



Description

The DMG4822SSD uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.



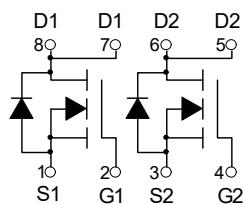
SOP-8

General Features

$V_{DS} = 30V$ $I_D = 10A$

$R_{DS(ON)} < 12m\Omega$ @ $V_{GS}=10V$

$R_{DS(ON)} < 18m\Omega$ @ $V_{GS}=4.5V$



Application

Battery protection

Load switch

Uninterruptible power supply

Dual N-Channel MOSFET

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
DMG4822SSD	SOP-8	HXY MOSFET	3000

Absolute Maximum Ratings@ $T_j=25^\circ C$ (unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_A=25^\circ C$	Drain Current, $V_{GS} @ 4.5V^3$	10	A
$I_D @ T_A=70^\circ C$	Drain Current, $V_{GS} @ 4.5V^3$	8	A
I_{DM}	Pulsed Drain Current ¹	55	A
$P_D @ T_A=25^\circ C$	Total Power Dissipation	2	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C
R_{thj-a}	Maximum Thermal Resistance, Junction-ambient ³	62.5	°C/W



Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	$I_D=250 \mu\text{A}, V_{GS}=0\text{V}$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30\text{V}, V_{GS}=0\text{V}$			1	μA
		$V_{DS}=30\text{V}, V_{GS}=0\text{V}, T_J=55^\circ\text{C}$			5	
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(\text{th})}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.5		2.5	V
Static Drain-Source On-Resistance	$R_{DS(\text{on})}$	$V_{GS}=10\text{V}, I_D=10\text{A}$			12	$\text{m}\Omega$
		$V_{GS}=10\text{V}, I_D=10\text{A}, T_J=125^\circ\text{C}$			18	
		$V_{GS}=4.5\text{V}, I_D=8\text{A}$			16.5	
On State Drain Current	$I_{D(\text{ON})}$	$V_{GS}=10\text{V}, V_{DS}=5\text{V}$	55			A
Forward Transconductance	g_{FS}	$V_{DS}=5\text{V}, I_D=10\text{A}$		43		S
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}, V_{DS}=15\text{V}, f=1\text{MHz}$	610		910	pF
Output Capacitance	C_{oss}		88		160	
Reverse Transfer Capacitance	C_{rss}		40		100	
Gate Resistance	R_g	$V_{GS}=0\text{V}, V_{DS}=0\text{V}, f=1\text{MHz}$	0.8		2.4	Ω
Total Gate Charge (10V)	Q_g	$V_{GS}=10\text{V}, V_{DS}=15\text{V}, I_D=10\text{A}$	11		17	nC
Total Gate Charge (4.5V)			5		8	
Gate Source Charge	Q_{gs}			2.4		
Gate Drain Charge	Q_{gd}			3		
Turn-On Delay Time	$t_{d(\text{on})}$	$V_{GS}=10\text{V}, V_{DS}=15\text{V}, R_L=1.5\Omega, R_{GEN}=3\Omega$		4.4		ns
Turn-On Rise Time	t_r			9		
Turn-Off Delay Time	$t_{d(\text{off})}$			17		
Turn-Off Fall Time	t_f			6		
Body Diode Reverse Recovery Time	t_{rr}	$I_F= 10\text{A}, dI/dt= 500\text{A/us}$	5.6		8	nC
Body Diode Reverse Recovery Charge	Q_{rr}		6.4		9.6	
Maximum Body-Diode Continuous Current	I_s				2.5	A
Diode Forward Voltage	V_{SD}	$I_s=1\text{A}, V_{GS}=0\text{V}$			1	V

Note. The static characteristics in Figures 1 to 6 are obtained using $<300\mu\text{s}$ pulses, duty cycle 0.5% max.



Typical Characteristics

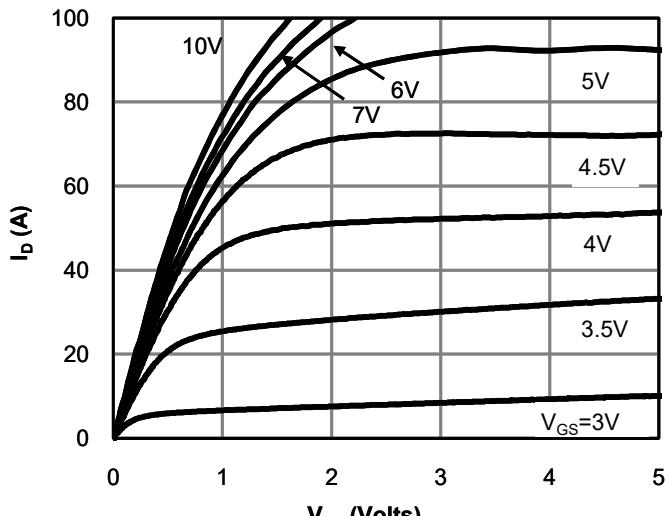


Fig 1: On-Region Characteristics (Note E)

