Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)}$ max	I_D max T_A = +25°C
30V	14mΩ @ V_{GS} = 10V	10A
	20mΩ @ V_{GS} = 4.5V	8A

Features and Benefits

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- **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**

Description and Applications

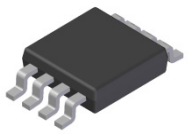
This MOSFET has been designed to minimize the on-state resistance ($R_{DS(on)}$) and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

- Backlighting
- Power Management Functions
- DC-DC Converters

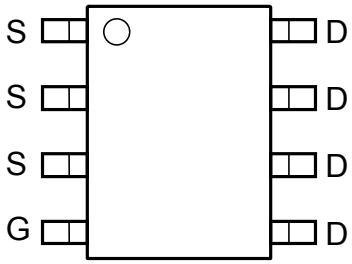
Mechanical Data

- 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)

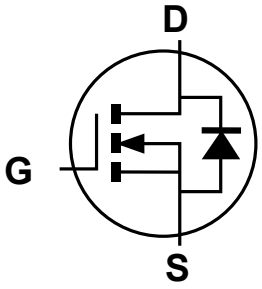
SO-8



Top View



Top View
Internal Schematic



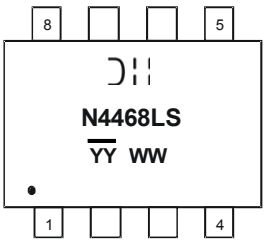
Equivalent circuit

Ordering Information (Note 4)

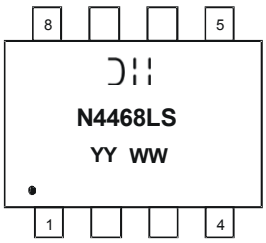
Part Number	Case	Packaging
DMN4468LSS-13	SO-8	2500 / Tape & Reel

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/quality/lead_free.html 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/products/packages.html.

Marking Information



Chengdu A/T Site



Shanghai A/T Site

= Manufacturer's Marking
N4468LS = Product Type Marking Code
YYWW = Date Code Marking
YY or YY = Year (ex: 13 = 2013)
WW = Week (01 - 53)
YY = Date Code Marking for SAT (Shanghai Assembly/ Test site)
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 T_A = +70°C	I_D	10 9	A
Pulsed Drain Current (10µs pulse, duty cycle = 1%)			I_{DM}	50	A

Thermal Characteristics

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 5)	P_D	1.52	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	82	°C/W
Thermal Resistance, Junction to Case (Note 6)	$R_{\theta Jc}$	8.2	°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 6)						
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 6)						
Gate Threshold Voltage	$V_{GS(th)}$	1.05	—	1.95	V	V_{DS} = V_{GS}, I_D = 250µA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	11 15	14 20	mΩ	V_{GS} = 10V, I_D = 11.6A 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
DYNAMIC CHARACTERISTICS (Note 7)						
Input Capacitance	C_{iss}	—	867	—	pF	V_{DS} = 10V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	—	85	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	81	—	pF	
Gate Resistance	R_g	—	1.39	—	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz
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 = 1.3Ω, R_G = 3Ω, 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. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
6. Short duration pulse test used to minimize self-heating effect.
7. Guaranteed by design. Not subject to product testing.

