

# GSM7472S

## 30V N-Channel Enhancement Mode MOSFET

### Product Description

GSM7472S, 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.

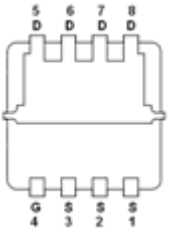
### Features

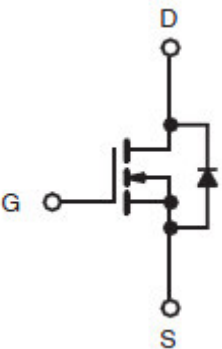
- 30V/15A,  $R_{DS(ON)}=8.6m\Omega@V_{GS}=10V$
- 30V/13A,  $R_{DS(ON)}=14m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- DFN3.3X3.3-8L package design

### Applications

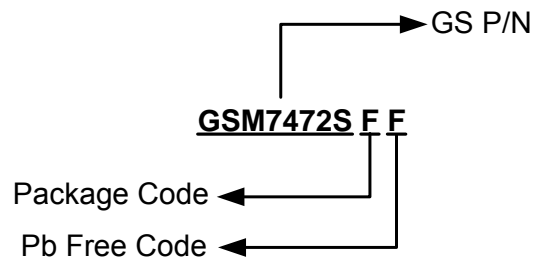
- DC-DC Converter
- POL

### Packages & Pin Assignments

GSM7472SFF (DFN3.3X3.3-8L)	
 <p style="text-align: center;">Bottom View</p>	
Pin	Description
1	Source
2	Source
3	Source
4	Gate
5	Drain
6	Drain
7	Drain
8	Drain

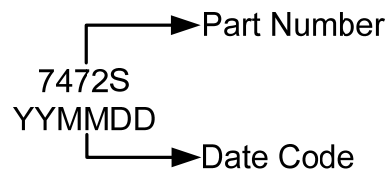


## Ordering Information



Part Number	Package	Quantity Reel
GSM7472SFF	DFN3.3X3.3-8L	5000 PCS

## Marking Information



## Absolute Maximum Ratings

T<sub>A</sub>=25°C Unless otherwise noted

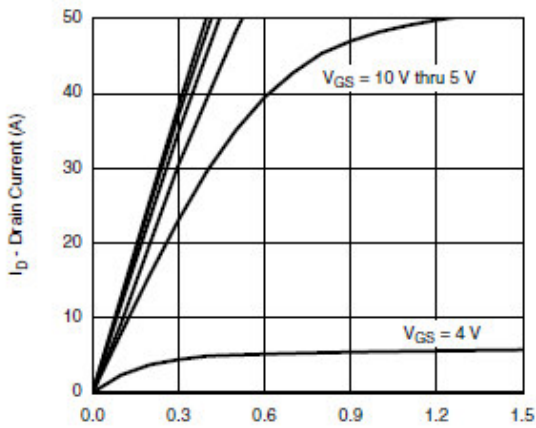
Symbol	Parameter	Typical	Unit
V <sub>DSS</sub>	Drain-Source Voltage	30	V
V <sub>GSS</sub>	Gate –Source Voltage	±20	V
I <sub>D</sub>	Continuous Drain Current (T <sub>J</sub> =150°C)	T <sub>A</sub> =25°C	15
		T <sub>A</sub> =70°C	12
I <sub>DM</sub>	Pulsed Drain Current	70	A
I <sub>S</sub>	Continuous Source Current (Diode Conduction)	20	A
P <sub>D</sub>	Power Dissipation	T <sub>A</sub> =25°C	3.8
		T <sub>A</sub> =70°C	2
T <sub>J</sub>	Operating Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature Range	-55/150	°C
R <sub>θJA</sub>	Thermal Resistance-Junction to Ambient	120	°C/W

