

## Features

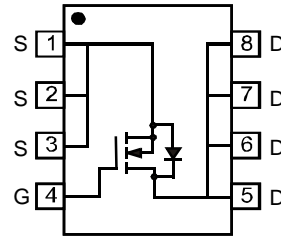
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 3)**
- **"Green" Device (Note 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**



TOP VIEW

## Mechanical Data

- Case: SOP-8L
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: See Diagram Below
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.072 grams (approximate)


 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			$V_{GSS}$	$\pm 20$	V
Continuous Drain Current (Note 1)	Steady State	$T_A = 25^\circ\text{C}$	$I_D$	10	A
		$T_A = 70^\circ\text{C}$		9	
Pulsed Drain Current (Note 2)			$I_{DM}$	50	A

## Thermal Characteristics

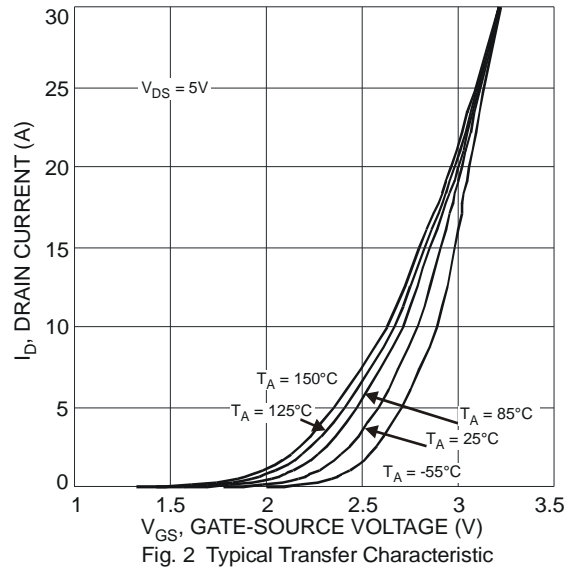
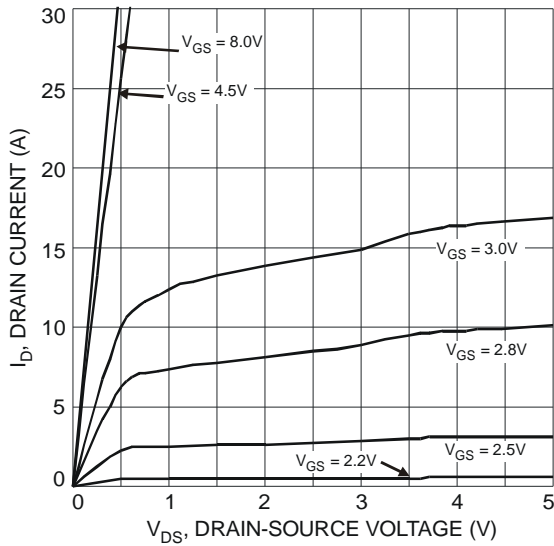
Characteristic	Symbol	Max	Unit
Power Dissipation (Note 1)	$P_D$	1.52	W
Thermal Resistance, Junction to Ambient @ $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	82	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

- Notes:
1. Device mounted on FR-4 PCB with minimum recommended pad layout.
  2. Repetitive rating, pulse width limited by junction temperature.
  3. No purposefully added lead.
  4. 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).

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 5)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	30	-	-	V	$V_{GS} = 0V, I_D = 250\mu A$
Zero Gate Voltage Drain Current $T_J = 25^\circ\text{C}$	$I_{DSS}$	-	-	1.0	$\mu A$	$V_{DS} = 30V, V_{GS} = 0V$
Gate-Source Leakage	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
<b>ON CHARACTERISTICS (Note 5)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	1.05	-	1.95	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
Static Drain-Source On-Resistance	$R_{DS(on)}$	-	11	14	m $\Omega$	$V_{GS} = 10V, I_D = 11.6A$
			15	20		$V_{GS} = 4.5V, I_D = 10A$
Forward Transfer Admittance	$ Y_{fs} $	-	8	-	S	$V_{DS} = 5V, I_D = 11.6A$
Diode Forward Voltage	$V_{SD}$	-	0.73	0.95	V	$V_{GS} = 0V, I_S = 1A$
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{iss}$	-	867	-	pF	$V_{DS} = 10V, V_{GS} = 0V, f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	-	85	-	pF	
Reverse Transfer Capacitance	$C_{rss}$	-	81	-	pF	
Gate Resistance	$R_g$	-	1.39	-	$\Omega$	$V_{DS} = 0V, V_{GS} = 0V, f = 1\text{MHz}$
Total Gate Charge	$Q_g$	-	18.85	-	nC	$V_{GS} = 10V, V_{DS} = 15V, I_D = 11.6A$
Gate-Source Charge	$Q_{gs}$	-	2.59	-	nC	
Gate-Drain Charge	$Q_{gd}$	-	6.15	-	nC	
Turn-On Delay Time	$t_{D(on)}$	-	5.46	-	ns	$V_{DD} = 15V, V_{GS} = 10V, R_L = 1.3\Omega, R_G = 3\Omega, I_D = 1A$
Turn-On Rise Time	$t_r$	-	14.53	-	ns	
Turn-Off Delay Time	$t_{D(off)}$	-	18.84	-	ns	
Turn-Off Fall Time	$t_f$	-	6.01	-	ns	

