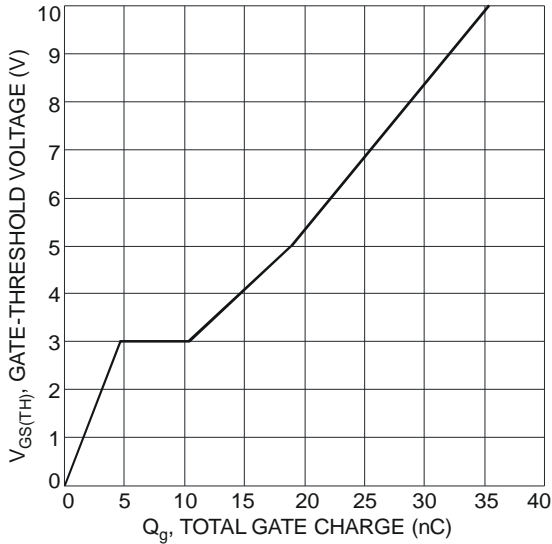


Fig. 11 Gate Threshold Voltage vs. Total Gate Charge

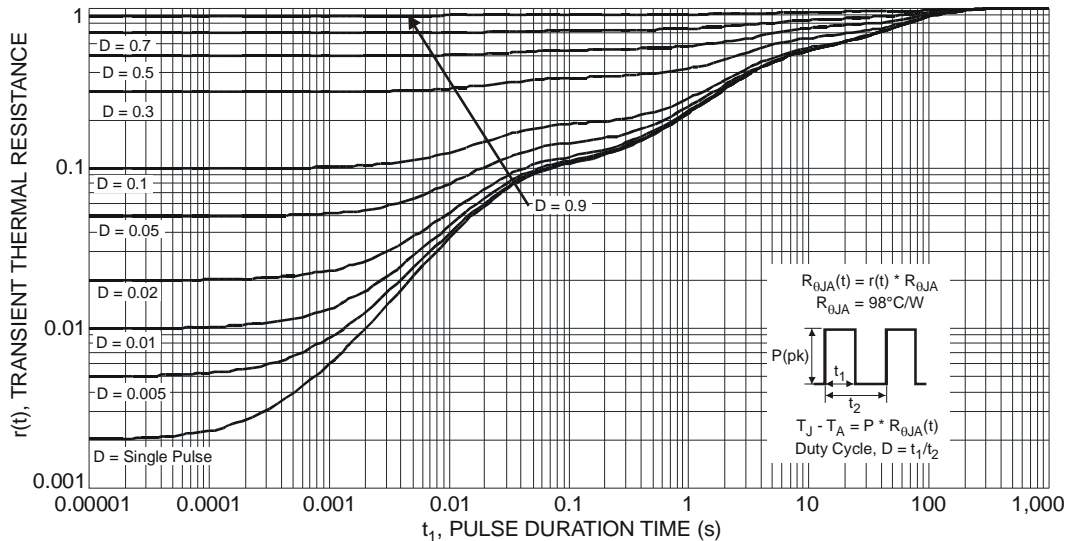


Fig. 12 Transient Thermal Response

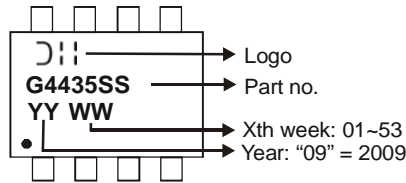
NEW PRODUCT

**Ordering Information** (Note 7)

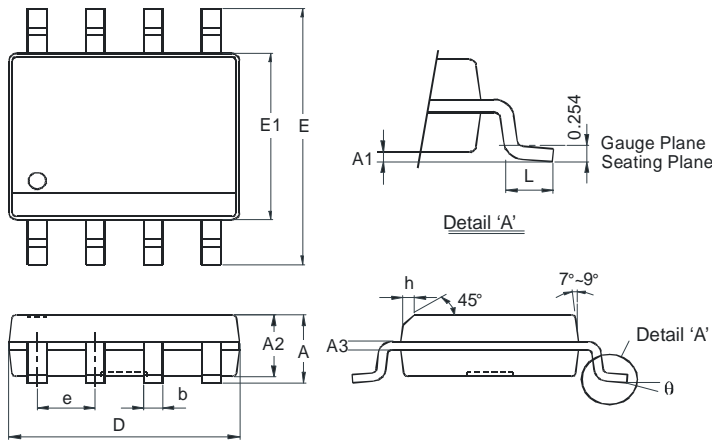
Part Number	Case	Packaging
DMG4435SSS-13	SO-8	2500 / Tape & Reel

Notes: 7. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**

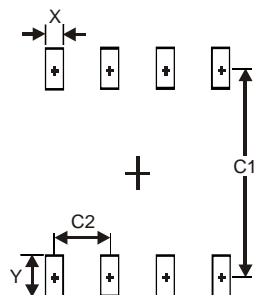


**Package Outline Dimensions**



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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