

**Features**

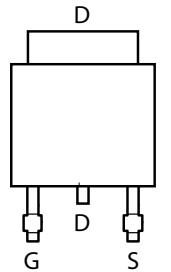
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

**Mechanical Data**

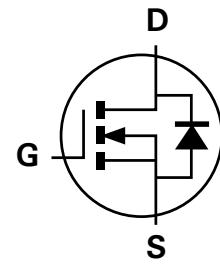
- Case: TO252
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals Connections: See Diagram
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- 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**

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

**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 5)	Steady State	$T_A = +25^\circ\text{C}$ $T_A = +85^\circ\text{C}$	$I_D$	9.7 6.3	A
Pulsed Drain Current (Note 6)			$I_{DM}$	48	A

**Thermal Characteristics**

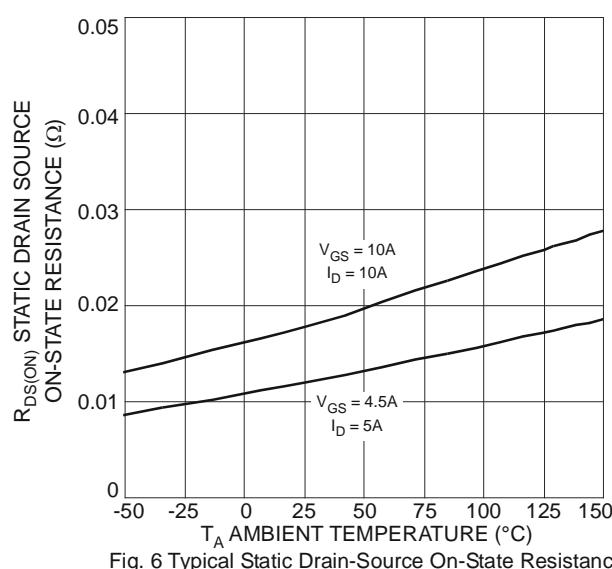
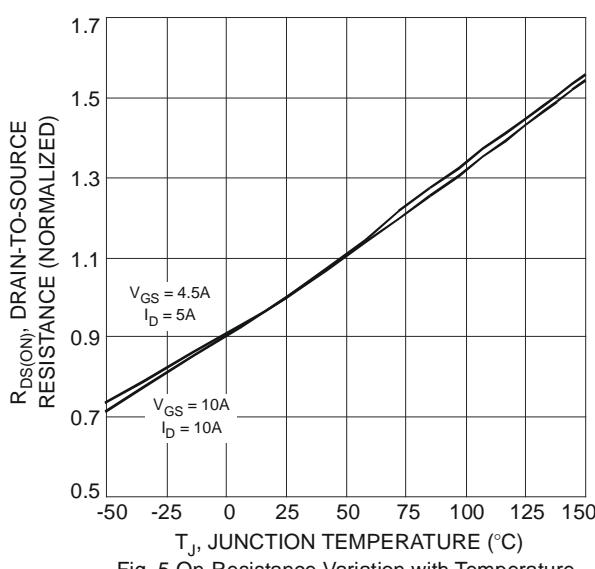
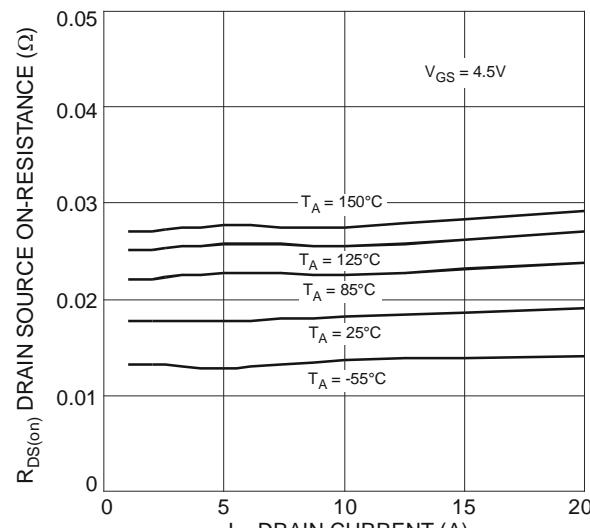
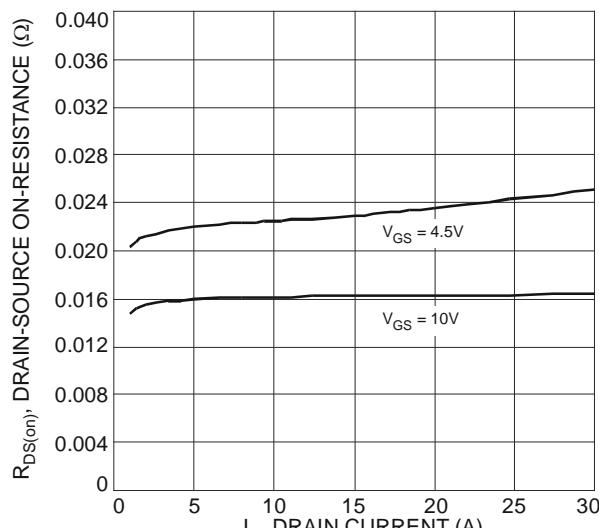
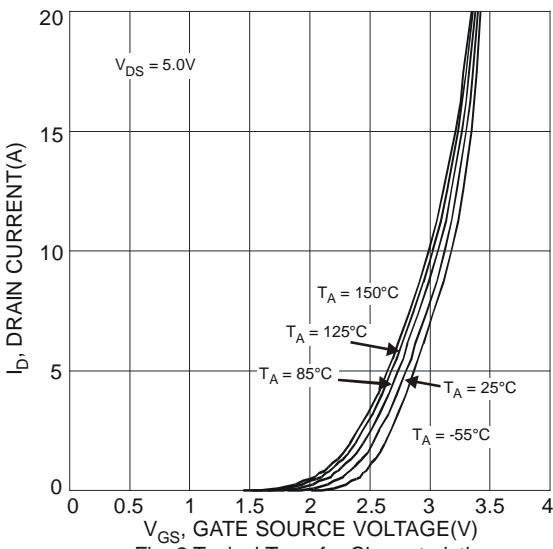
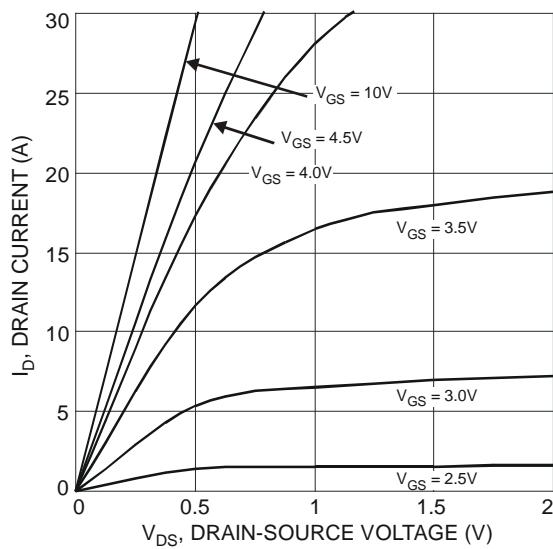
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	$P_D$	1.68	W
Thermal Resistance, Junction to Ambient @ $T_A = +25^\circ\text{C}$	$R_{JA}$	74.3	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

Notes: 5. Device mounted on FR-4 PCB, with minimum recommended pad layout.  
 6. Repetitive rating, pulse width limited by junction temperature.

