

## Features

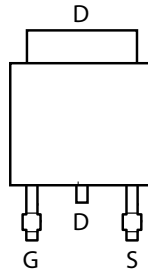
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

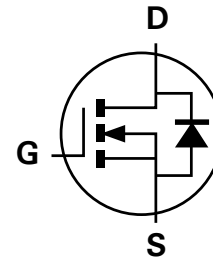
- Case: TO252
- Case Material: Molded Plastic, "Green" Molding Compound.  
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals Connections: See Diagram
- Terminals: Matte Tin Finish annealed over Copper leadframe.  
Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 5
- Ordering Information: See Page 5
- Weight: 0.33 grams (approximate)



TOP VIEW



PIN OUT -TOP VIEW



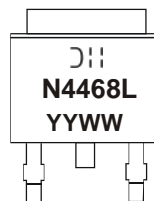
Equivalent Circuit

## Ordering Information (Note 4)

Part Number	Case	Packaging
DMG4468LK3-13	TO252	2500 / Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free.html](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/datasheets/ap02007.pdf>.

## Marking Information



011 = Manufacturer's Marking  
 N4468L = Product Type Marking Code  
 YYWW = Date Code Marking  
 YY = Year (ex: 13 = 2013)  
 WW = Week (01-52)

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V <sub>DSS</sub>	30	V
Gate-Source Voltage			V <sub>GSS</sub>	±20	V
Continuous Drain Current (Note 5)	Steady State	T <sub>A</sub> = +25°C	I <sub>D</sub>	9.7	A
		T <sub>A</sub> = +85°C		6.3	
Pulsed Drain Current (Note 6)			I <sub>DM</sub>	48	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	1.68	W
Thermal Resistance, Junction to Ambient @T <sub>A</sub> = +25°C	R <sub>JA</sub>	74.3	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

Notes: 5. Device mounted on FR-4 PCB, with minimum recommended pad layout.  
6. 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 7)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	30	-	-	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA
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> = ±20V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 7)</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	1.05	-	1.95	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	-	11	16	mΩ	V <sub>GS</sub> = 10V, I <sub>D</sub> = 11.6A
			17	25		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 10A
Forward Transfer Admittance	Y <sub>fs</sub>	-	8	-	S	V <sub>DS</sub> = 10V, I <sub>D</sub> = 9A
Diode Forward Voltage	V <sub>SD</sub>	-	0.73	1.0	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = 1A
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	C <sub>iss</sub>	-	867	-	pF	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	-	85	-	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	-	81	-	pF	
Gate Resistance	R <sub>g</sub>	-	1.39	-	Ω	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz
Total Gate Charge	Q <sub>g</sub>	-	18.85	-	nC	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 11.6A
Gate-Source Charge	Q <sub>gs</sub>	-	2.59	-	nC	
Gate-Drain Charge	Q <sub>gd</sub>	-	6.15	-	nC	
Turn-On Delay Time	t <sub>D(on)</sub>	-	5.46	-	ns	V <sub>DD</sub> = 15V, V <sub>GS</sub> = 10V, R <sub>L</sub> = 1.3Ω, R <sub>G</sub> = 3Ω
Turn-On Rise Time	t <sub>r</sub>	-	14.53	-	ns	
Turn-Off Delay Time	t <sub>D(off)</sub>	-	18.84	-	ns	
Turn-Off Fall Time	t <sub>f</sub>	-	6.01	-	ns	

Notes: 7. Short duration pulse test used to minimize self-heating effect.  
8. Guaranteed by design. Not subject to production testing.