## Electrical Characteristics

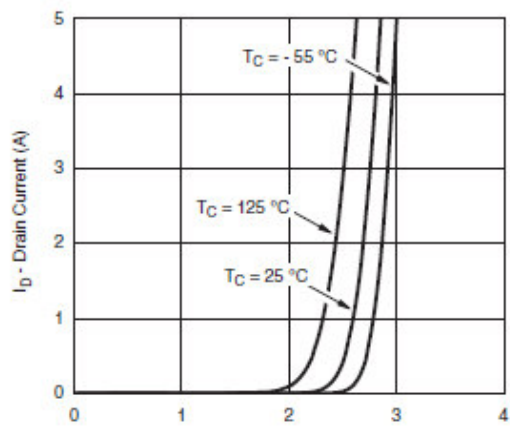
T<sub>A</sub>=25°C Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	30			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	1.0		2.0	
I <sub>GSS</sub>	Gate Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V			1	uA
		V <sub>DS</sub> =24V, V <sub>GS</sub> =0V, T <sub>J</sub> =85°C			10	
I <sub>D(ON)</sub>	On-State Drain Current	V <sub>DS</sub> ≥5V, V <sub>GS</sub> =10V	20			A
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =20A		7.6	8.6	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =15A		11	14	
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =15V, I <sub>D</sub> =13A		50		S
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =10A, V <sub>GS</sub> =0V		0.8	1.3	V
<b>Dynamic</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =15A		10	20	nC
Q <sub>gs</sub>	Gate-Source Charge			3.8		
Q <sub>gd</sub>	Gate-Drain Charge			3.8		
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz		995		pF
C <sub>oss</sub>	Output Capacitance			190		
C <sub>rss</sub>	Reverse Transfer Capacitance			125		
t <sub>d(on)</sub>	Turn-On Time	V <sub>DD</sub> =15V, R <sub>L</sub> =1.5Ω, I <sub>D</sub> =10A, V <sub>GEN</sub> =10V, R <sub>G</sub> =1.0Ω		10	20	ns
t <sub>r</sub>				10	20	
t <sub>d(off)</sub>	Turn-Off Time			20	35	
t <sub>f</sub>				8	15	

