

GSM2912

20V N-CH Enhancement Mode MOSFET

Product Description

GSM2912, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

Features

- 20V/4.5A, $R_{DS(ON)}=50m\Omega@V_{GS}=4.5V$
20V/3.6A, $R_{DS(ON)}=60m\Omega@V_{GS}=2.5V$
20V/2.4A, $R_{DS(ON)}=78m\Omega@V_{GS}=1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- DFN2X2-6L package design

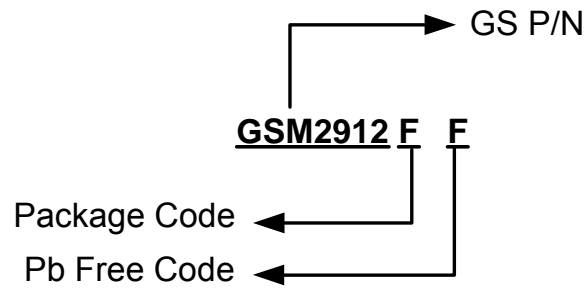
Applications

- Power Management in Note book
- LED Display
- DC-DC System
- LCD Panel

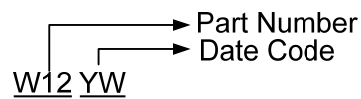
Packages & Pin Assignments

GSM2912FF (DFN2X2-6L)		
Pin	Symbol	Description
1	S1	Source 1
2	G1	Gate 1
3	D2	Drain 2
4	S2	Source 2
5	G2	Gate 2
6	D1	Drain1

Ordering Information



Marking Information



Part Number	Package	Part Marking	Quantity Reel
GSM2912FF	DFN2X2-6L	W12YW	3000 PCS