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 7)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	30	-	-	V	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$
Zero Gate Voltage Drain Current $T_J = +25^\circ\text{C}$	$I_{DSS}$	-	-	1.0	$\mu\text{A}$	$V_{DS} = 30\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
<b>ON CHARACTERISTICS (Note 7)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	1.05	-	1.95	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(\text{ON})}$	-	11 17	16 25	$\text{m}\Omega$	$V_{GS} = 10\text{V}, I_D = 11.6\text{A}$ $V_{GS} = 4.5\text{V}, I_D = 10\text{A}$
Forward Transfer Admittance	$ Y_{fs} $	-	8	-	S	$V_{DS} = 10\text{V}, I_D = 9\text{A}$
Diode Forward Voltage	$V_{SD}$	-	0.73	1.0	V	$V_{GS} = 0\text{V}, I_S = 1\text{A}$
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	$C_{iss}$	-	867	-	pF	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	-	85	-	pF	
Reverse Transfer Capacitance	$C_{rss}$	-	81	-	pF	$V_{DS} = 0\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
Gate Resistance	$R_g$	-	1.39	-	$\Omega$	
Total Gate Charge	$Q_g$	-	18.85	-	nC	$V_{GS} = 10\text{V}, V_{DS} = 15\text{V}, I_D = 11.6\text{A}$
Gate-Source Charge	$Q_{gs}$	-	2.59	-	nC	
Gate-Drain Charge	$Q_{qd}$	-	6.15	-	nC	$V_{DD} = 15\text{V}, V_{GS} = 10\text{V}, R_L = 1.3\Omega, R_G = 3\Omega$
Turn-On Delay Time	$t_{D(on)}$	-	5.46	-	ns	
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: 7. Short duration pulse test used to minimize self-heating effect.  
 8. Guaranteed by design. Not subject to production testing.