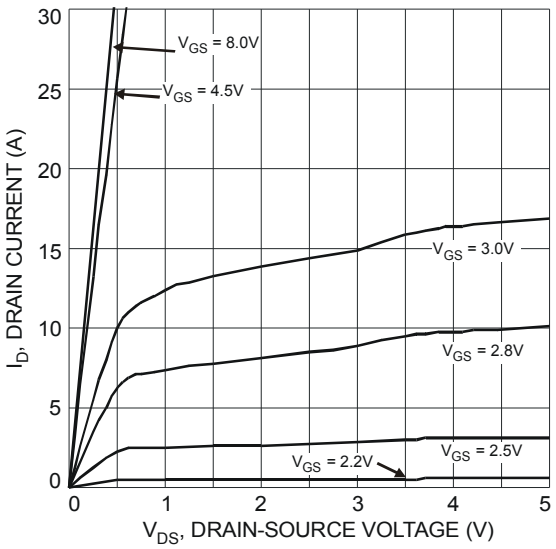


Fig. 1 Typical Output Characteristic

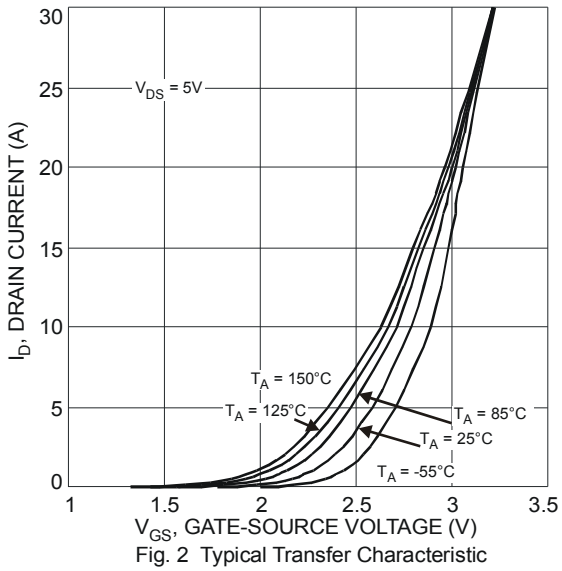


Fig. 2 Typical Transfer Characteristic

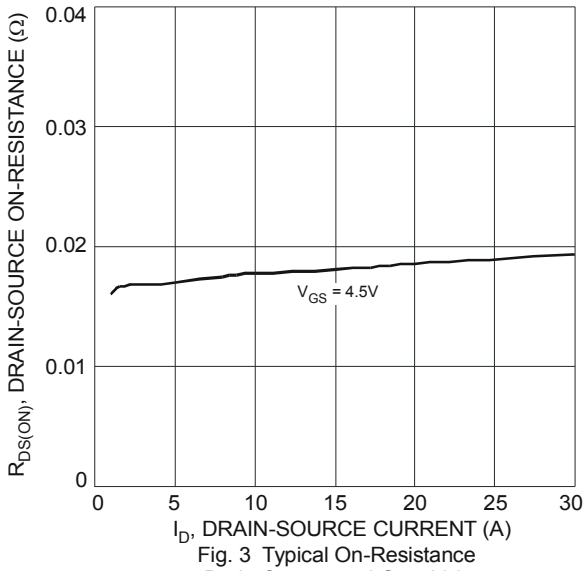


Fig. 3 Typical On-Resistance
vs. Drain Current and Gate Voltage

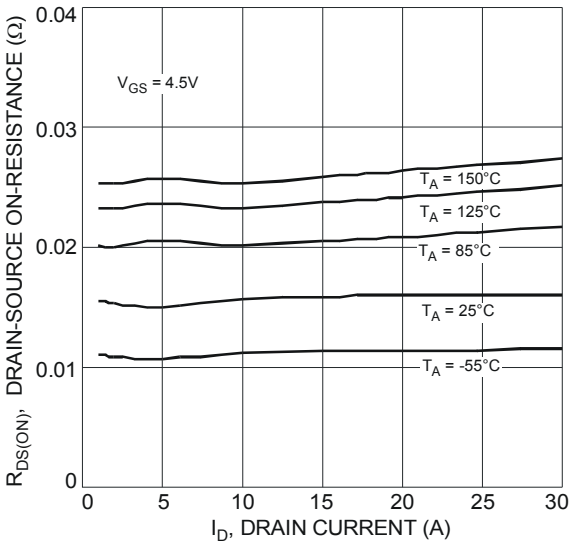


Fig. 4 Typical On-Resistance
vs. Drain Current and Temperature

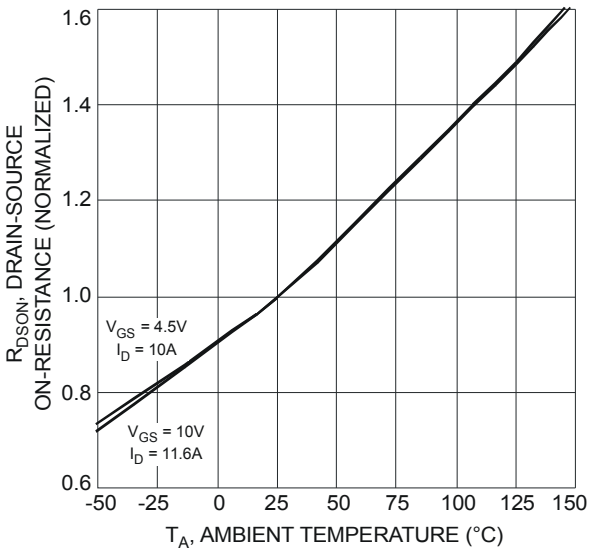


Fig. 5 On-Resistance Variation with Temperature

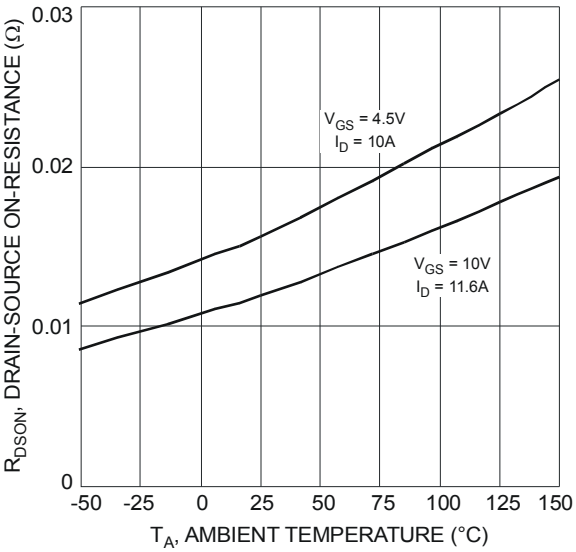