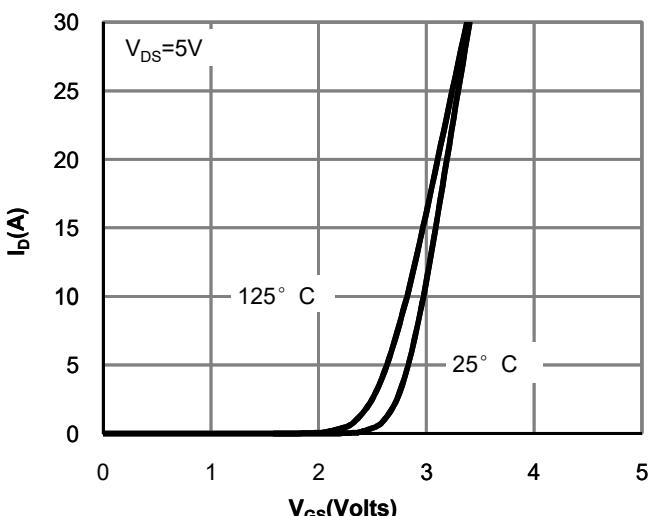


Figure 2: Transfer Characteristics (Note E)

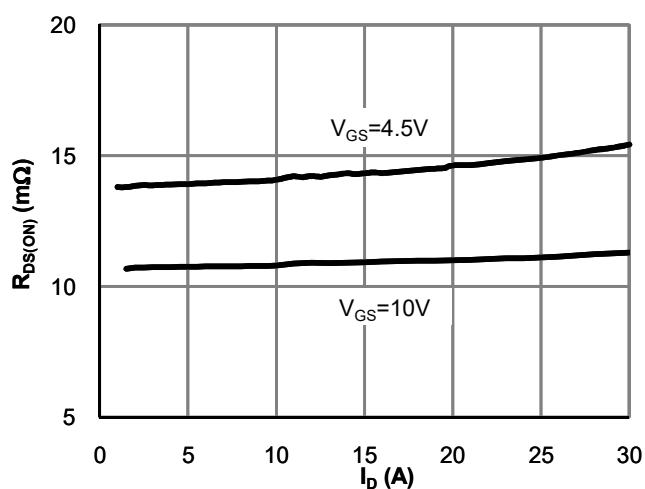


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

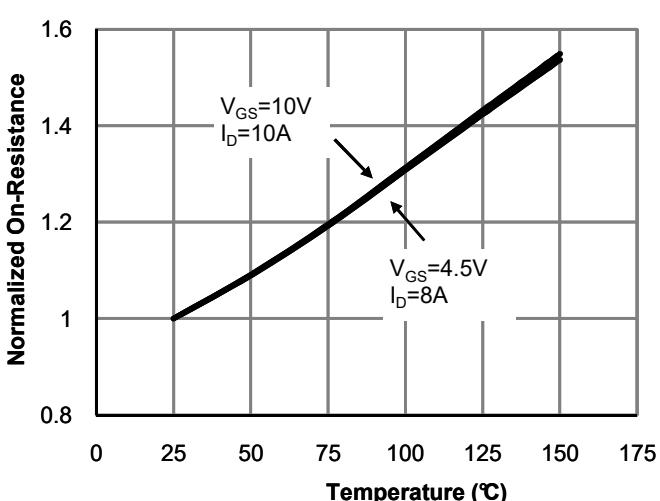


Figure 4: On-Resistance vs. Junction Temperature (Note E)