Notes: 5. Short duration pulse test used to minimize self-heating effect.



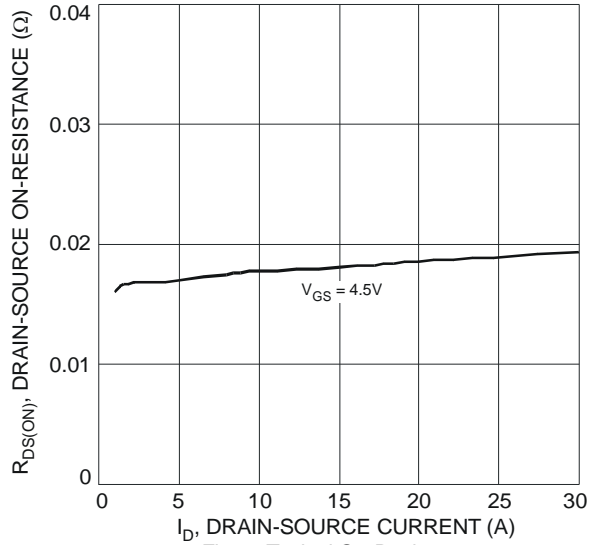


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

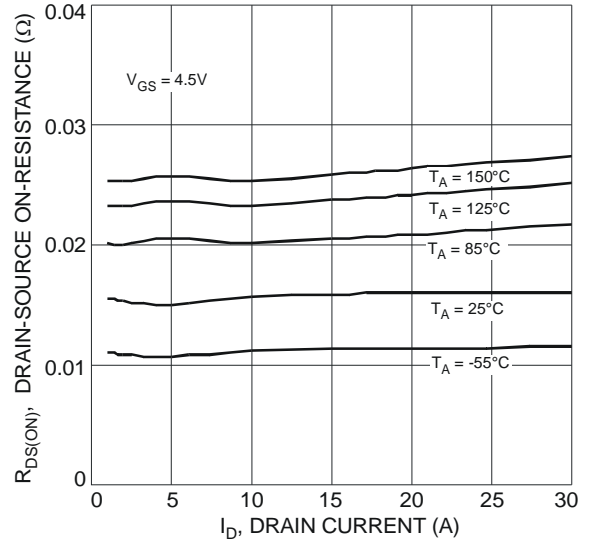


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

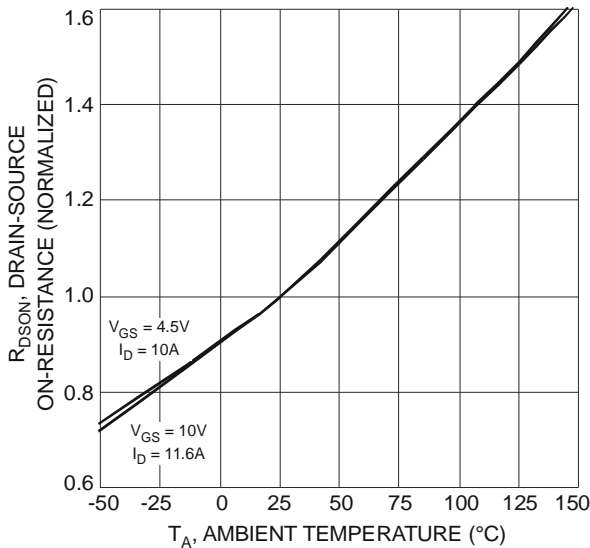


Fig. 5 On-Resistance Variation with Temperature

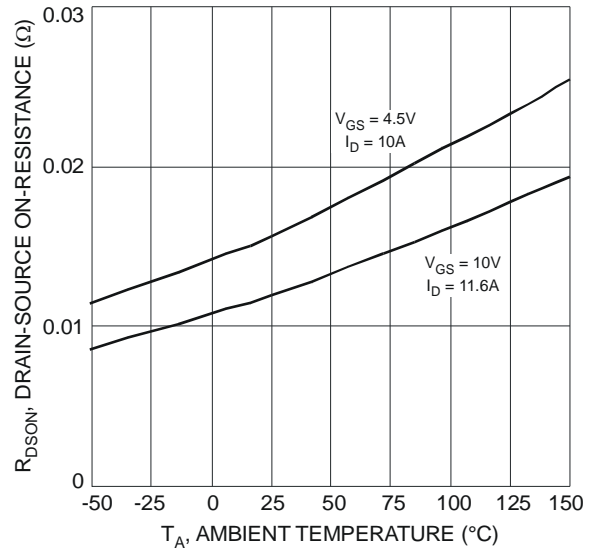


Fig. 6 On-Resistance Variation with Temperature