Fig. 6 On-Resistance Variation with Temperature

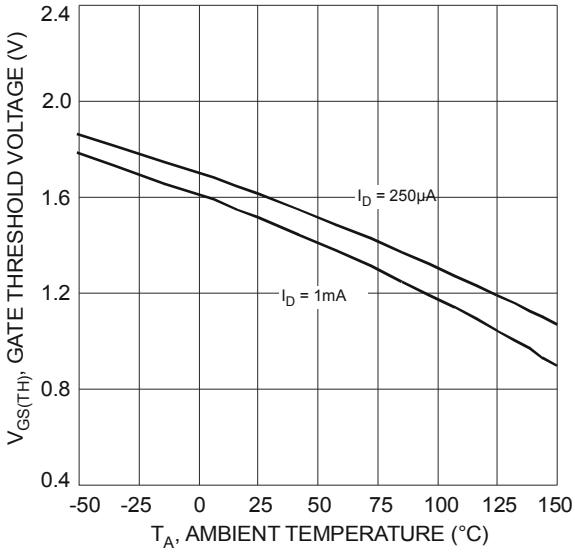


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

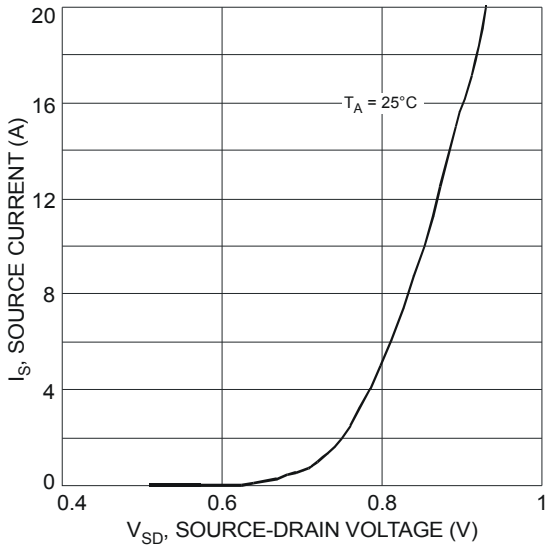


Fig. 8 Diode Forward Voltage vs. Current

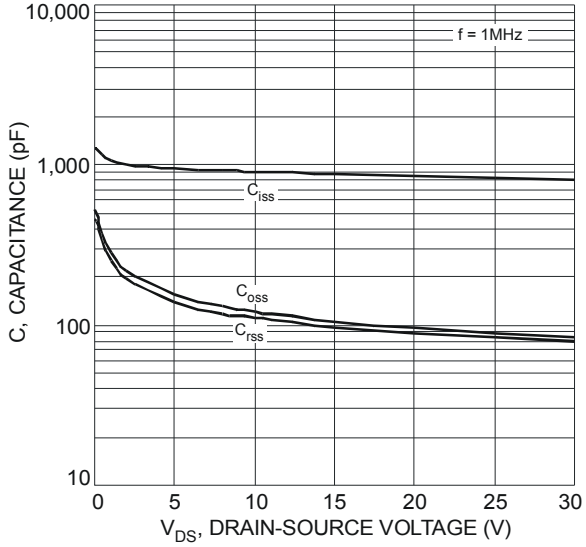


Fig. 9 Typical Total Capacitance

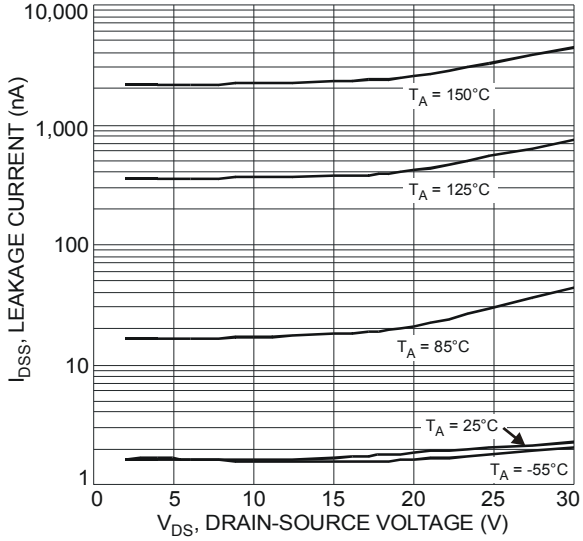


Fig. 10 Typical Leakage Current vs. Drain-Source Voltage

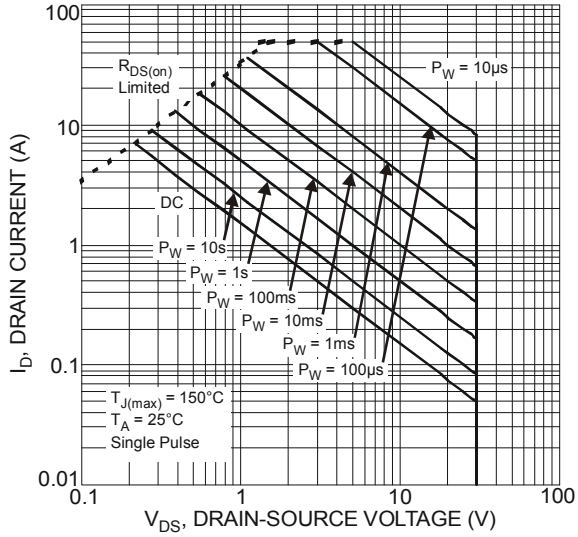


Fig. 11 SOA, Safe Operation Area

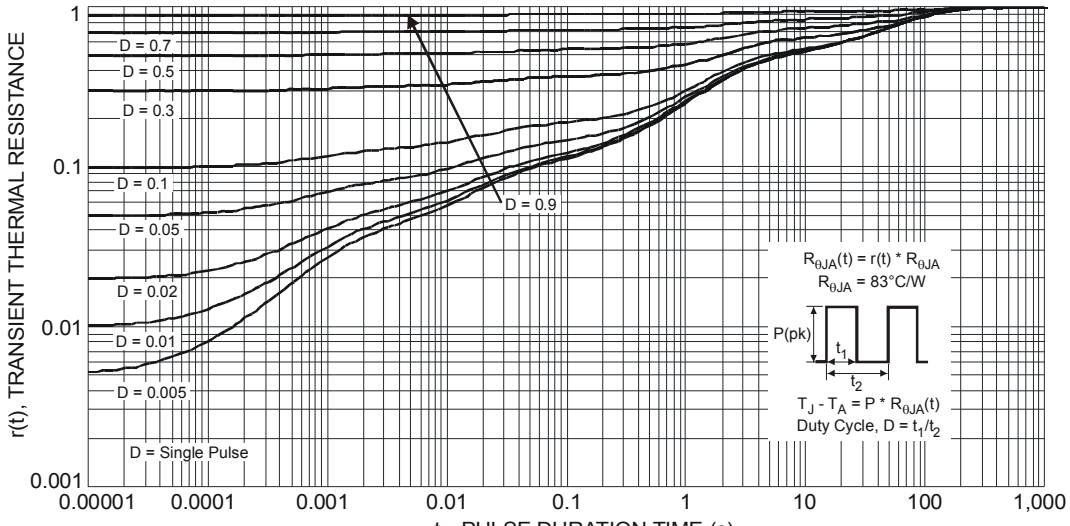
