

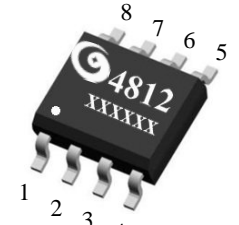
## Dual N-Channel MOSFET (30V, 6.9A)

PRODUCT SUMMARY		
$V_{DS}$	$I_D$	$R_{DS(on)}$ (m $\Omega$ ) Max
30V	6.9A	26 @ $V_{GS}=10V, I_D=6.9A$
		40 @ $V_{GS}=4.5V, I_D=5.8A$

### Features

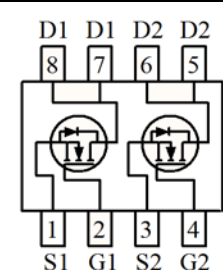
- Advanced Trench Process Technology
- Super high density cell design for extremely low  $R_{DS(on)}$
- Exceptional on-resistance and maximum DC current capability
- Ordering information : GS4812(Lead(Pb)-free and halogen-free)

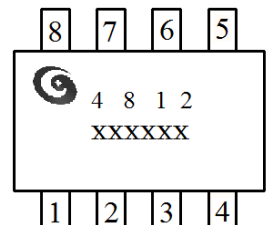
RoHS+HF



**SOP-8**

Pin 1: Source 2  
 Pin 2: Gate 2  
 Pin 3: Source 1  
 Pin 4: Gate 1  
 Pin 5 / 6: Drain 1  
 Pin 7 / 8: Drain 2





GS 4812

Product Code

Package Code: SOP-8

Company Code: GEMMICRO

XXXXXX

Production control code

the stream code

Date code

Month code

Year code

### Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ , unless otherwise noted)

Symbol	Parameter	Ratings	Units
$V_{DS}$	Drain-Source Voltage	30	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Drain Current (Continuous) @ $T_A=25^\circ\text{C}$	6.9	A
$I_{DM}$	Drain Current (Pulsed) <sup>b</sup>	30	A
$P_D$	Total Power Dissipation @ $T_A=25^\circ\text{C}$ <sup>a</sup>	2.0	W
$I_{AS}$	Avalanche Current, Single pulse @ $L=0.3\text{mH}$ <sup>c</sup>	6.5	A
$E_{AS}$	Avalanche Energy, Single pulse @ $L=0.3\text{mH}$ <sup>c</sup>	6.3	mJ
$I_S$	Maximum Diode Forward Current <sup>a</sup>	4.2	A
$T_j, T_{stg}$	Operating Junction and Storage Temperature Range <sup>a</sup>	-55 to +150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient (PCB mounted) <sup>a</sup>	62.5	$^\circ\text{C}/\text{W}$

Note: a: Surface Mounted on FR4 Board ,  $t \leq 5\text{sec}$  .

b: Pulse width limited by maximum junction temperature.

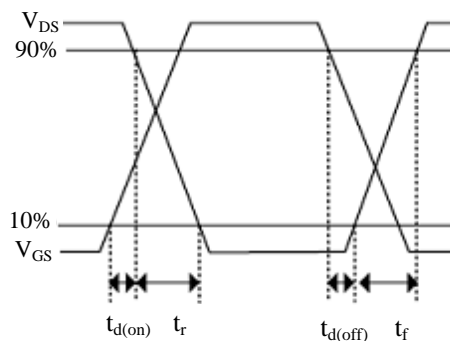
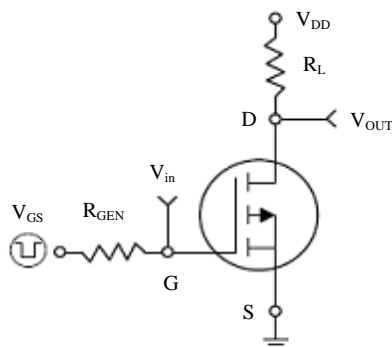
c: UIS tested and pulse width limited by maximum junction temperature  $150^\circ\text{C}$  (initial temperature  $T_j=25^\circ\text{C}$ ).