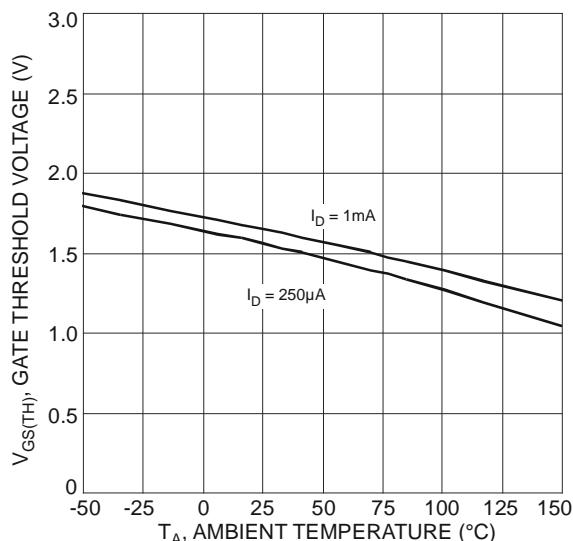


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

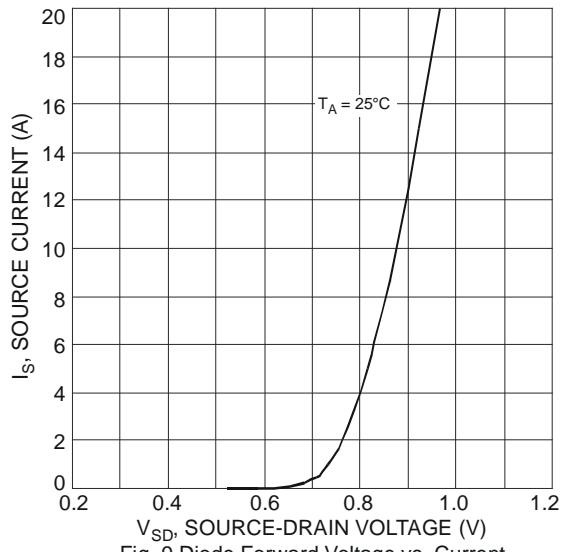


Fig. 9 Diode Forward Voltage vs. Current

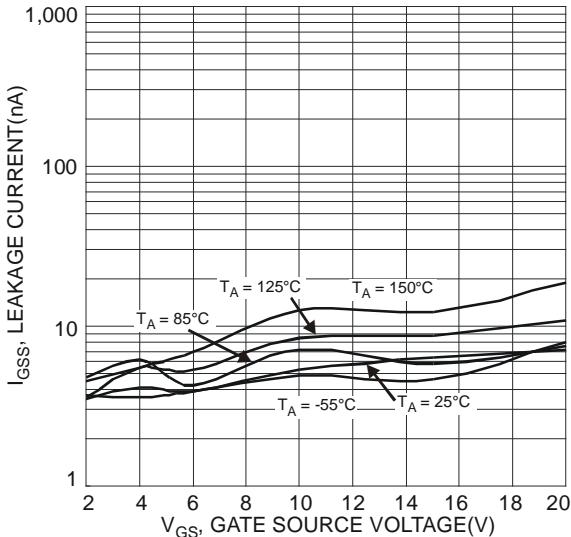


Fig. 11 Gate-Source Leakage Current vs. Voltage

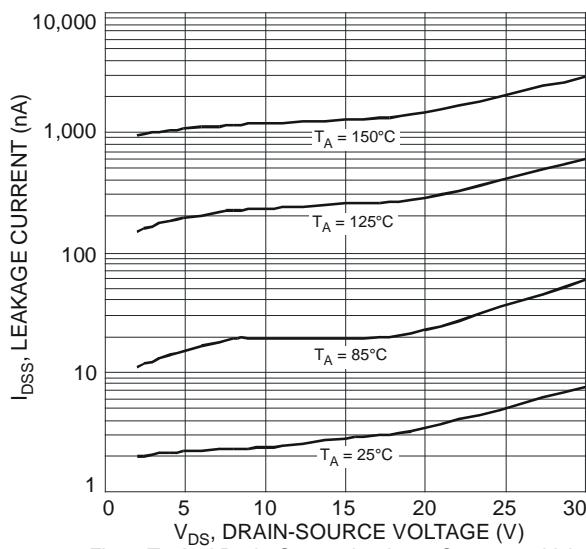


Fig. 8 Typical Drain-Source Leakage Current vs Voltage

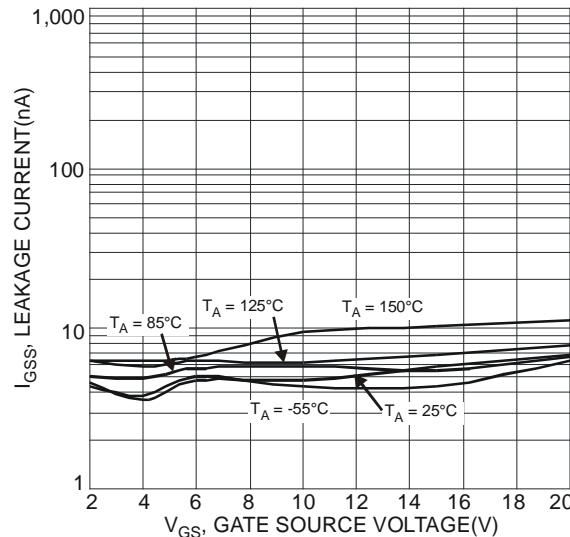


Fig. 10 Gate-Source Leakage Current vs. Voltage

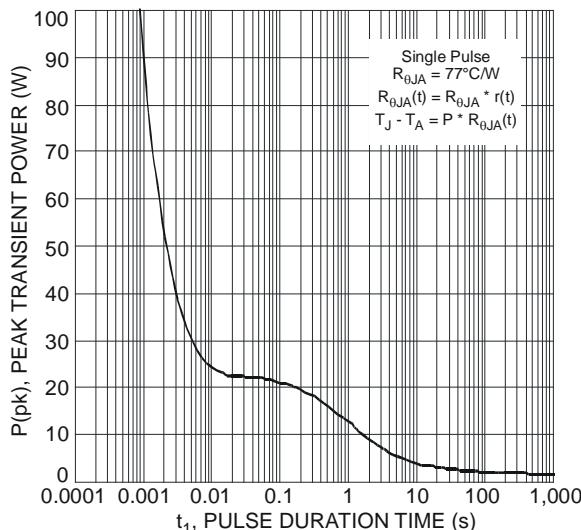


Fig. 12 Single Pulse Maximum Power Dissipation

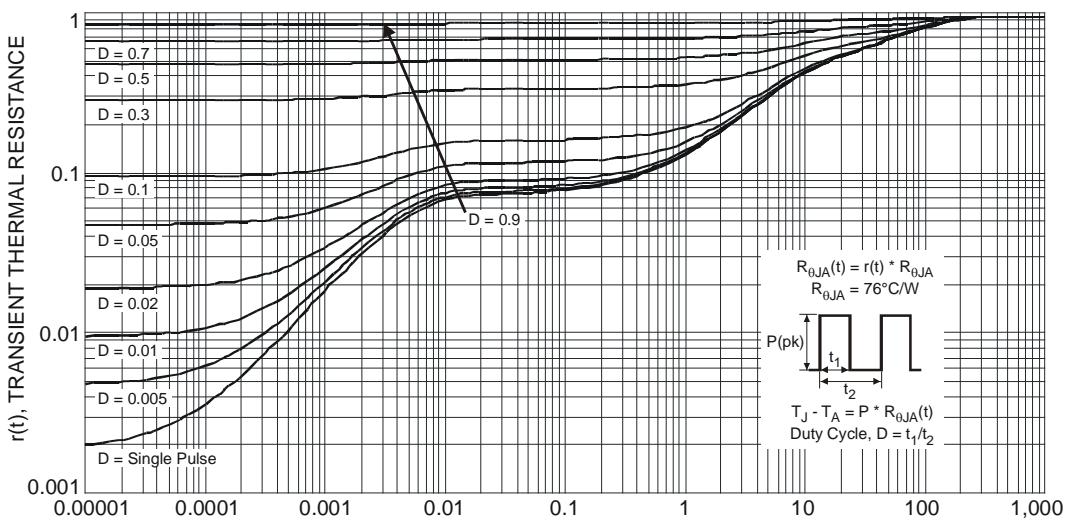
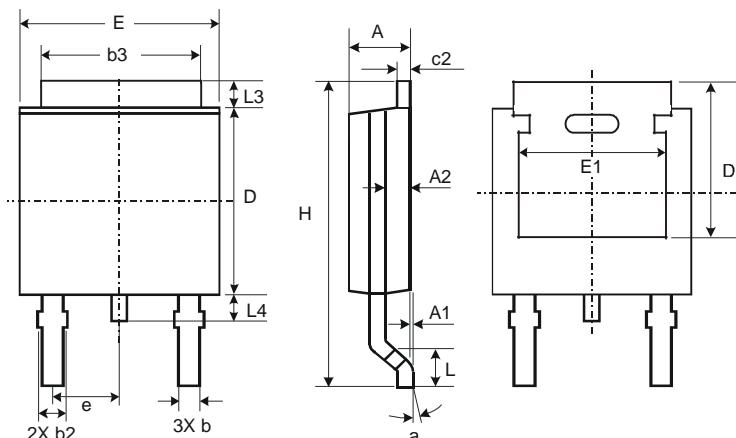


Fig. 13 Transient Thermal Response