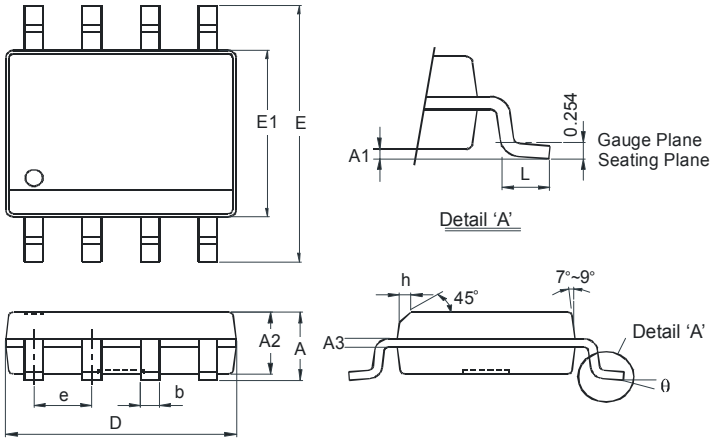


Fig. 12 Transient Thermal Response

Package Outline Dimensions

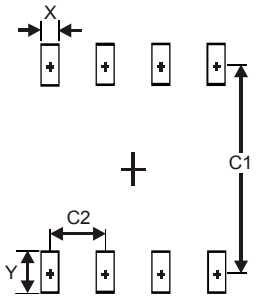
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



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

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
X	0.60
Y	1.55
C1	5.4
C2	1.27

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2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

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