

## Product Summary

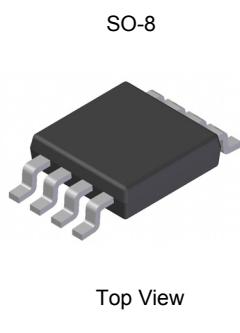
$V_{(BR)DSS}$	$R_{DS(ON)} \text{ max}$	$I_D \text{ max}$ $T_A = +25^\circ\text{C}$
30V	23mΩ @ $V_{GS} = 10\text{V}$	10A
	33mΩ @ $V_{GS} = 4.5\text{V}$	8A

## Description

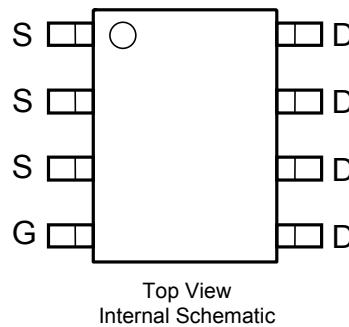
This MOSFET has been designed to minimize the on-state resistance ( $R_{DS(ON)}$ ) and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

## Applications

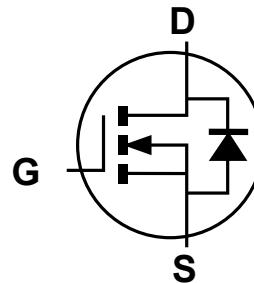
- Backlighting
- Power Management Functions
- DC-DC Converters



Top View



Internal Schematic



Equivalent circuit

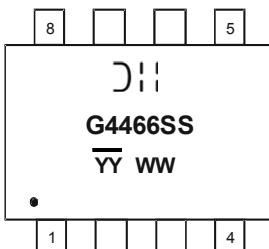
## Ordering Information (Note 4)

Part Number	Case	Packaging
DMG4466SSSL-13	SO-8	2500 / Tape & Reel

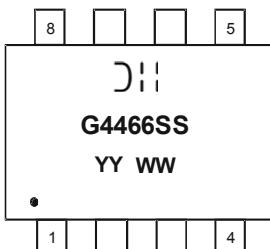
Notes:

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](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

III = Manufacturer's Marking  
 G4466SS = 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** (@ $T_A = +25^\circ\text{C}$ , 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	$T_A = +25^\circ\text{C}$ $T_A = +85^\circ\text{C}$	$I_D$	10 6	A
Pulsed Drain Current (Note 5)			$I_{DM}$	60	A
Avalanche Current (Notes 6)			$I_{AR}$	16	A
Repetitive Avalanche Energy (Notes 6) $L = 0.1\text{mH}$			$E_{AR}$	12.8	mJ

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	$P_D$	1.42	W
Thermal Resistance, Junction to Ambient @ $T_A = 25^\circ\text{C}$ (Note 5)	$R_{\theta JA}$	88.4	°C/W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	°C