## Package Outline Dimensions

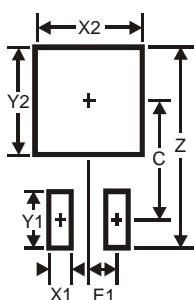
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



TO252			
Dim	Min	Max	Typ
<b>A</b>	2.19	2.39	2.29
<b>A1</b>	0.00	0.13	0.08
<b>A2</b>	0.97	1.17	1.07
<b>b</b>	0.64	0.88	0.783
<b>b2</b>	0.76	1.14	0.95
<b>b3</b>	5.21	5.46	5.33
<b>c2</b>	0.45	0.58	0.531
<b>D</b>	6.00	6.20	6.10
<b>D1</b>	5.21	—	—
<b>e</b>	—	—	2.286
<b>E</b>	6.45	6.70	6.58
<b>E1</b>	4.32	—	—
<b>H</b>	9.40	10.41	9.91
<b>L</b>	1.40	1.78	1.59
<b>L3</b>	0.88	1.27	1.08
<b>L4</b>	0.64	1.02	0.83
<b>a</b>	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)
<b>Z</b>	11.6
<b>X1</b>	1.5
<b>X2</b>	7.0
<b>Y1</b>	2.5
<b>Y2</b>	7.0
<b>C</b>	6.9
<b>E1</b>	2.3

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