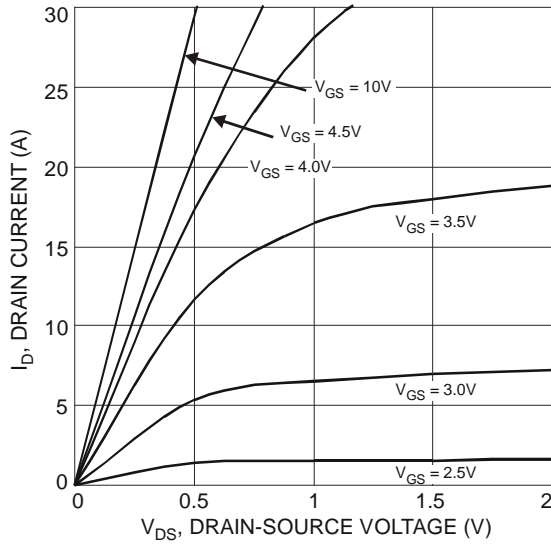


Fig. 1 Typical Output Characteristics

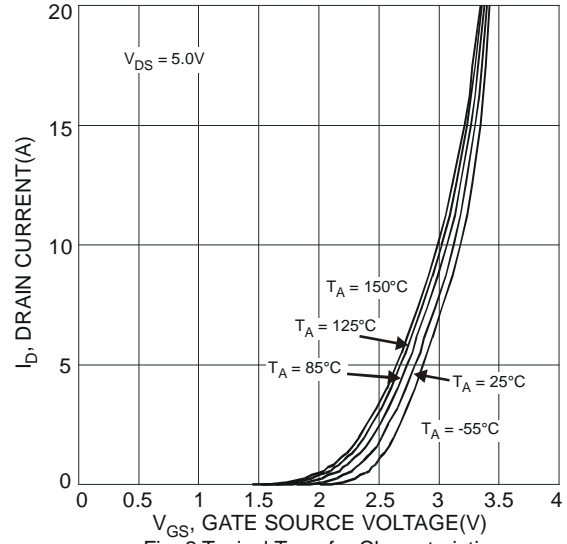


Fig. 2 Typical Transfer Characteristics

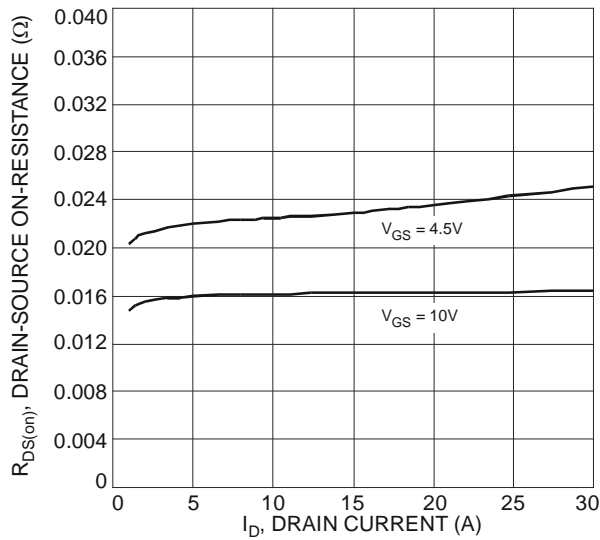


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

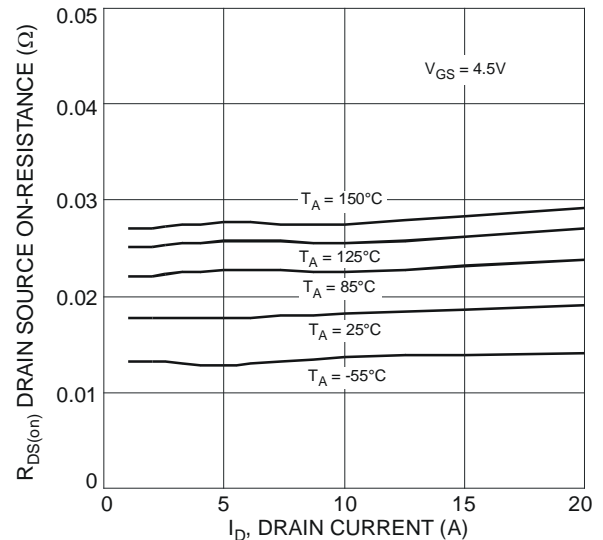


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

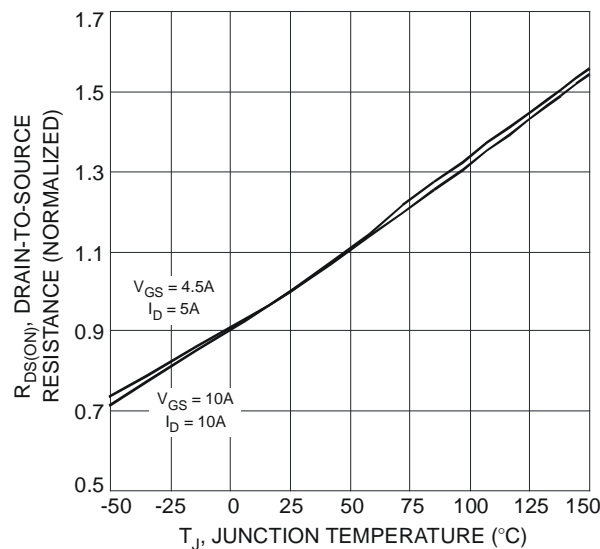


Fig. 5 On-Resistance Variation with Temperature