## Electrical Characteristics (T<sub>A</sub>=25°C, unless otherwise noted)

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
<b>• Off Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	30	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V	-	-	1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
<b>• On Characteristics<sup>d</sup></b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1	-	3	V
R <sub>DS(on)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =6.9A	-	22	26	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =5.8A	-	34	40	
<b>• Dynamic Characteristics<sup>e</sup></b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz	-	610	-	pF
C <sub>oss</sub>	Output Capacitance		-	100	-	
C <sub>rss</sub>	Reverse Transfer Capacitance		-	77	-	
<b>• Switching Characteristics<sup>e</sup></b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V, I <sub>D</sub> =6.9A, V <sub>GS</sub> =10V	-	13	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	4.2	-	
Q <sub>gd</sub>	Gate-Drain Charge		-	3.1	-	
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> =15V, R <sub>L</sub> =15Ω, I <sub>D</sub> =1A, V <sub>GS</sub> =10V, R <sub>GEN</sub> =6Ω	-	9	-	nS
t <sub>r</sub>	Turn-on Rise Time		-	14	-	
t <sub>d(off)</sub>	Turn-off Delay Time		-	30	-	
t <sub>f</sub>	Turn-off Fall Time		-	5	-	
<b>• Drain-Source Diode Characteristics</b>						
V <sub>SD</sub>	Drain-Source Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =2A	-	-	1.2	V