Absolute Maximum Ratings

T_A=25°C Unless otherwise noted

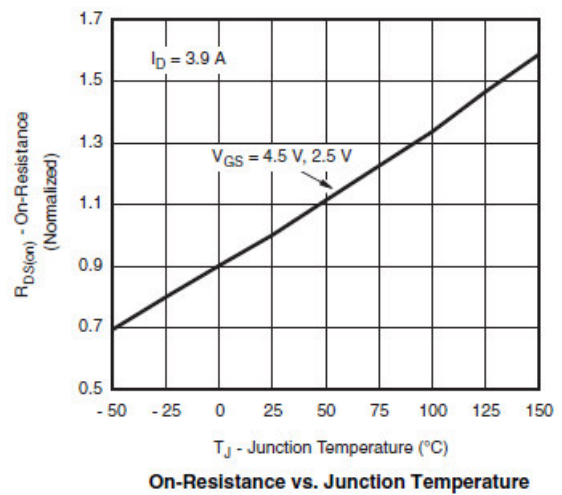
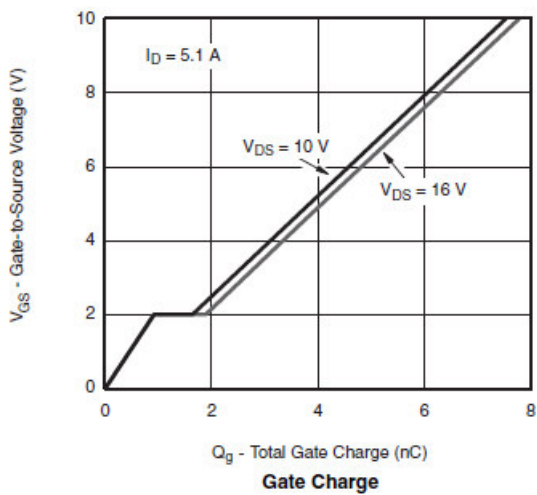
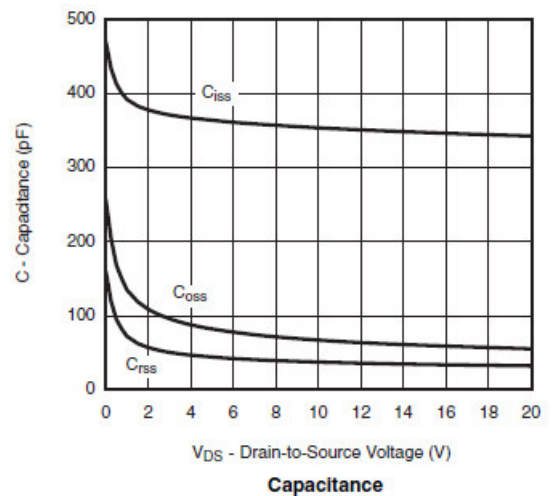
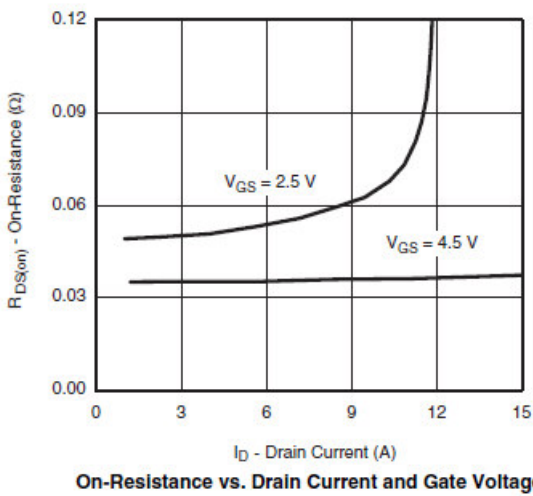
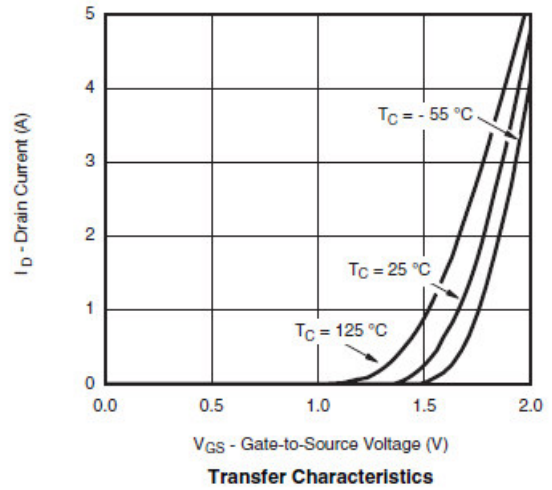
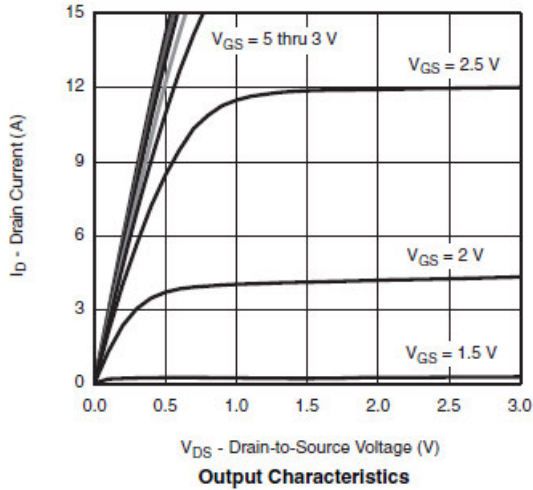
Symbol	Parameter	Typical	Unit	
V _{DSS}	Drain-Source Voltage	20	V	
V _{GSS}	Gate –Source Voltage	±12	V	
I _D	Continuous Drain Current(T _J =150°C)	T _A =25°C	4.5	A
		T _A =70°C	2.4	
I _{DM}	Pulsed Drain Current	20	A	
I _S	Continuous Source Current(Diode Conduction)	1.7	A	
P _D	Power Dissipation	T _A =25°C	6.5	W
		T _A =70°C	4.2	
T _J	Operating Junction Temperature	150	°C	
T _{STG}	Storage Temperature Range	-55/150	°C	
R _{θJA}	Thermal Resistance-Junction to Ambient	120	°C/W	