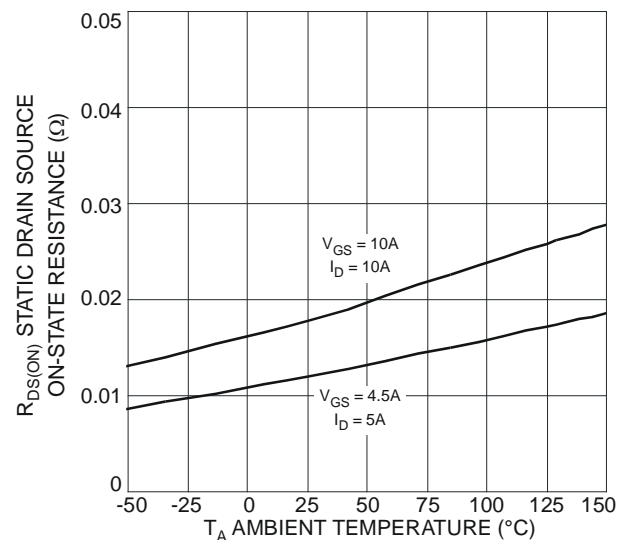


Fig. 6 Typical Static Drain-Source On-State Resistance vs. Ambient Temperature

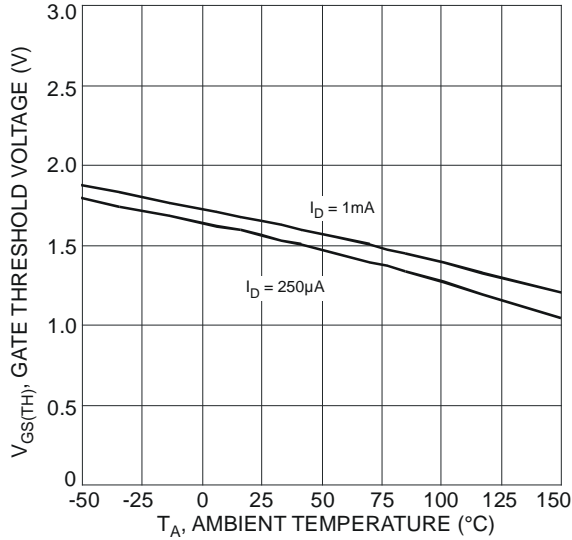


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

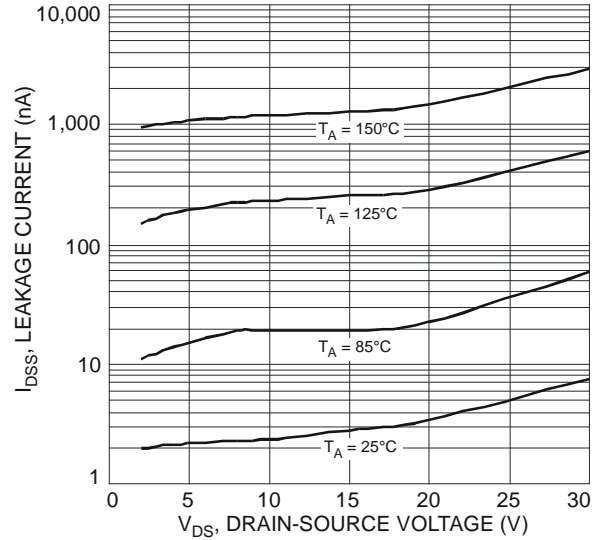


Fig. 8 Typical Drain-Source Leakage Current vs Voltage

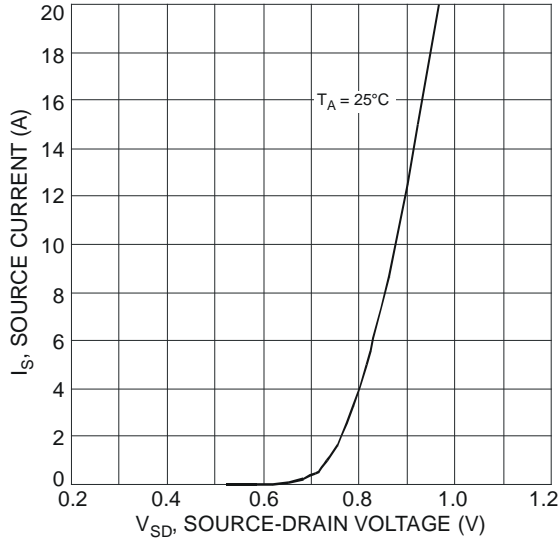


Fig. 9 Diode Forward Voltage vs. Current

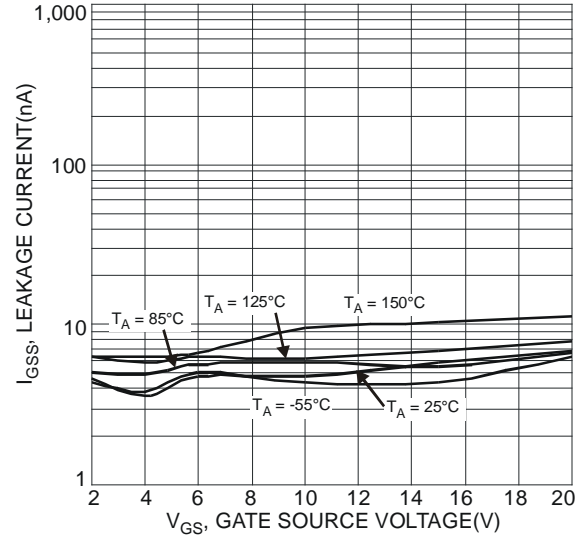