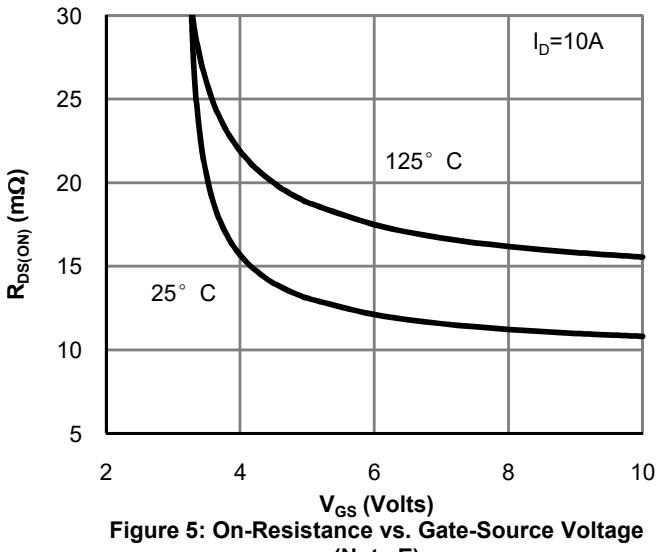


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

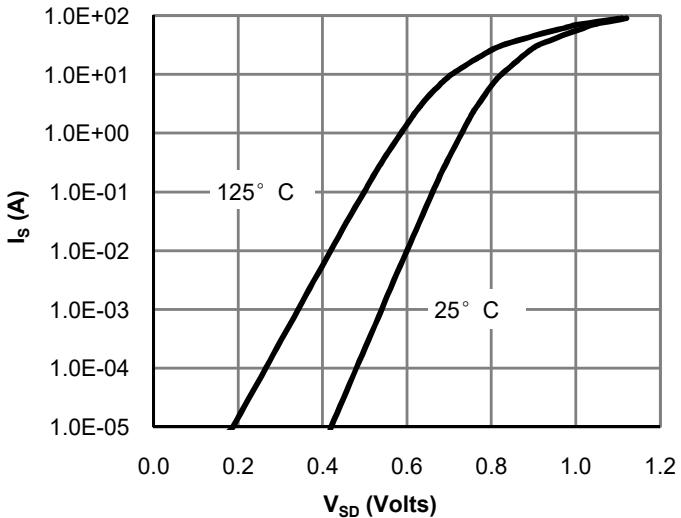


Figure 6: Body-Diode Characteristics (Note E)