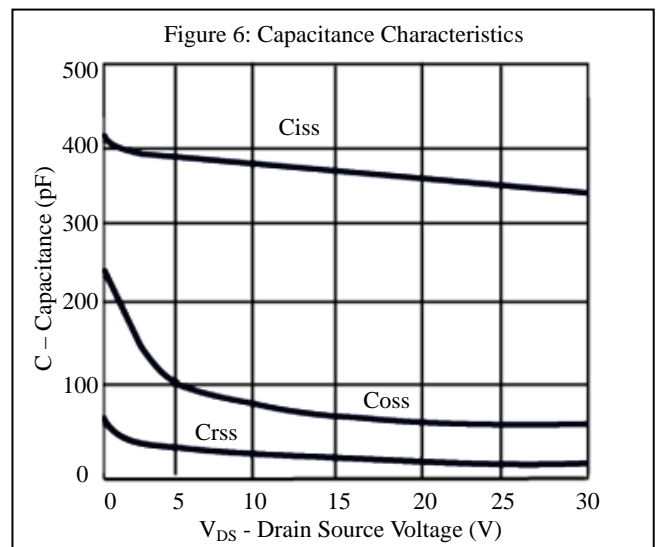
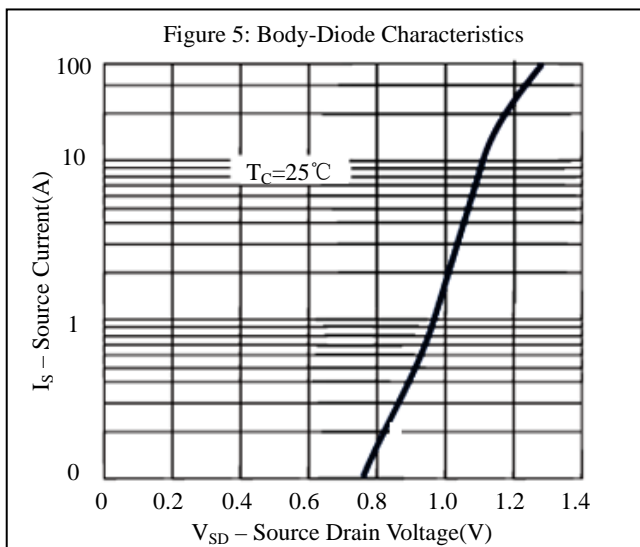
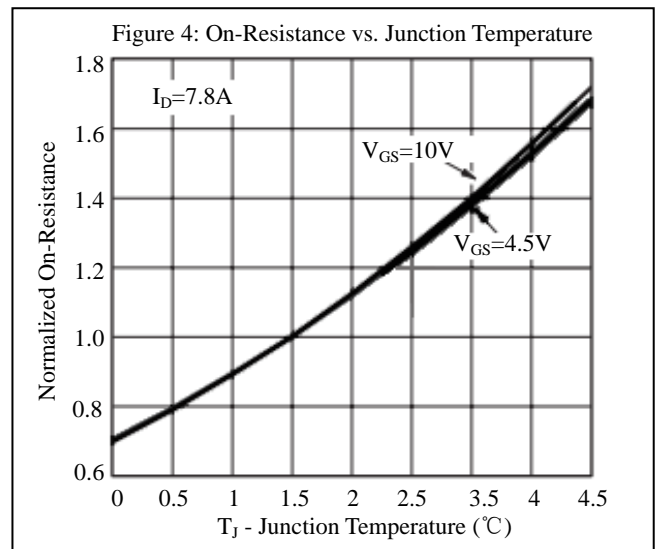
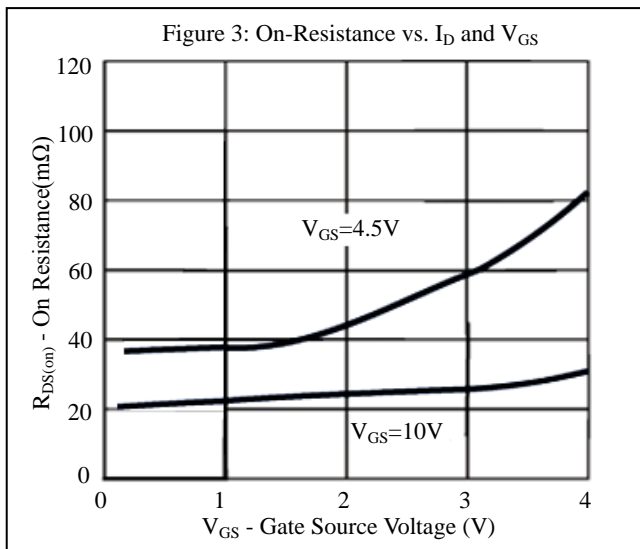
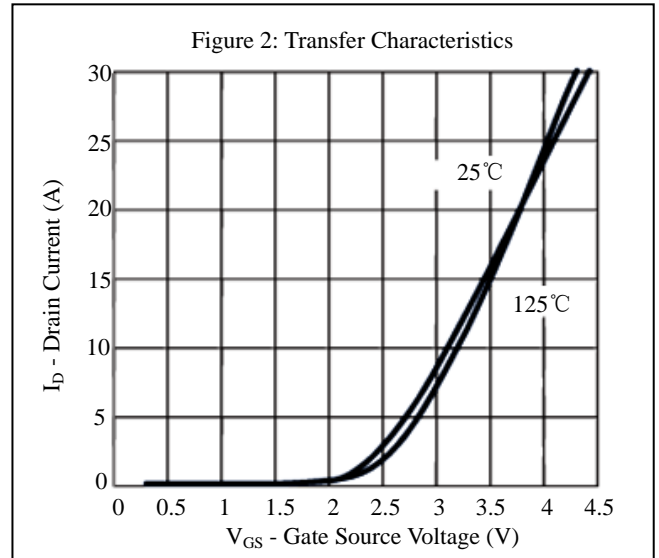
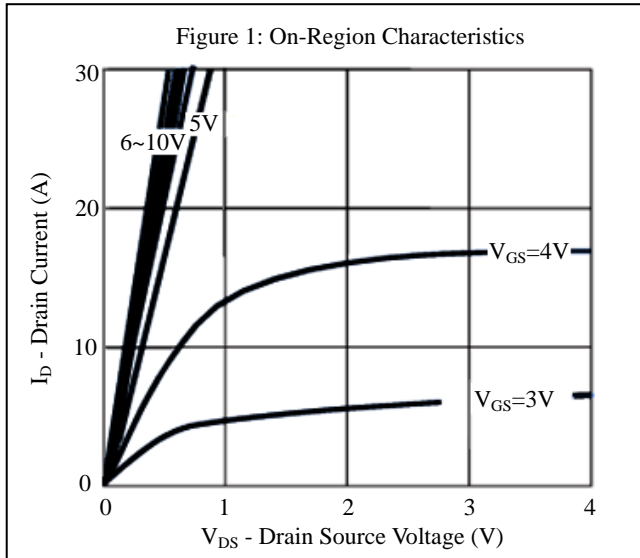
Note: d: Pulse Test : Pulse Width < 300μs, Duty Cycle < 2%

e: Guaranteed by design, not subject to production testing.