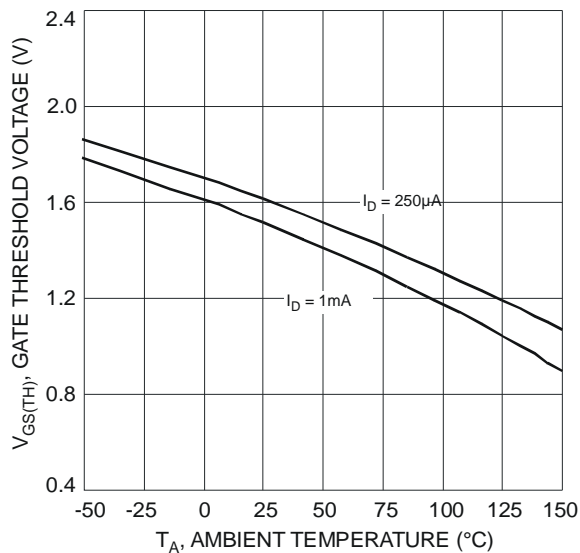


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

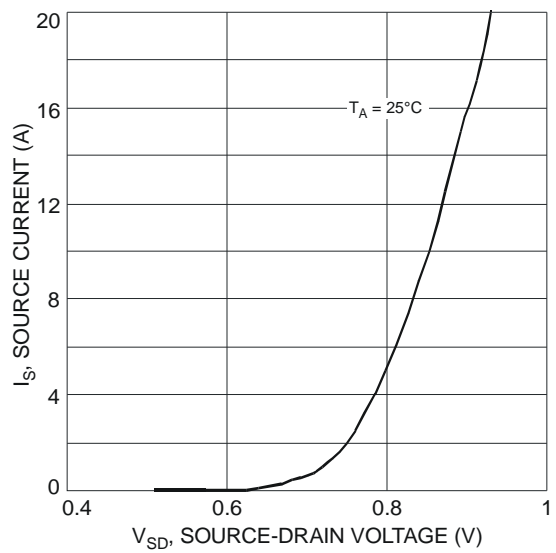


Fig. 8 Diode Forward Voltage vs. Current

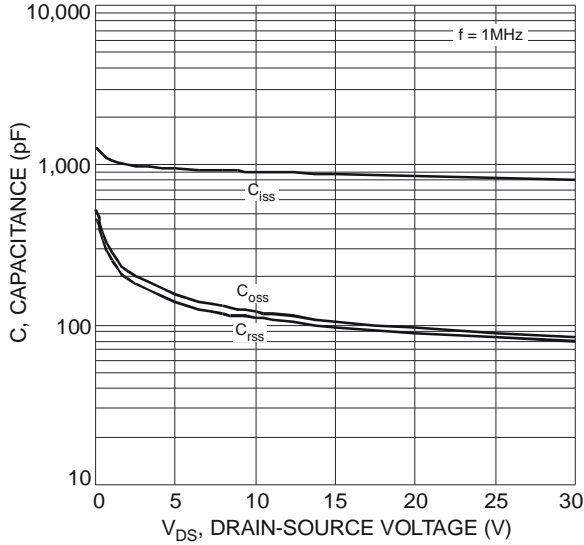


Fig. 9 Typical Total Capacitance

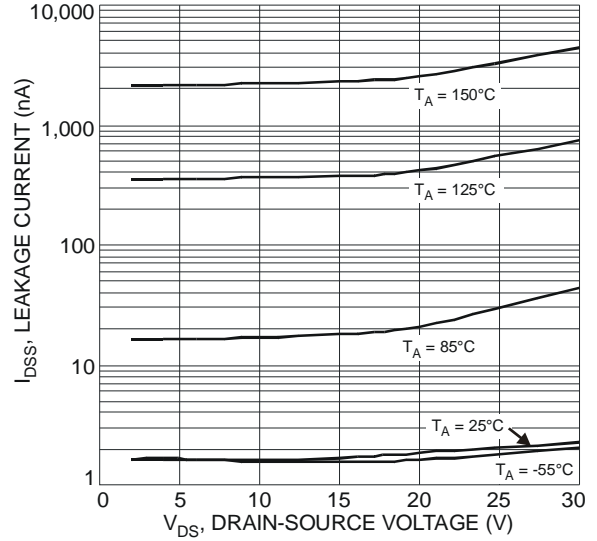


Fig. 10 Typical Leakage Current vs. Drain-Source Voltage

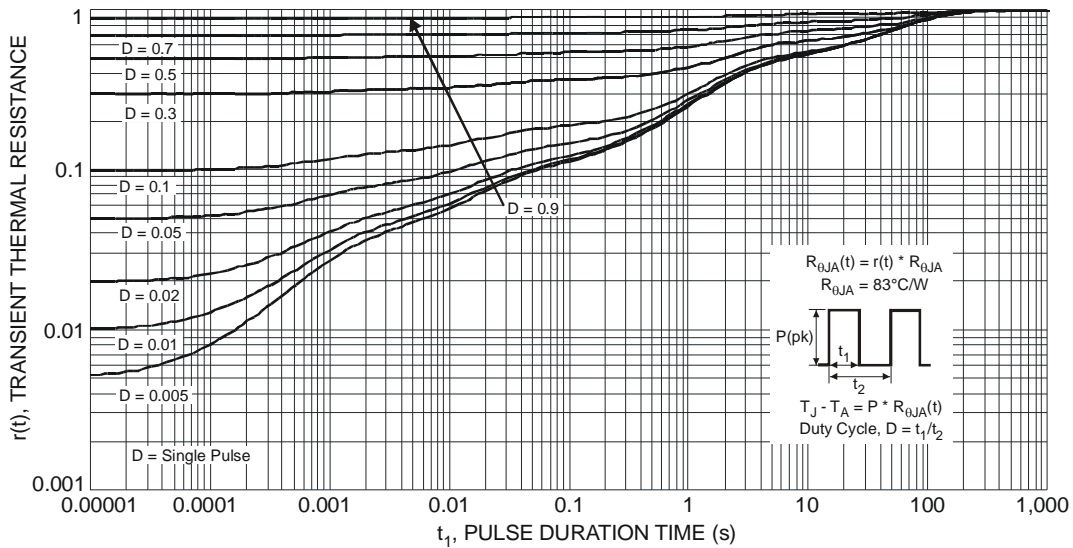


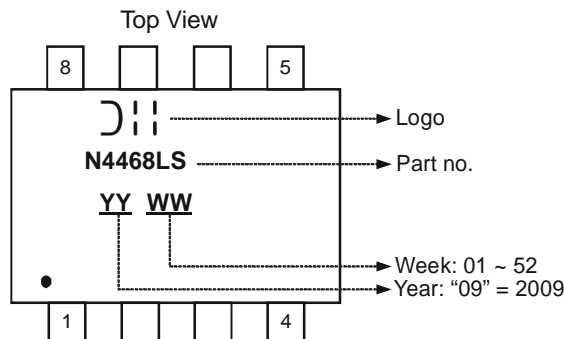