Typical Characteristics

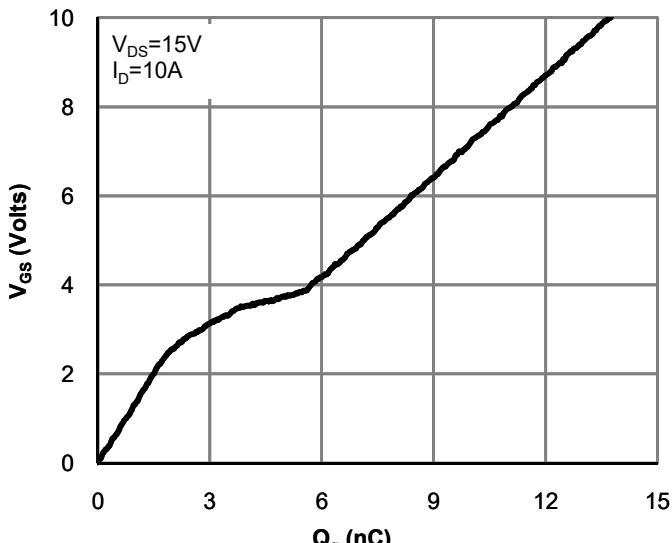


Figure 7: Gate-Charge Characteristics

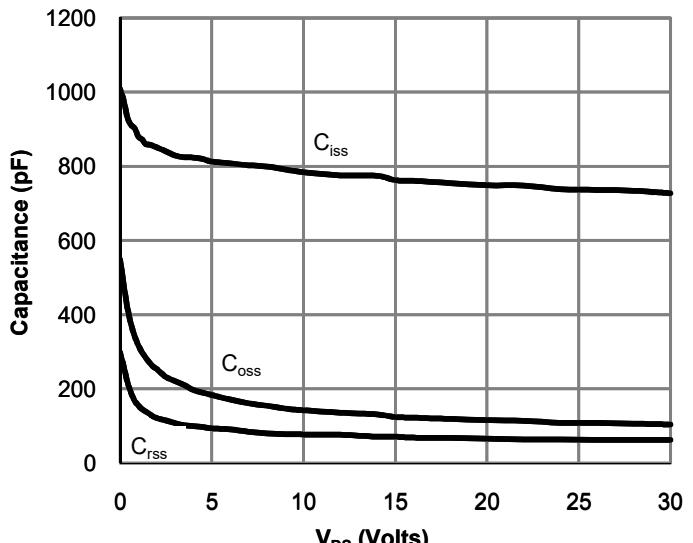


Figure 8: Capacitance Characteristics

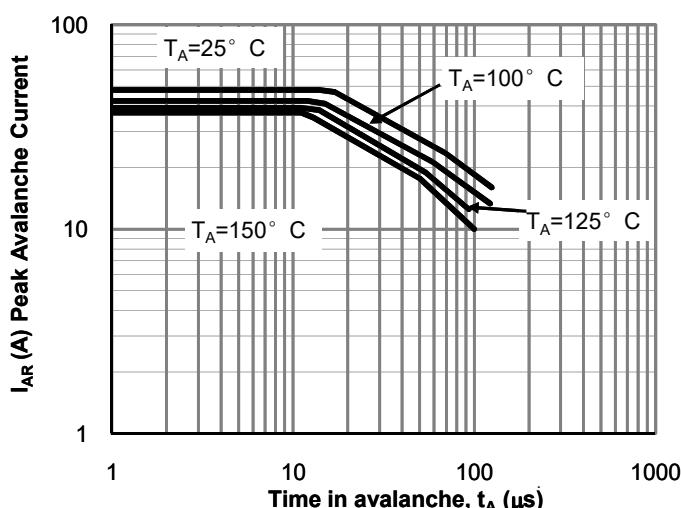


Figure 9: Single Pulse Avalanche capability (Note C)

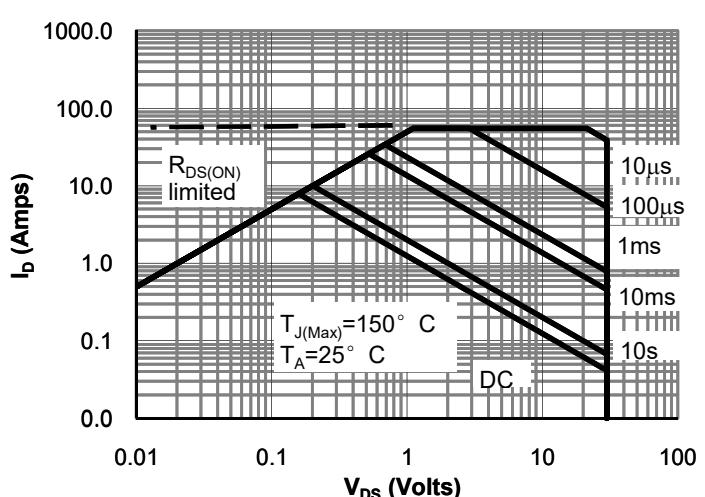


Figure 10: Maximum Forward Biased Safe Operating Area (Note F)

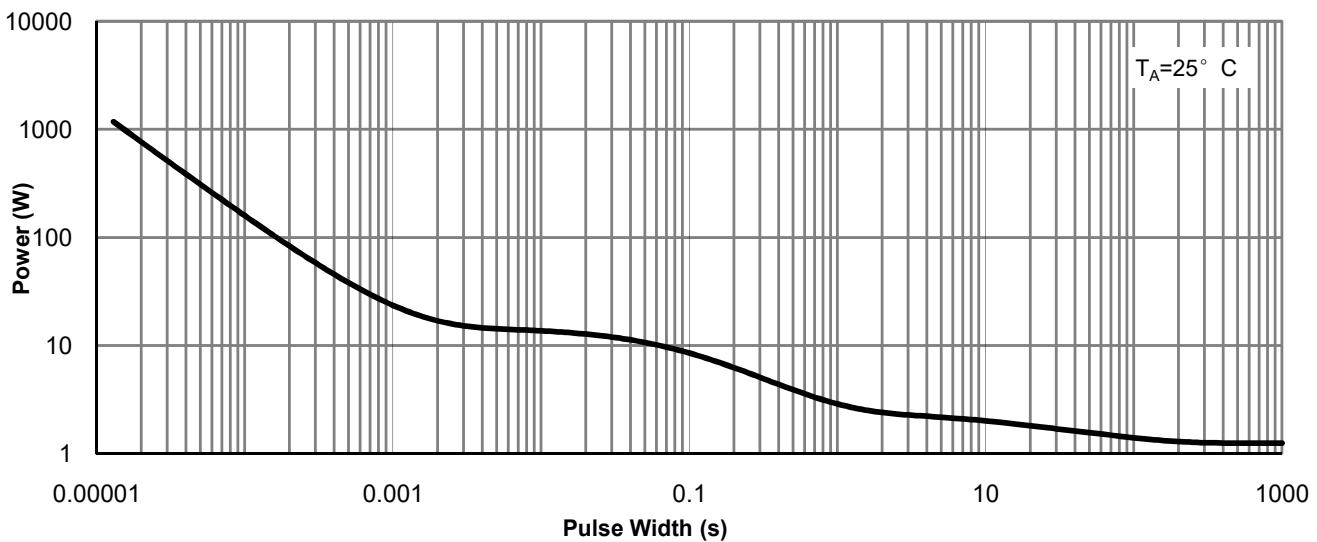


Figure 11: Single Pulse Power Rating Junction-to-Ambient (Note F)



