GSM7106S

20V N-Channel Enhancement Mode MOSFET

Product Description

GSM7106S, 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, such as smart phone and notebook computer and other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

Features

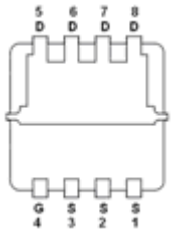
- 20V/20A,$R_{DS(ON)}$=6.2mΩ@V_{GS}=4.5V
- 20V/15A,$R_{DS(ON)}$=8.4mΩ@V_{GS}=2.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- DFN3.3X3.3-8L package design

Applications

- DC-DC Converter
- POL

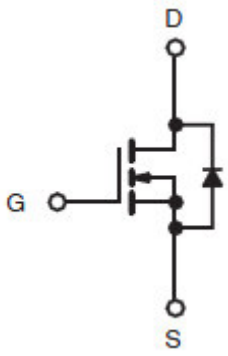
Packages & Pin Assignments

GSM7106SFF (DFN3.3X3.3-8L)

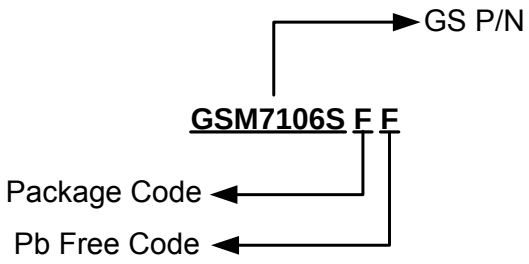


Bottom View

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

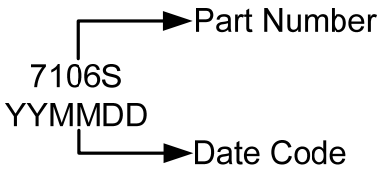


Ordering Information



Part Number	Package	Quantity Reel
GSM7106SFF	DFN3.3X3.3-8L	5000 PCS

Marking Information



Absolute Maximum Ratings

T_A=25ºC Unless otherwise noted

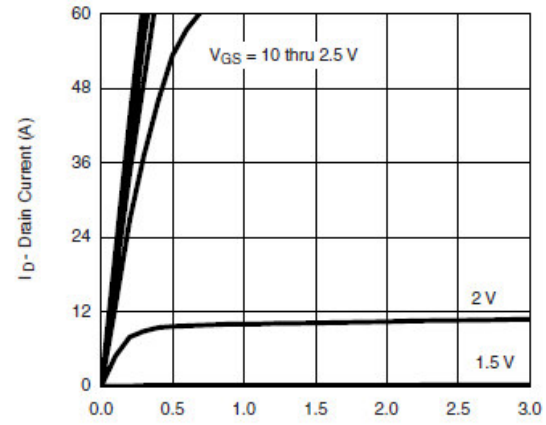
Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate –Source Voltage		±12	V
I_D	Continuous Drain Current(T_J=150℃)	T_A=25℃	20	A
		T_A=70℃	15	
I_{DM}	Pulsed Drain Current		70	A
I_S	Continuous Source Current (Diode Conduction)		40	A
P_D	Power Dissipation	T_A=25℃	3.8	W
		T_A=70℃	2	
T_J	Operating Junction Temperature		150	℃
T_{STG}	Storage Temperature Range		-55/150	℃
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		120	℃/W