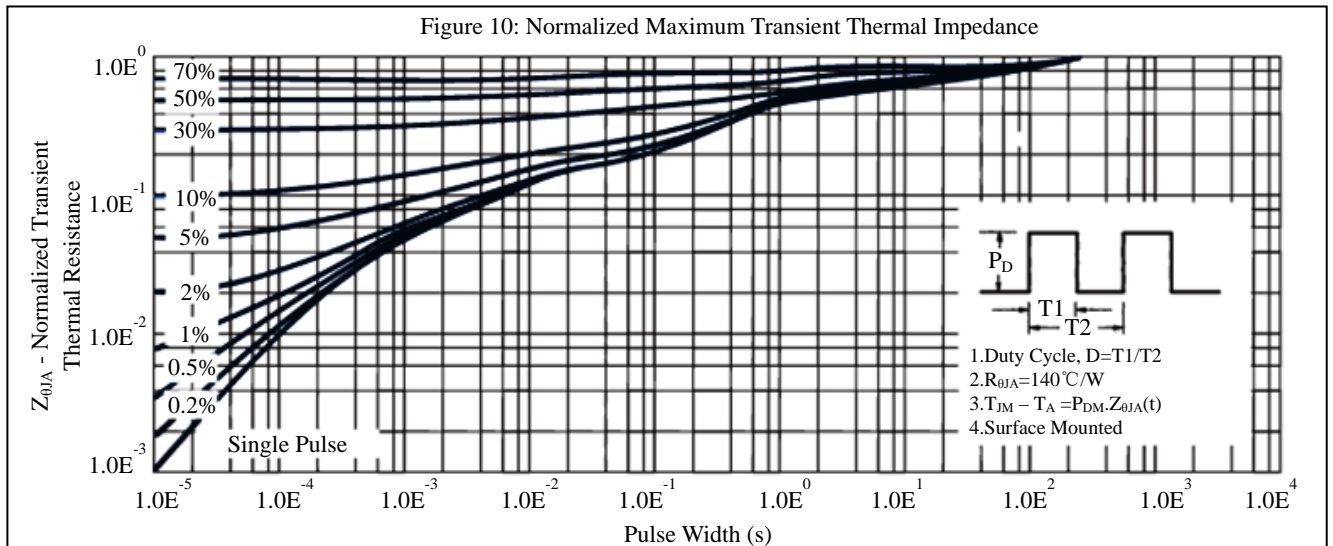
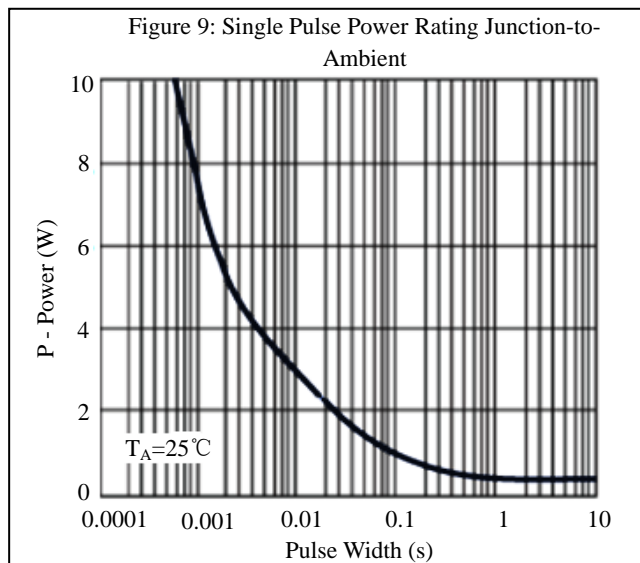
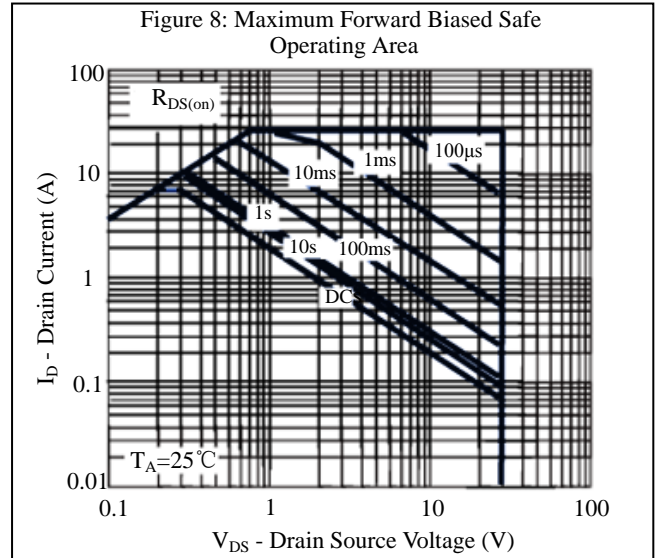
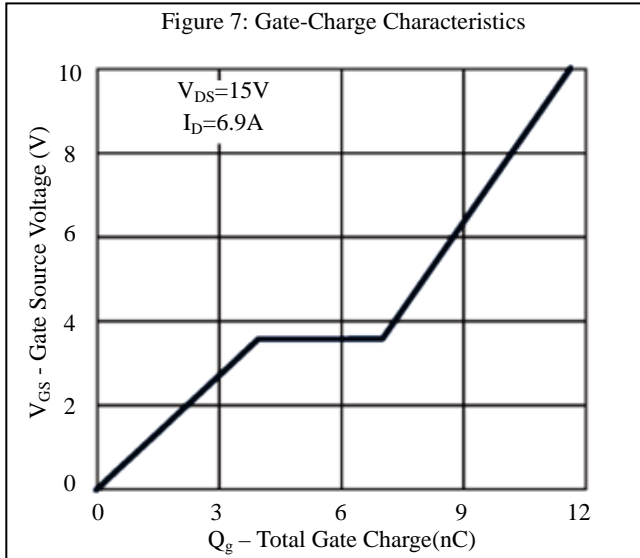