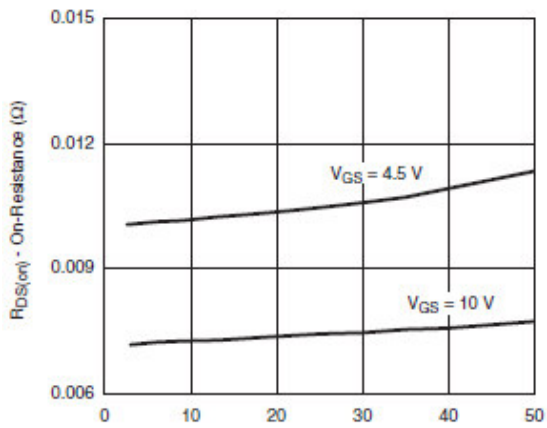
## Typical Performance Characteristics



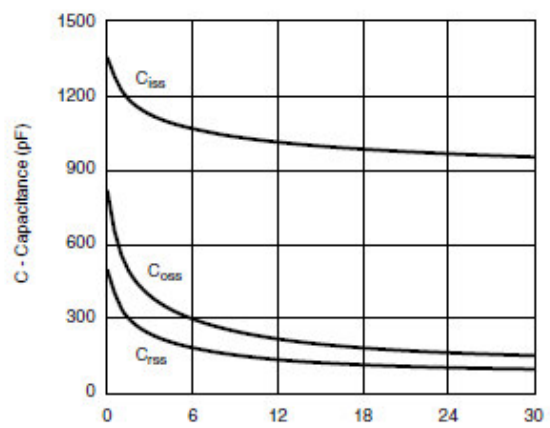
**Output Characteristics**



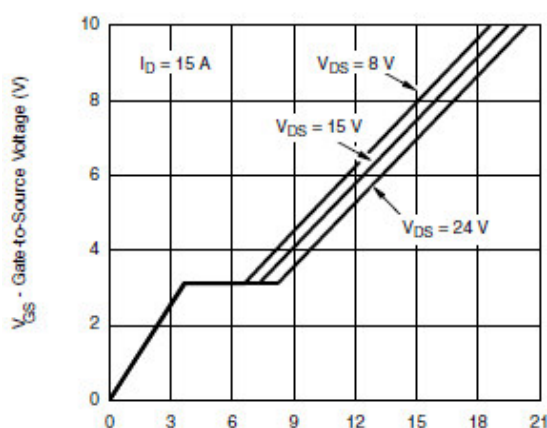
**Transfer Characteristics**



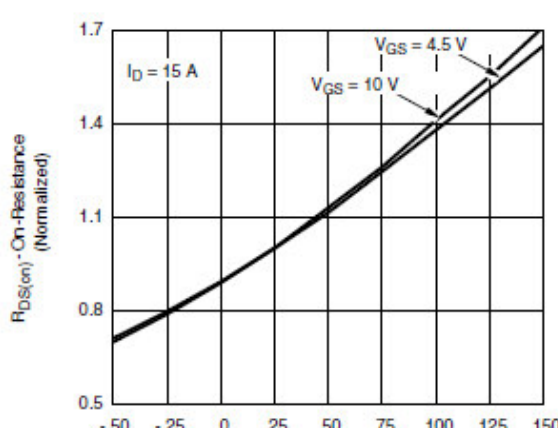
**On-Resistance vs. Drain Current and Gate Voltage**



**Capacitance**

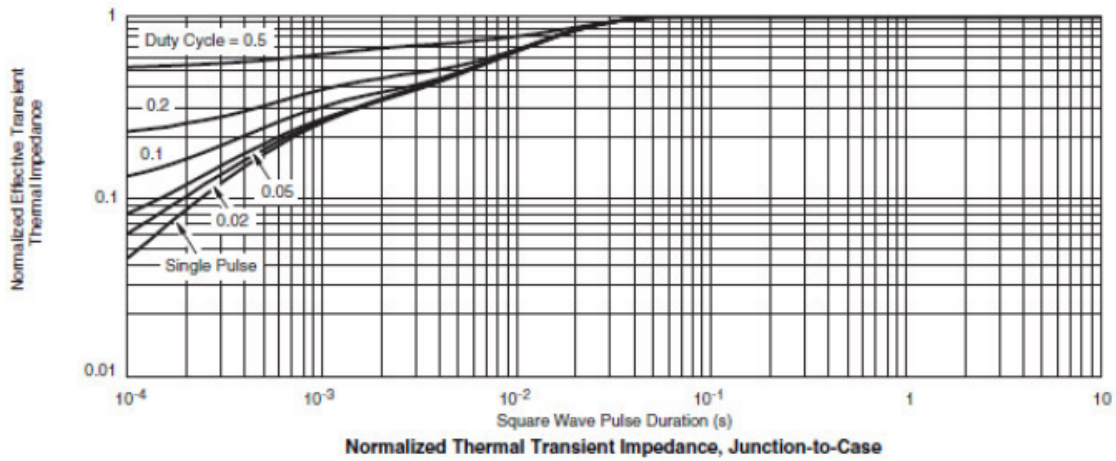
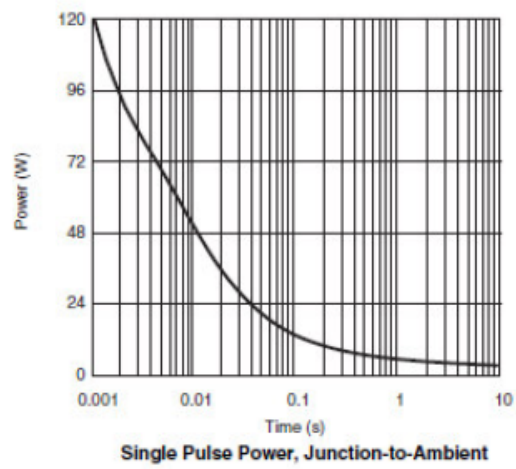
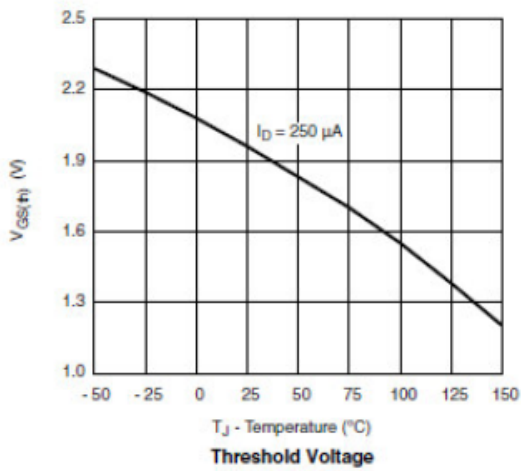
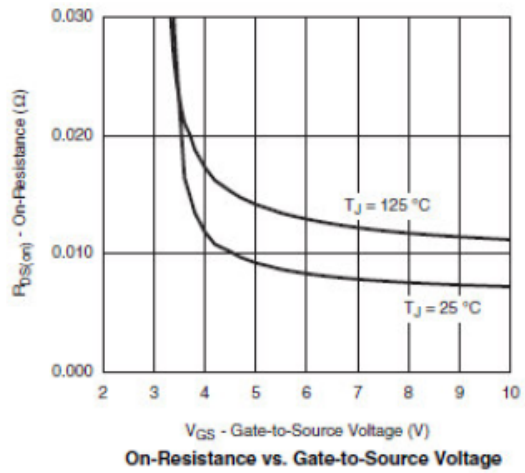
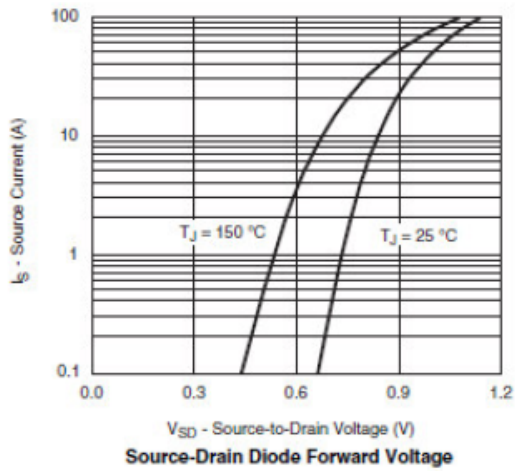