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

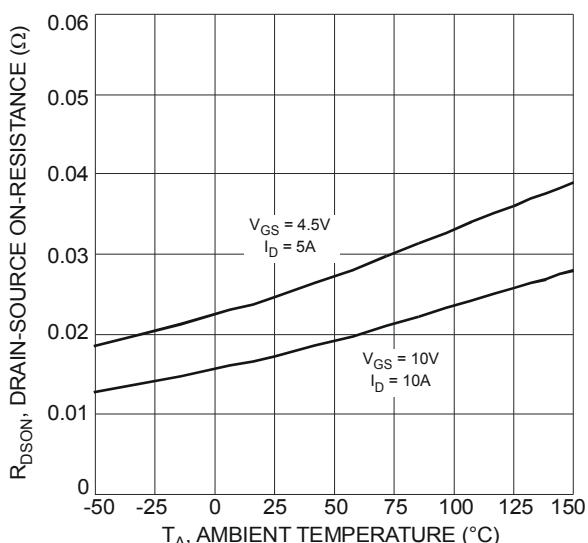
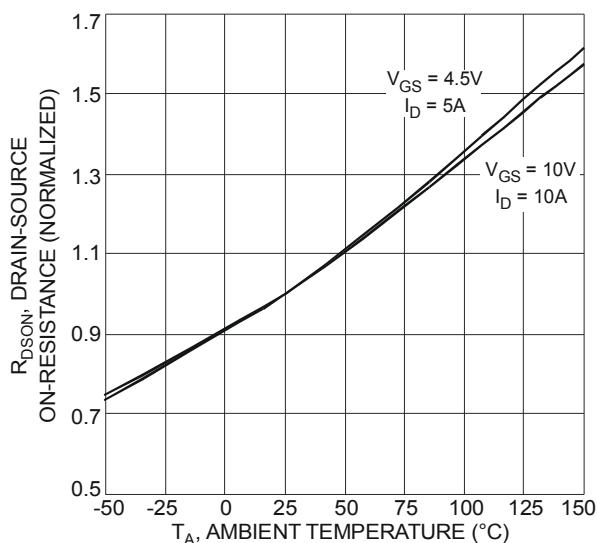
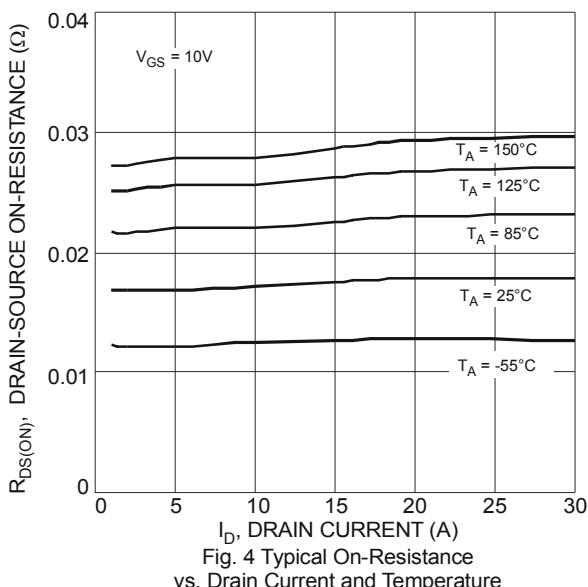
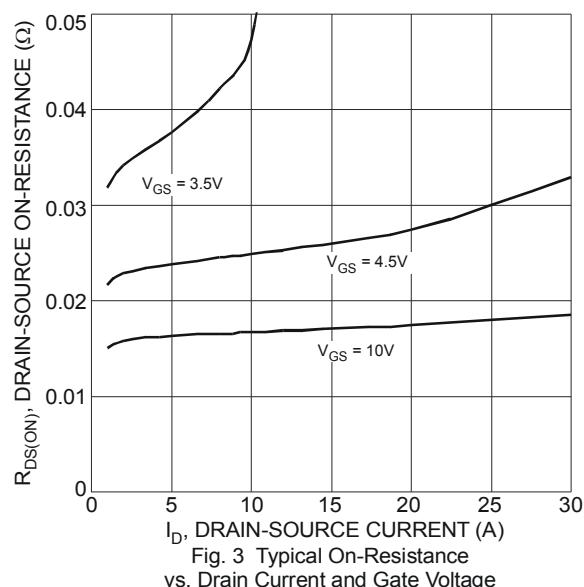
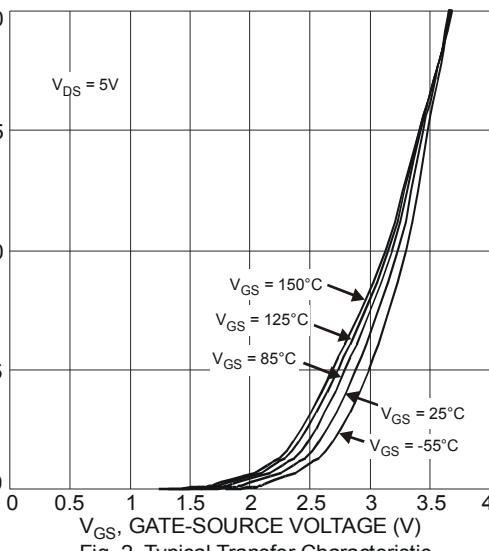
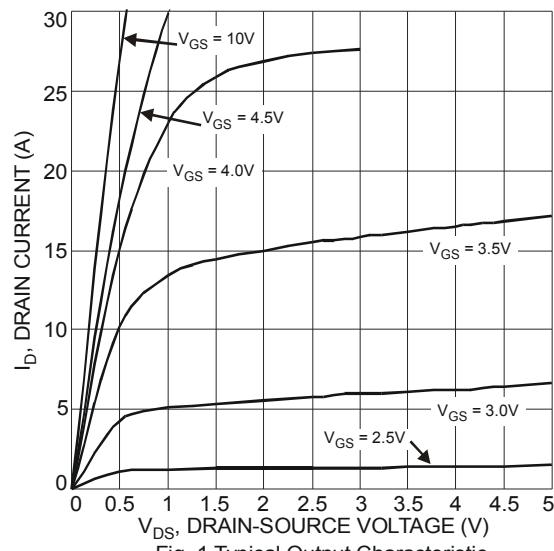
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 7)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	30	—	—	V	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	—	—	1	$\mu\text{A}$	$V_{DS} = 30\text{V}, V_{GS} = 0\text{V}$
Gate-Source 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	$V_{GS(\text{th})}$	1.0	1.45	2.4	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(\text{ON})}$	—	15 25	23 33	$\text{m}\Omega$	$V_{GS} = 10\text{V}, I_D = 10\text{A}$ $V_{GS} = 4.5\text{V}, I_D = 7.5\text{A}$
Forward Transfer Admittance	$ Y_{fs} $	—	2.5	—	S	$V_{DS} = 5\text{V}, I_D = 10\text{A}$