Electrical Characteristics

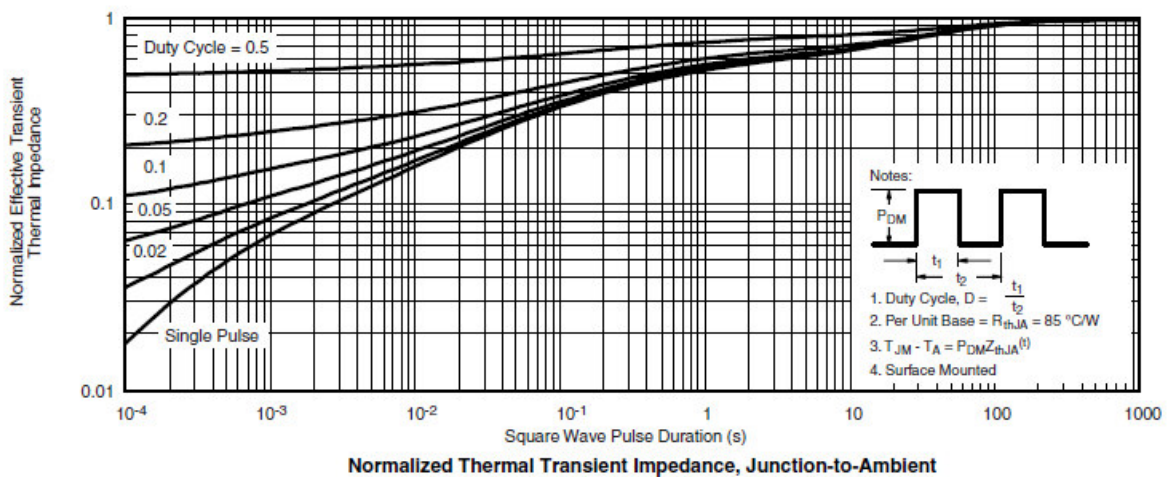
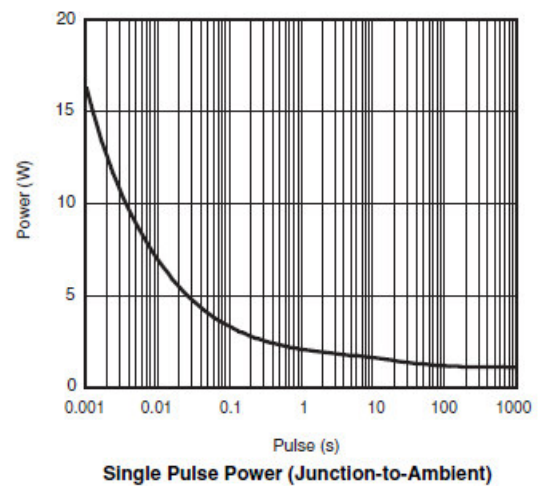
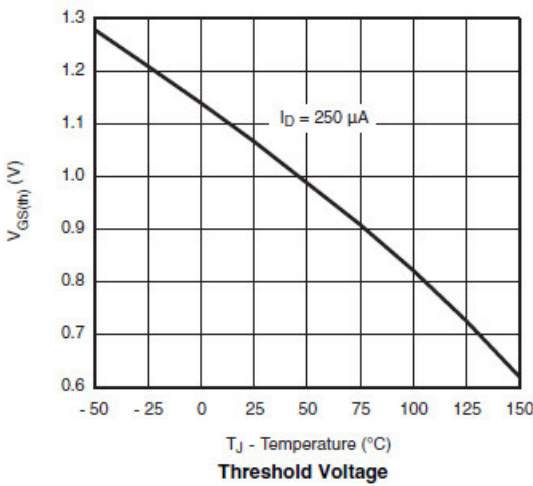
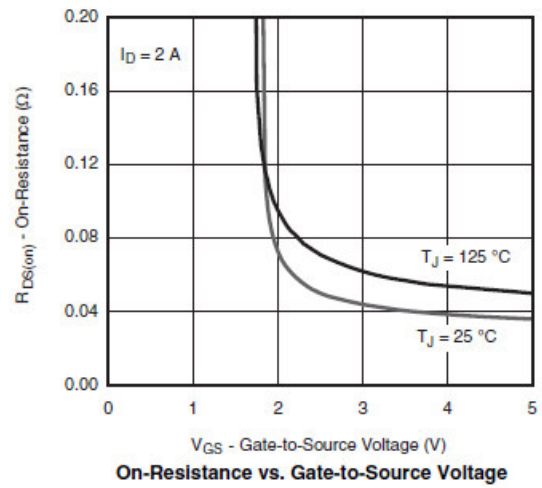
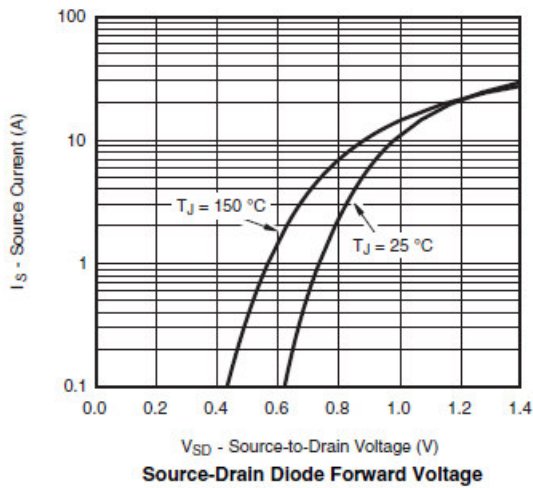
($T_A=25^{\circ}\text{C}$ Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	20			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.3		0.8	
I_{GSS}	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 12V$			± 100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=16V, V_{GS}=0V$			1	uA
		$V_{DS}=16V, V_{GS}=0V, T_J=85^{\circ}\text{C}$			10	
$I_{D(on)}$	On-State Drain Current	$V_{DS}\geq 5.0V, V_{GS}=4.5V$	6			A
		$V_{DS}\geq 5.0V, V_{GS}=2.5V$	4			
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=4.5V, I_D=4.5A$		41	50	m Ω
		$V_{GS}=2.5V, I_D=3.6A$		50	60	
		$V_{GS}=1.8V, I_D=2.4A$		66	78	
g_{FS}	Forward Transconductance	$V_{DS}=5V, I_D=3.6A$		10		S
V_{SD}	Diode Forward Voltage	$I_S=1.6A, V_{GS}=0V$		0.85	1.2	V
Dynamic						
Q_g	Total Gate Charge	$V_{DS}=10V, V_{GS}=4.5V, I_D=3.6A$		4.2	5.0	nC
Q_{gs}	Gate-Source Charge			0.6		
Q_{gd}	Gate-Drain Charge			0.4		
C_{ISS}	Input Capacitance	$V_{DS}=10V, V_{GS}=0V, f=1\text{MHz}$		340		pF
C_{OSS}	Output Capacitance			115		
C_{RSS}	Reverse Transfer Capacitance			33		
$t_{d(on)}$	Turn-On Time	$V_{DD}=10V, R_L=2.8\Omega, I_D=3.6A, V_{GEN}=4.5V, R_G=1.0\Omega$		8	15	ns
t_r				8	15	
$t_{d(off)}$	Turn-Off Time			25	40	
t_f				8	15	