Fig. 10 Gate-Source Leakage Current vs. Voltage

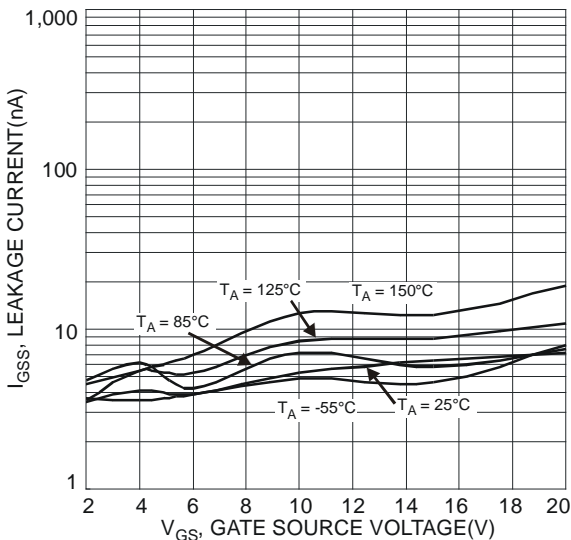


Fig. 11 Gate-Source Leakage Current vs. Voltage

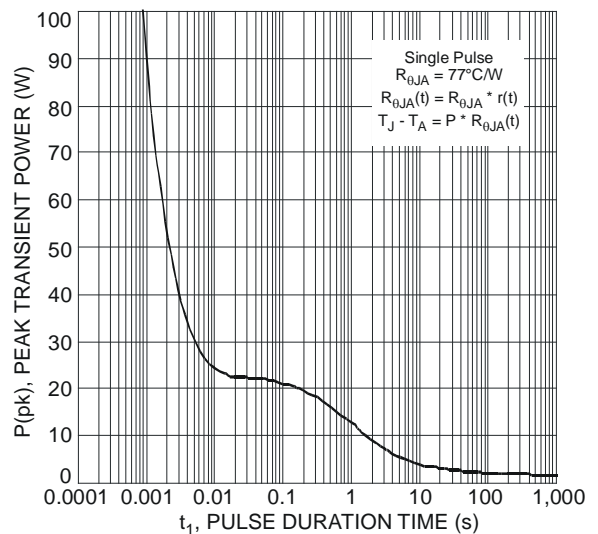


Fig. 12 Single Pulse Maximum Power Dissipation

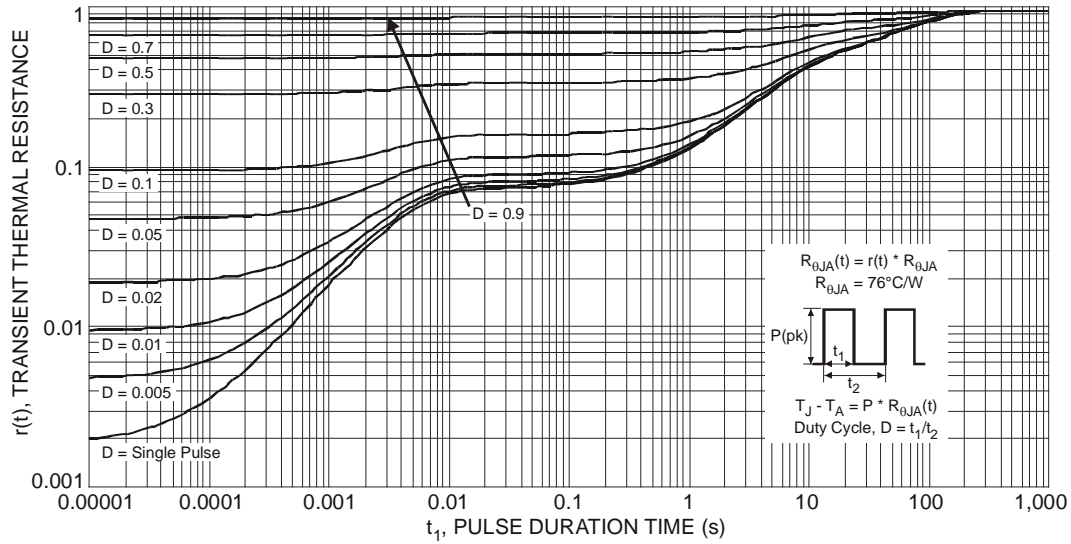
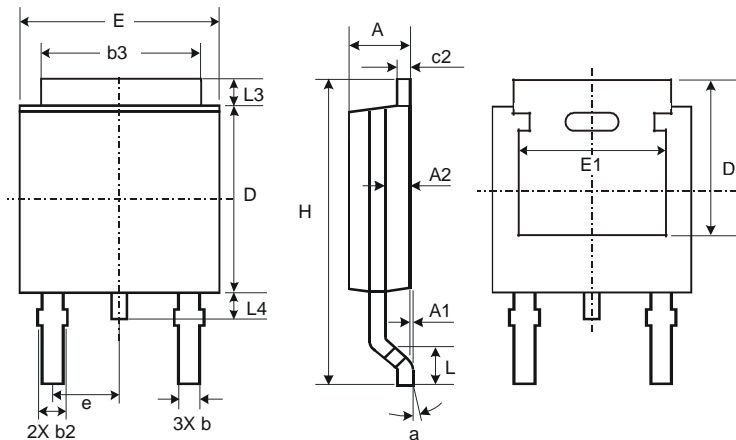


Fig. 13 Transient Thermal Response

## Package Outline Dimensions

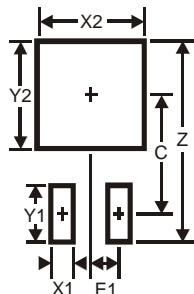
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



TO252			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.46	5.33
c2	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	—	—
e	—	—	2.286
E	6.45	6.70	6.58
E1	4.32	—	—
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°	10°	—
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)
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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