Diode Forward Voltage	$V_{SD}$	—	0.69	1	V	$V_{GS} = 0\text{V}, I_S = 1\text{A}$
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	$C_{iss}$	—	478.9	—	pF	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	—	96.7	—	pF	
Reverse Transfer Capacitance	$C_{rss}$	—	61.4	—	pF	
Gate Resistance	$R_g$	0.4	1.1	1.6	$\Omega$	$V_{DS} = 0\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
Total Gate Charge ( $V_{GS} = 4.5\text{V}$ )	$Q_g$	—	5.0	8	nC	$V_{DS} = 15\text{V}, V_{GS} = 10\text{V}, I_D = 10\text{A}$
Total Gate Charge ( $V_{GS} = 10\text{V}$ )	$Q_g$	—	10.5	17	nC	
Gate-Source Charge	$Q_{gs}$	—	1.8	—	nC	
Gate-Drain Charge	$Q_{gd}$	—	1.6	—	nC	$V_{GS} = 10\text{V}, V_{DS} = 15\text{V}, R_G = 3\Omega, R_L = 1.5\Omega$
Turn-On Delay Time	$t_{D(\text{on})}$	—	2.9	—	ns	
Turn-On Rise Time	$t_r$	—	7.9	—	ns	
Turn-Off Delay Time	$t_{D(\text{off})}$	—	14.6	—	ns	
Turn-Off Fall Time	$t_f$	—	3.1	—	ns	