Typical Performance Characteristics

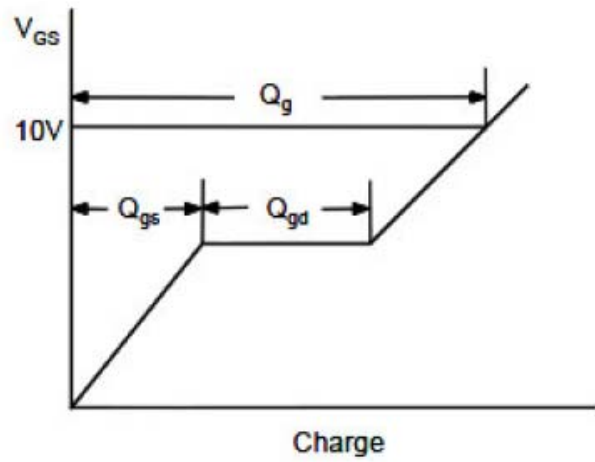
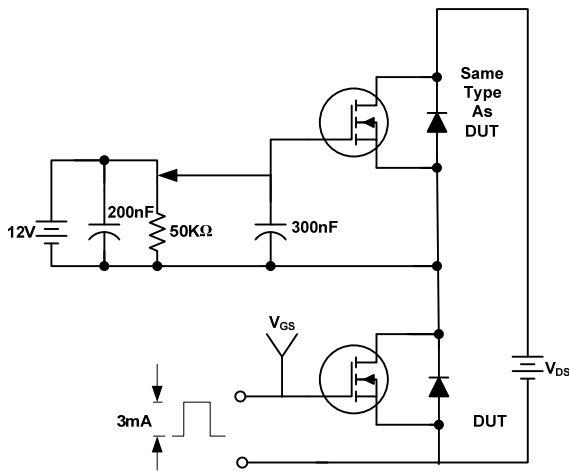


Typical Performance Characteristics (continue)

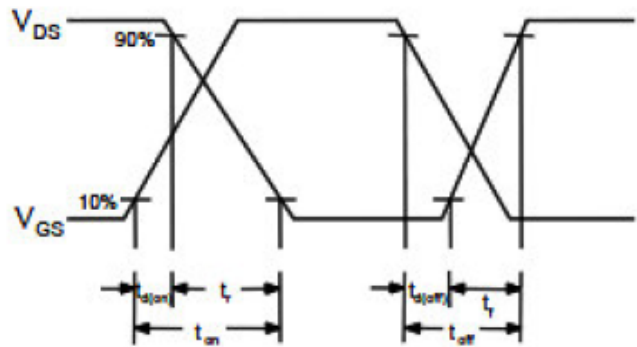
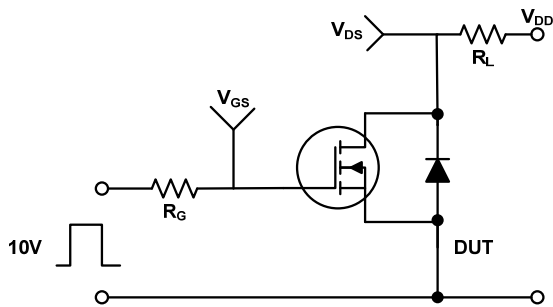


Typical Performance Characteristics (continue)

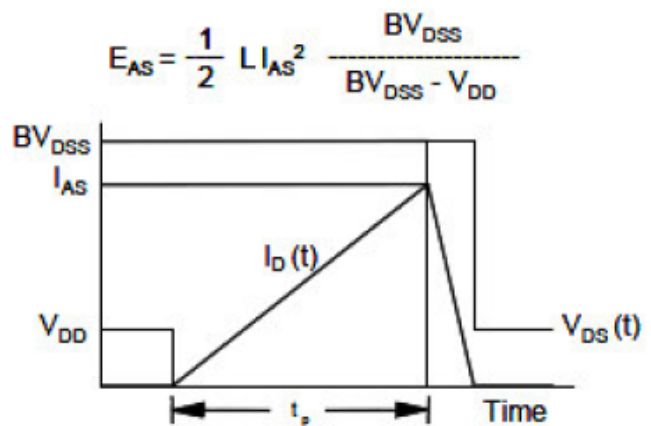
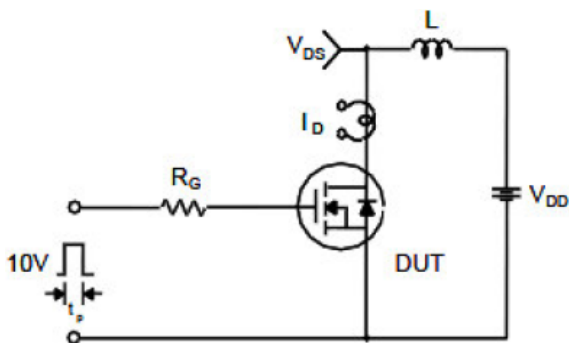
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