**Gate Charge**



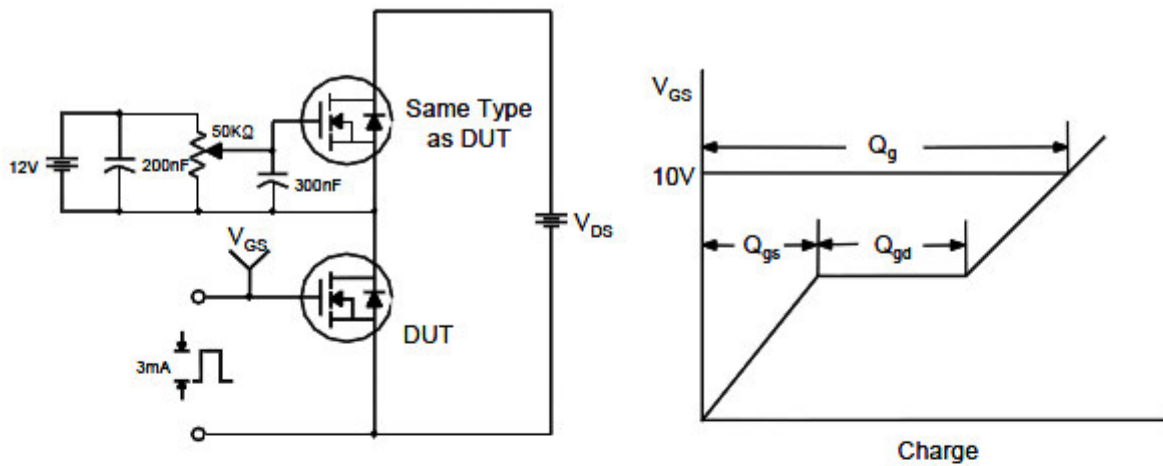
**On-Resistance vs. Junction Temperature**