Typical Characteristics

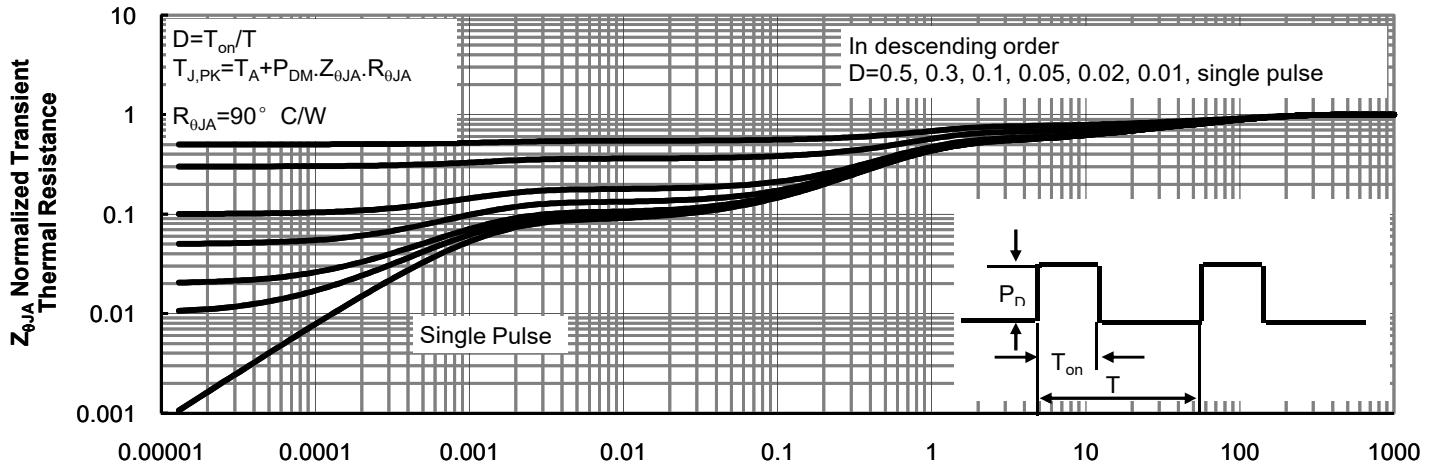
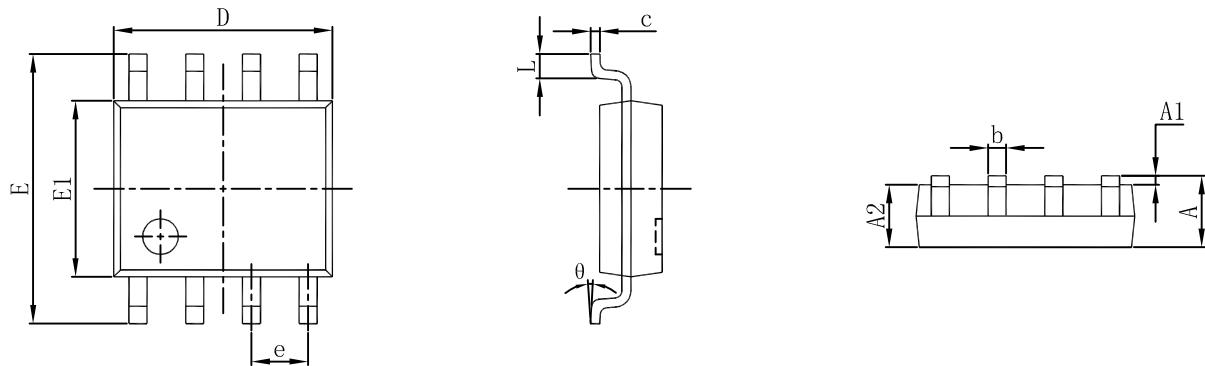


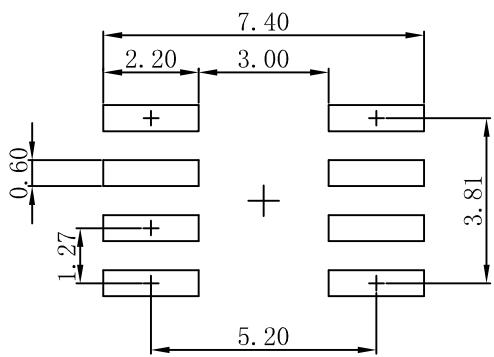
Figure 12: Normalized Maximum Transient Thermal Impedance (Note F)



SOP-8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Note:
1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.



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