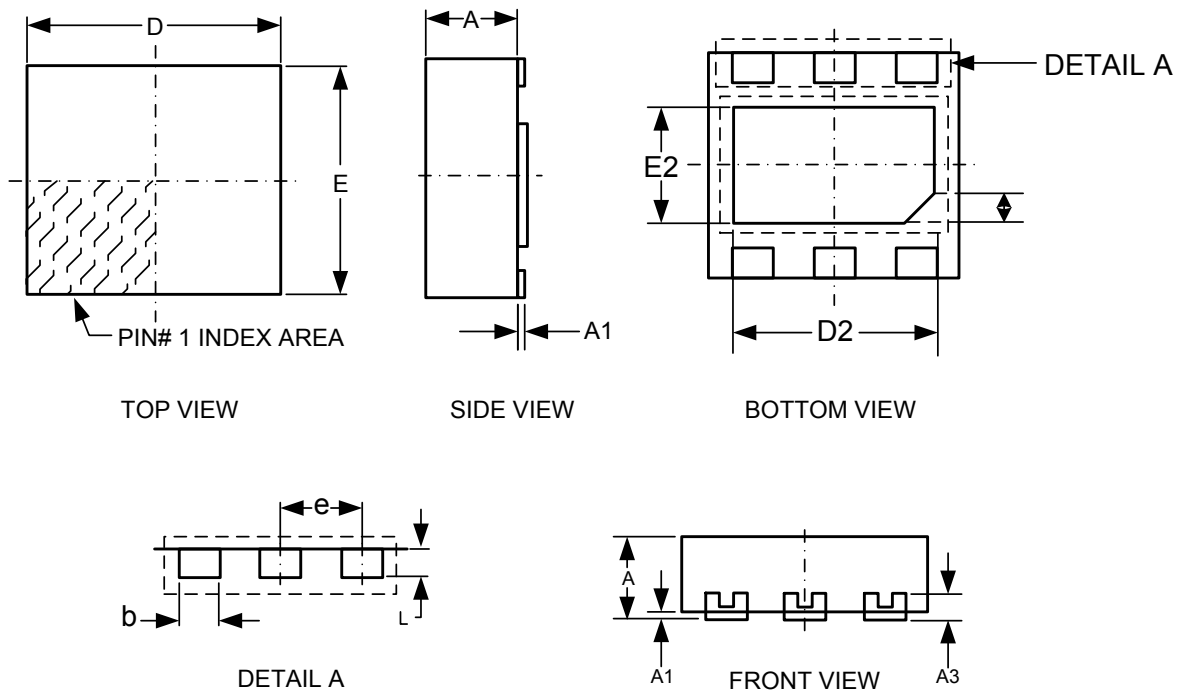


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

DFN2x2-6L







Dimensions

SYMBOL	Millimeters			Inches		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.75	0.80	0.028	0.030	0.031
A1	-	0.02	0.05	-	0.001	0.002
A3	0.18	0.20	0.25	0.007	0.008	0.010
b	0.25	0.30	0.35	0.010	0.012	0.014
D	1.95	2.00	2.05	0.077	0.079	0.081
D2	1.00	-	1.45	0.039	-	0.057
e	0.65 BSC			0.026 BSC		
E	1.95	2.00	2.05	0.077	0.079	0.081
E2	0.50	-	0.85	0.020	-	0.033
L	0.25	0.30	0.40	0.010	0.012	0.016
h	0.1	0.15	0.2	0.004	0.006	0.008



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