Electrical Characteristics

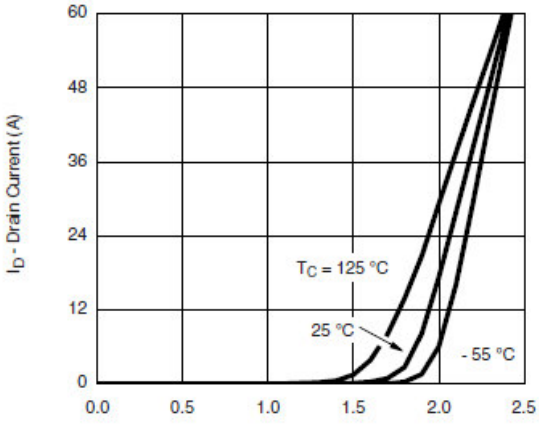
T_A=25℃ Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	20			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	0.5		1.0	
I_{GSS}	Gate Leakage Current	V_{DS}=0V,V_{GS}=±20V			±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℃			10	
$I_{D(ON)}$	On-State Drain Current	V_{DS}≧5V,V_{GS}=4.5V	50			A
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS} =4.5V,I_D=20A		4.3	6.2	mΩ
		V_{GS} =2.5V,I_D=15A		5.5	8.4	
g_{FS}	Forward Transconductance	V_{DS}=15V,I_D=20A		80		S
V_{SD}	Diode Forward Voltage	I_S=3.2A,V_{GS}=0V		0.7	1.3	V
Dynamic						
Q_g	Total Gate Charge	V_{DS}=10V,V_{GS}=4.5V, I_D=20A		15	25	nC
Q_{gs}	Gate-Source Charge			6		
Q_{gd}	Gate-Drain Charge			5		
C_{iss}	Input Capacitance	V_{DS}=15V,V_{GS}=0V, f=1MHz		1800		pF
C_{oss}	Output Capacitance			350		
C_{rss}	Reverse Transfer Capacitance			150		
$t_{d(on)}$	Turn-On Time	V_{DD}=10V,R_L=10Ω, I_D=1A,V_{GEN}=10V, R_G=6.0Ω		25	40	ns
t_r				15	25	
$t_{d(off)}$	Turn-Off Time			50	75	
t_f				15	25	