Switching Test Circuit and Switching Waveforms

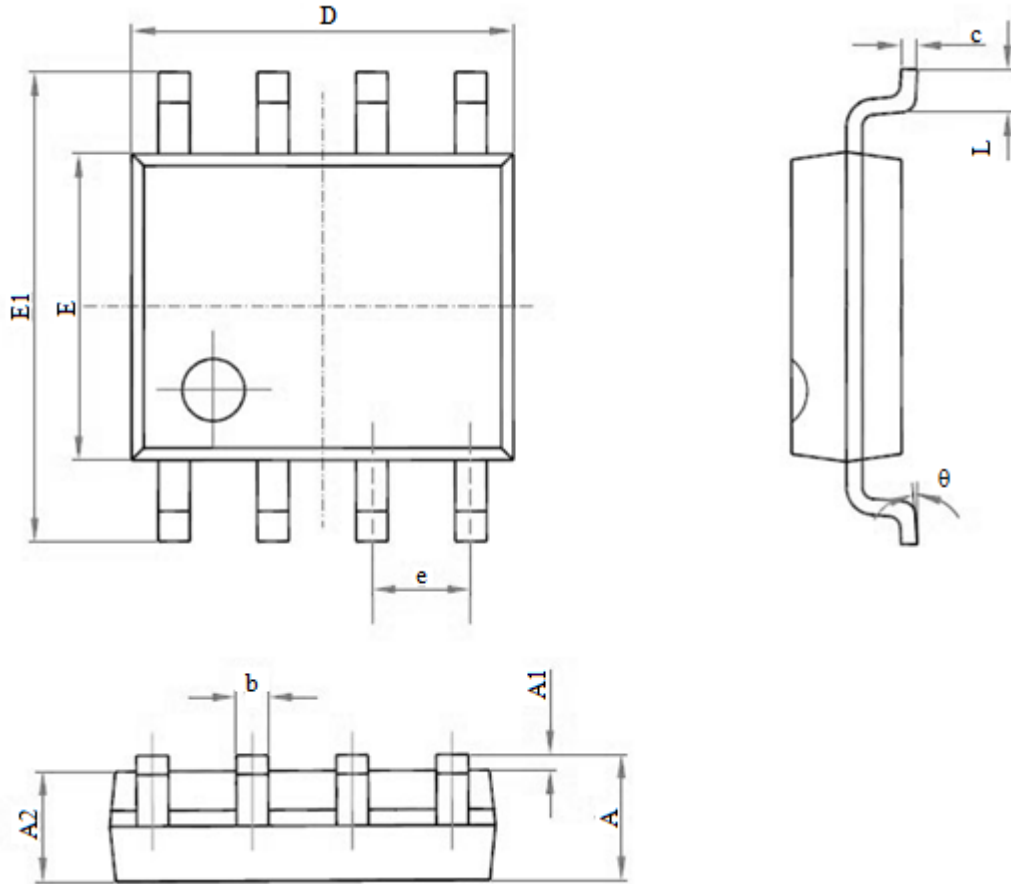
## Characteristics Curve



## Characteristics Curve



## SOP-8 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters (MM)		Dimensions In Inches (MIL)	
	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	0.310	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Notice

1. Specification of the products displayed herein is subject to change without notice. Continuous development may necessitate changes in technical data without notice. GEMMICRO or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies.

2. Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.