## Typical Performance Characteristics (Continue)

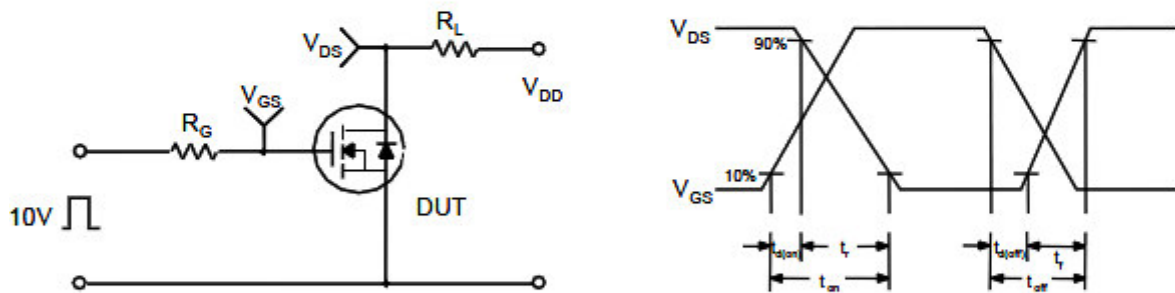


## Typical Performance Characteristics (Continue)

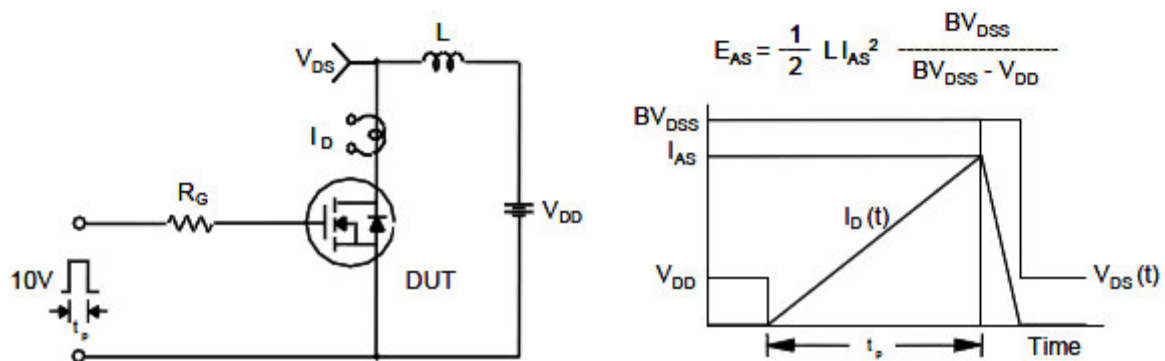
### Gate Charge Test Circuit & Waveform



### Resistive Switching Test Circuit & Waveforms

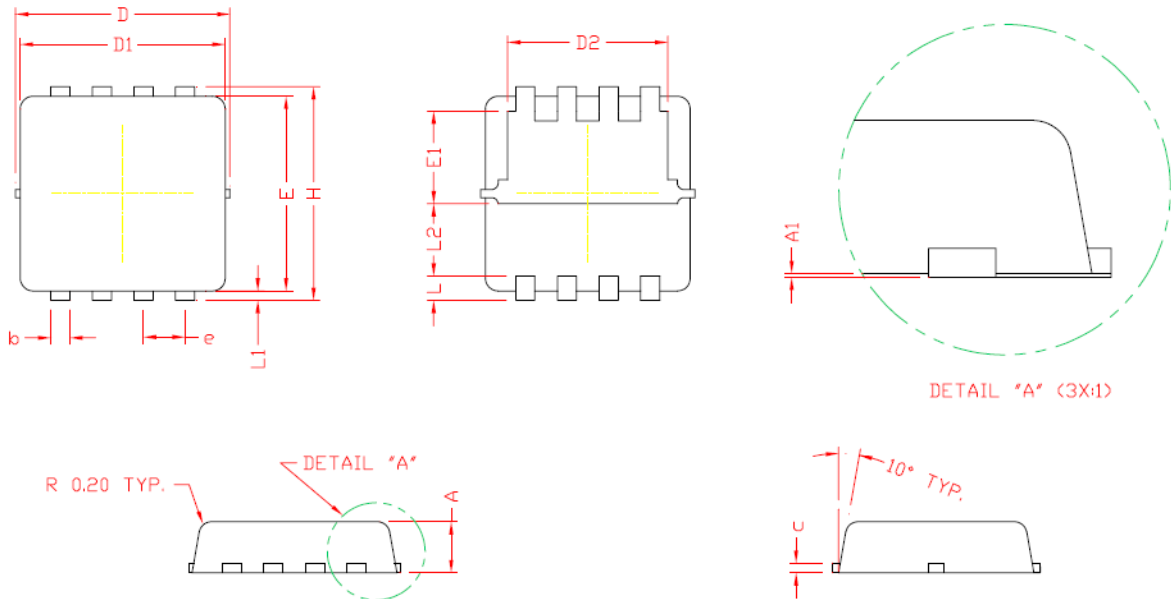


### Unclamped Inductive Switching Test Circuit & Waveforms



## Package Dimension

### 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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