Notes: 5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

6.  $I_{AR}$  and  $E_{AR}$  rating are based on low frequency and duty cycles to keep  $T_J = 25^\circ\text{C}$

7. Short duration pulse test used to minimize self-heating effect.

8. Guaranteed by design. Not subject to product testing.



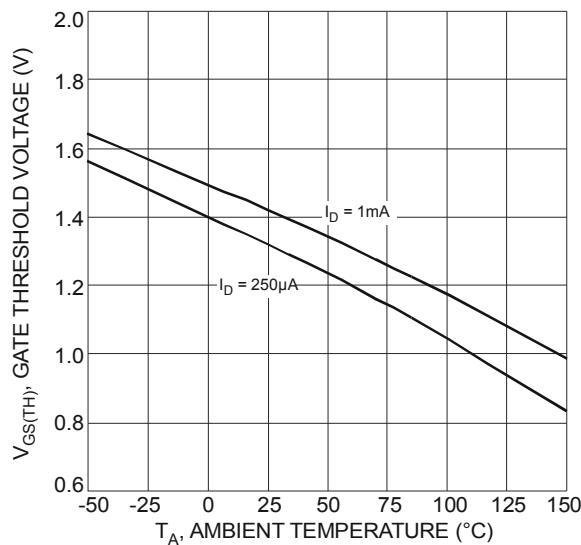


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

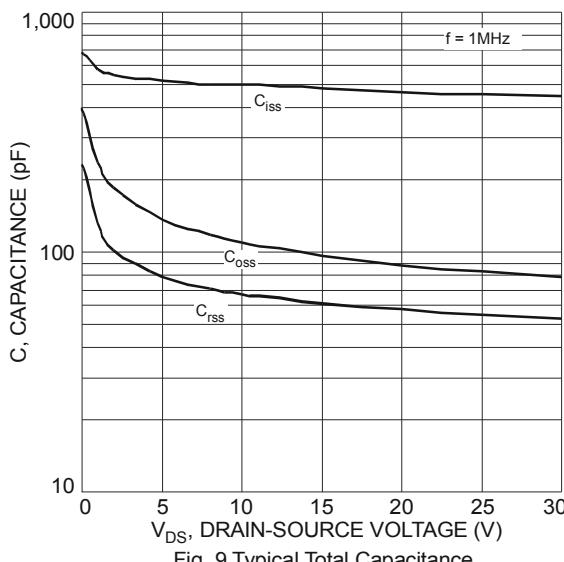


Fig. 9 Typical Total Capacitance

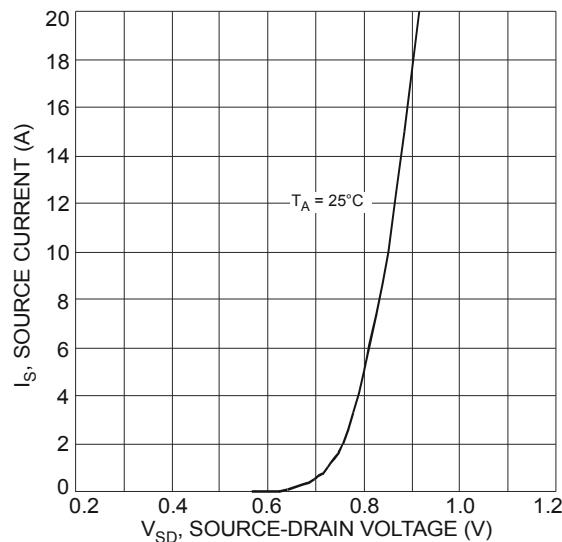


Fig. 8 Diode Forward Voltage vs. Current