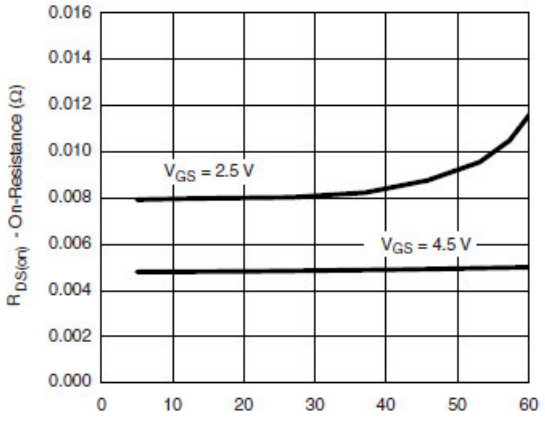
Typical Performance Characteristics



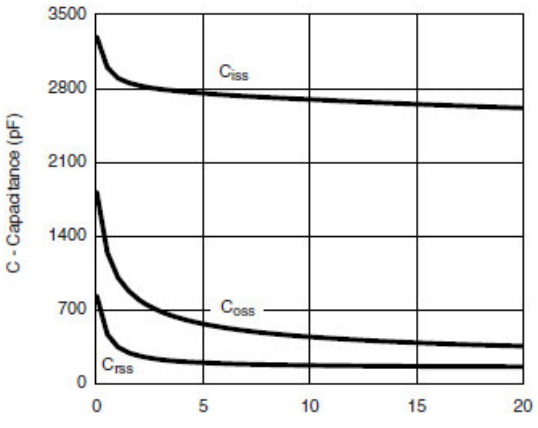
Output Characteristics



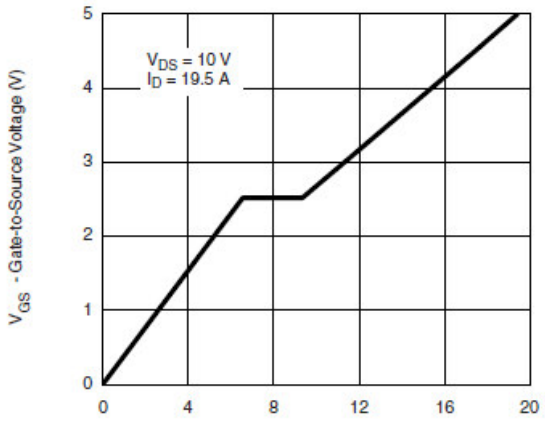
Transfer Characteristics



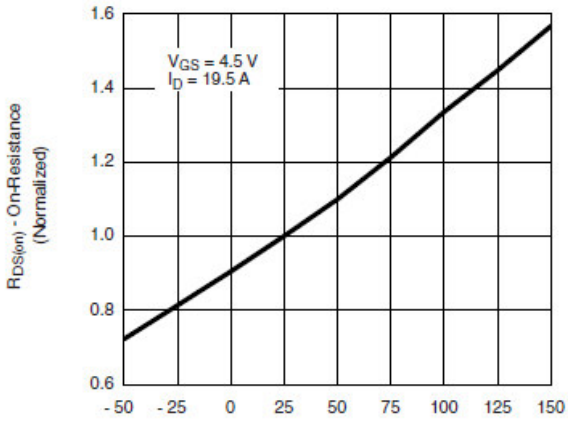
On-Resistance vs. Drain Current



Capacitance

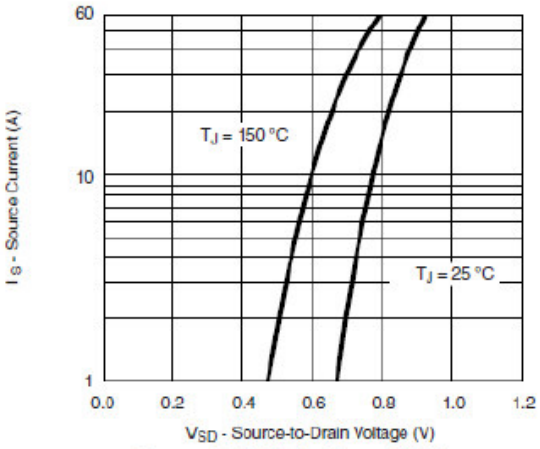


Gate Charge

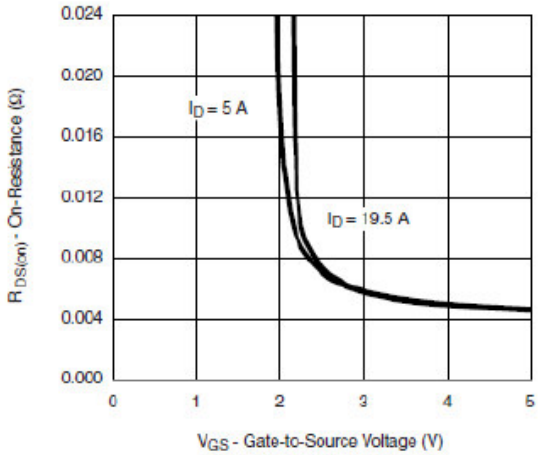


On-Resistance vs. Junction Temperature

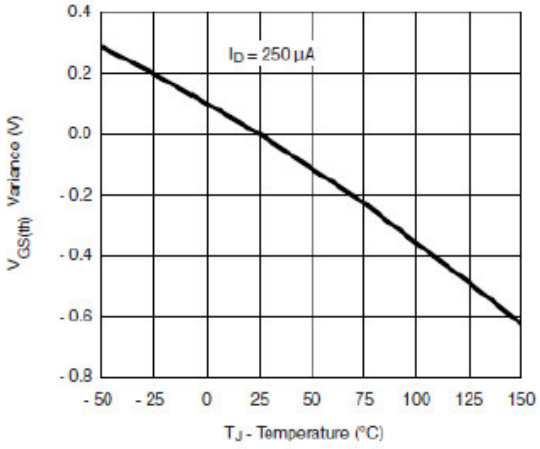
Typical Performance Characteristics (Continue)