Fig. 11 Transient Thermal Response

**Ordering Information** (Note 6)

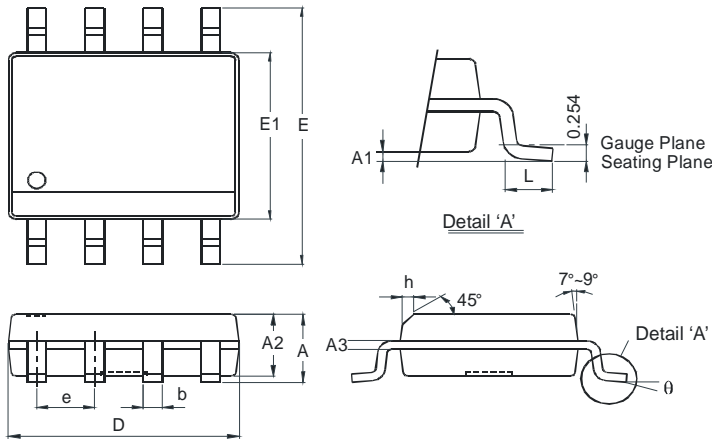
Part Number	Case	Packaging
DMN4468LSS-13	SOP-8L	2500 / Tape & Reel

Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**

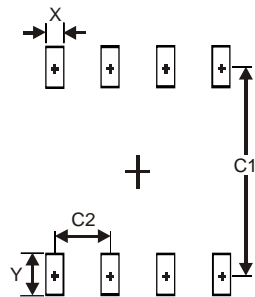


**Package Outline Dimensions**



SOP-8L		
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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