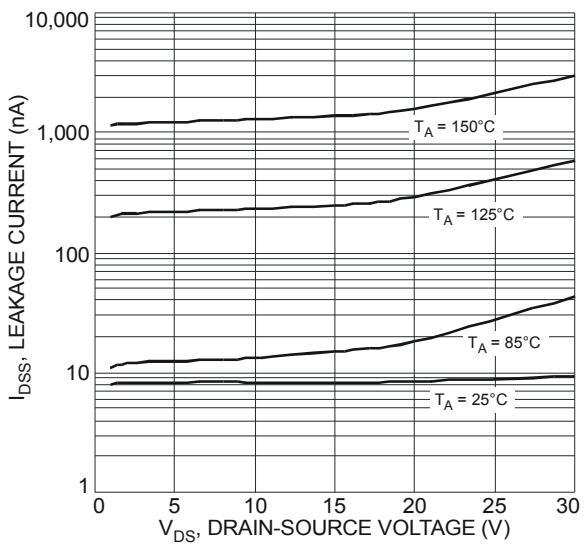


Fig. 10 Typical Leakage Current vs. Drain-Source Voltage

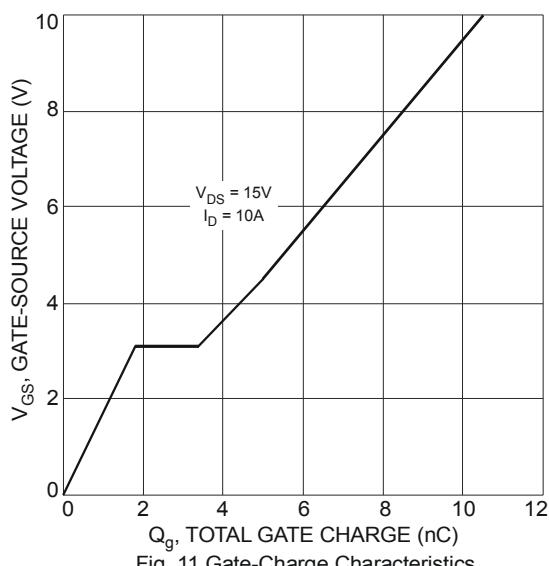


Fig. 11 Gate-Charge Characteristics

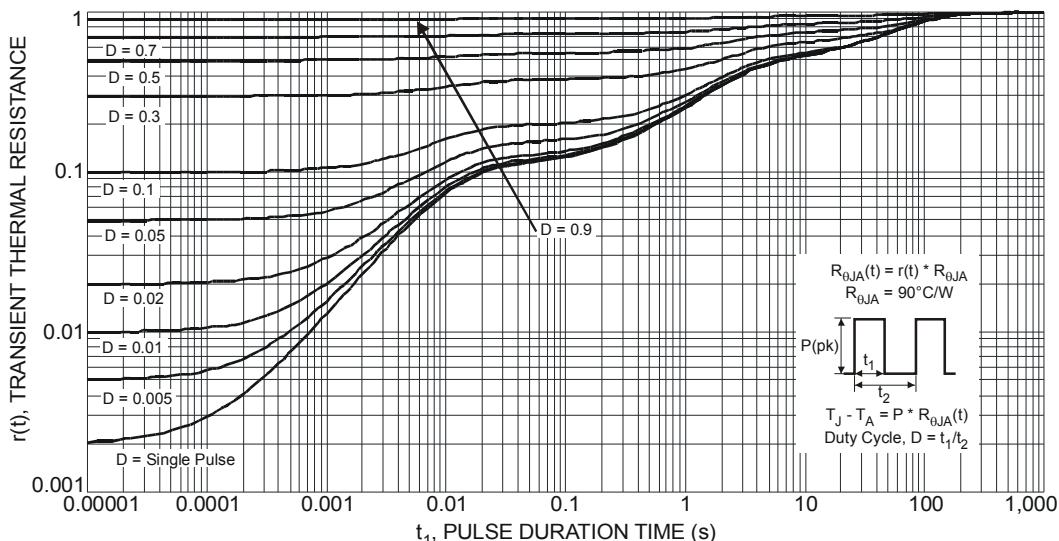
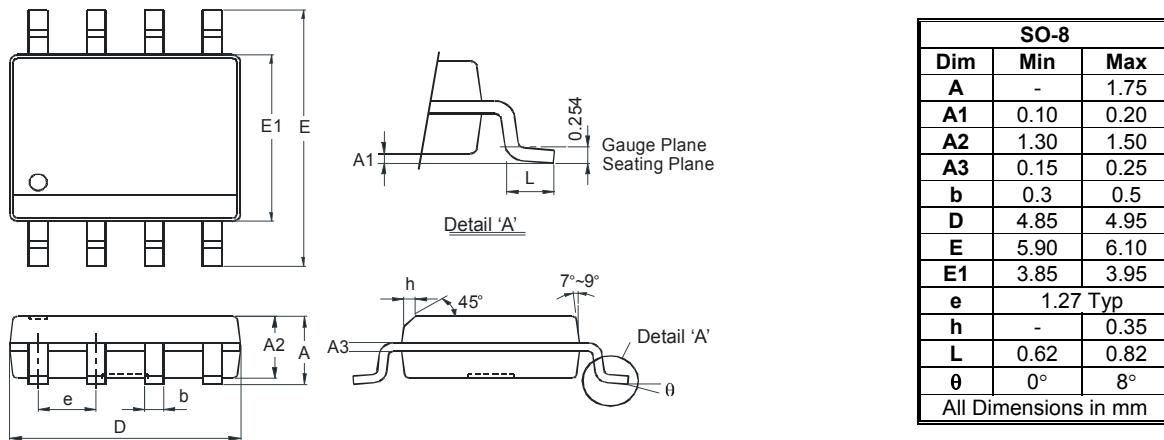


Fig. 12 Transient Thermal Response

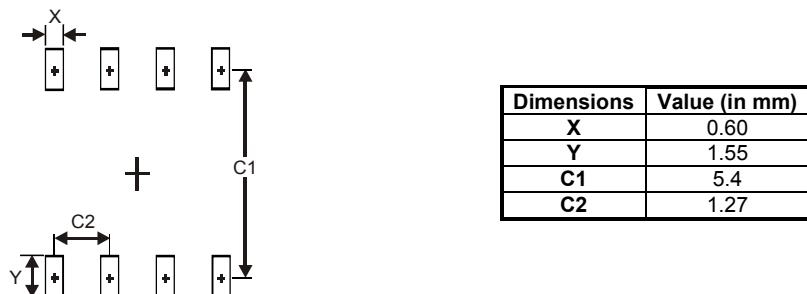
## Package Outline Dimensions

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



## Suggested Pad Layout

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



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