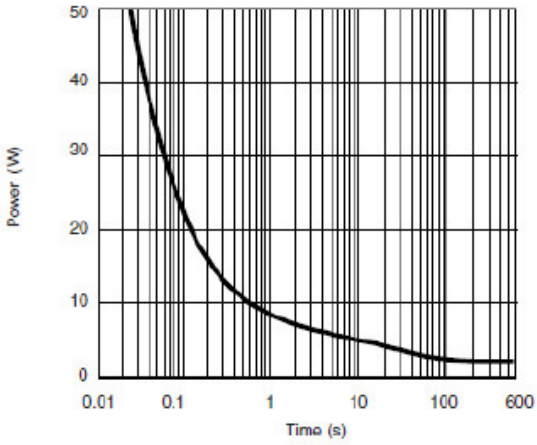
Source-Drain Diode Forward Voltage



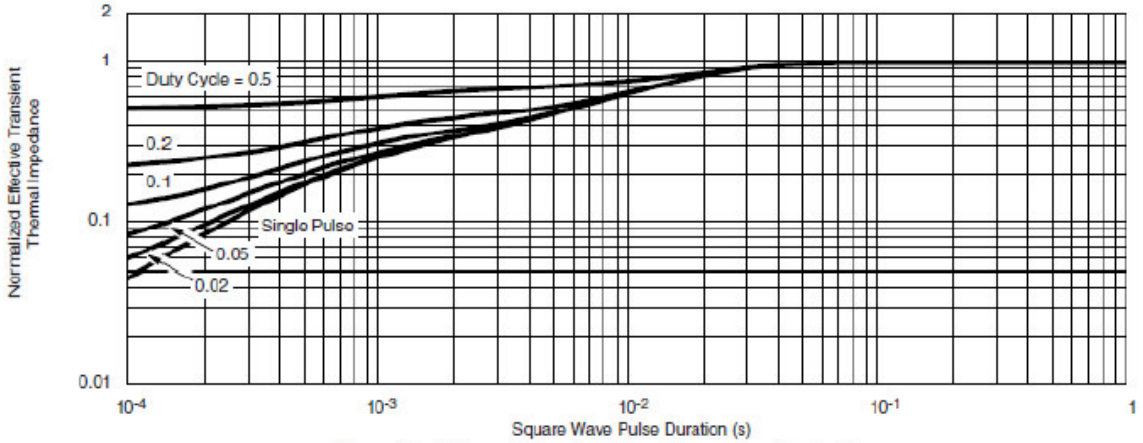
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



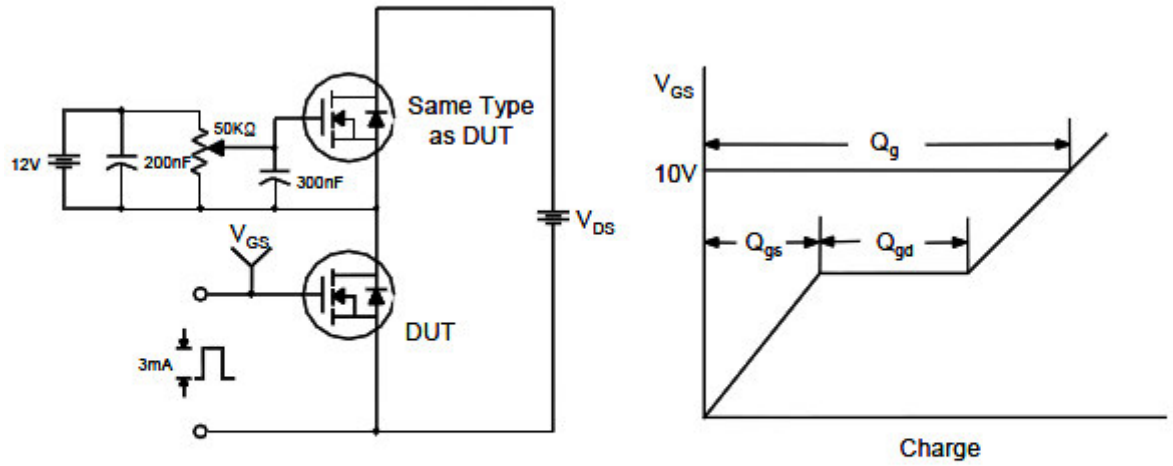
Single Pulse Power, Junction-to-Ambient



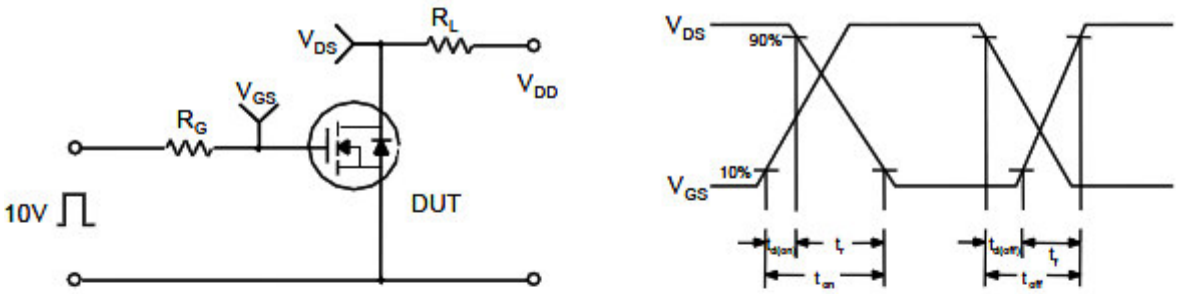
Normalized Thermal Transient Impedance, Junction-to-Case

Typical Performance Characteristics (Continue)

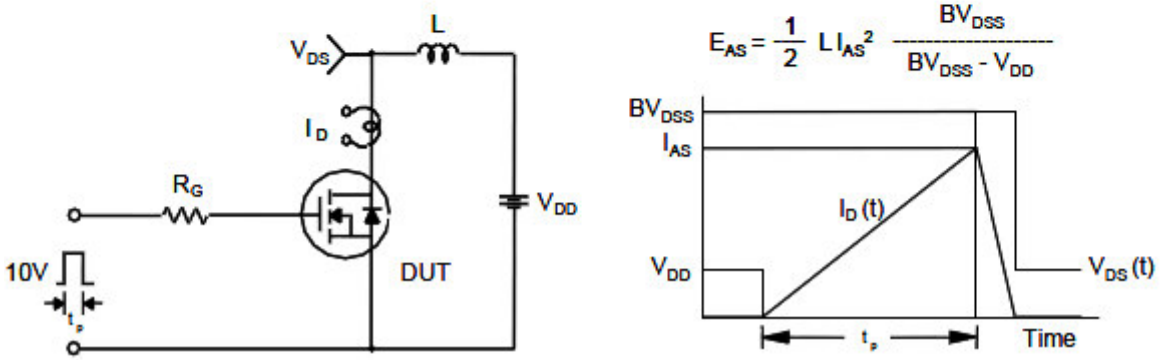
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

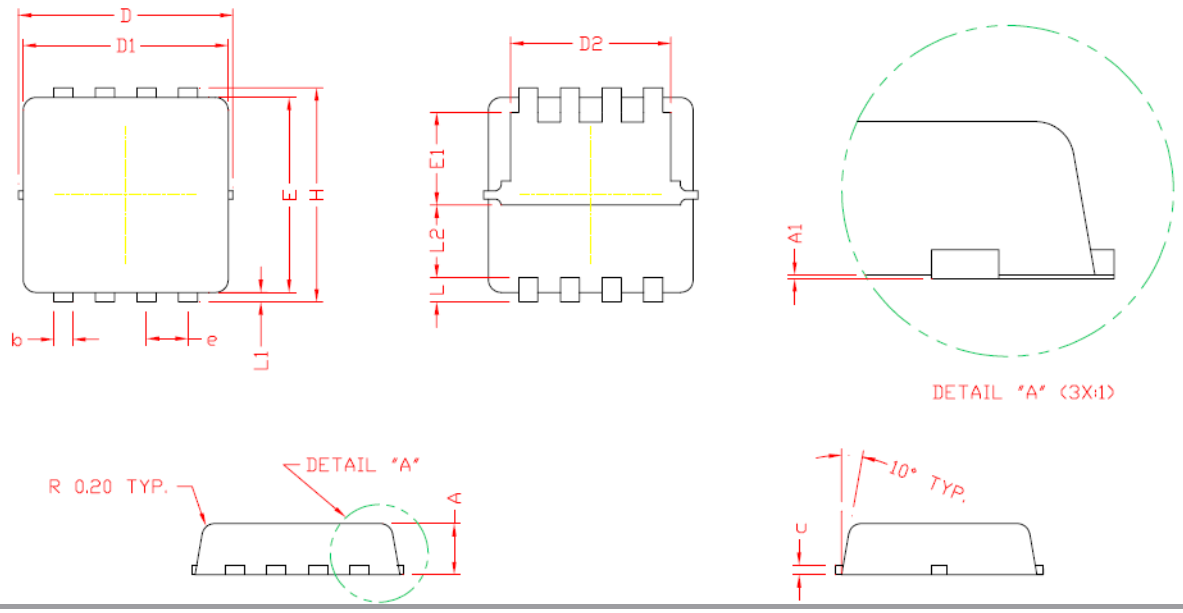


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

DFN3.3X3.3-8L



Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.027	0.035
A1	0.00	0.05	0.000	0.019
b	0.24	0.35	0.009	0.013
c	0.10	0.20	0.003	0.007
D	3.25	3.40	0.127	0.133
D1	3.05	3.25	0.120	0.127
D2	2.40	2.60	0.09	0.102
E	3.00	3.20	0.118	0.125
E1	1.35	1.55	0.053	0.061
e	0.65 (BSC)		0.025 (BSC)	
H	3.20	3.40	0.125	0.133
L	0.30	0.50	0.011	0.019
L1	0.10	0.20	0.003	0.007
L2	1.13 (REF)		0.044 (REF)	

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