

GSM8822

20V N-Channel Enhancement Mode MOSFET

Product Description

GSM8822, 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.

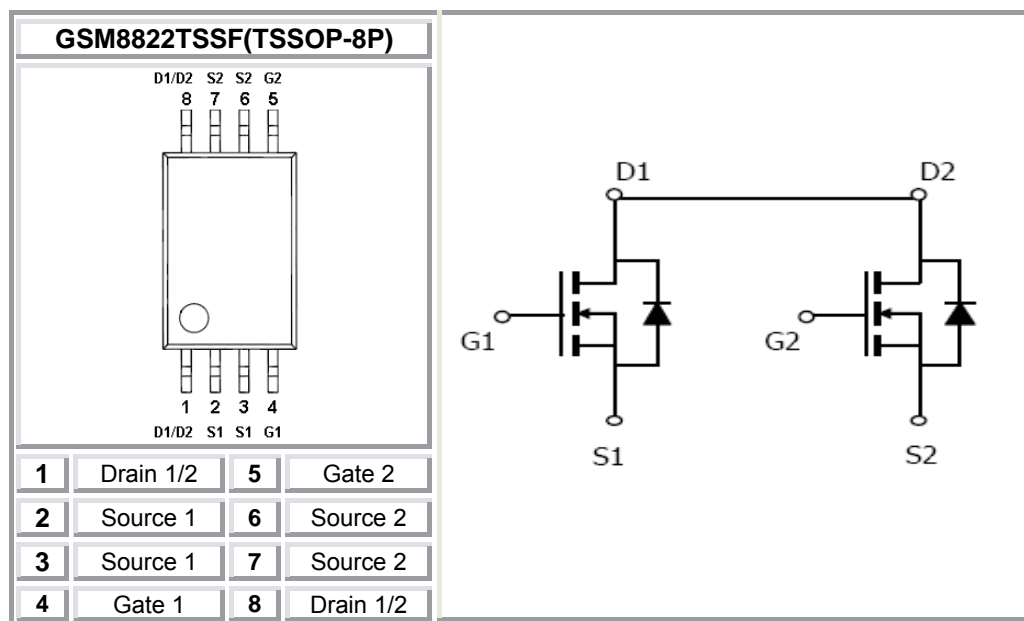
Features

- 20V/7.2A, $R_{DS(ON)}=28m\Omega@V_{GS}=4.5V$
- 20V/4.8A, $R_{DS(ON)}=32m\Omega@V_{GS}=2.5V$
- 20V/3.0A, $R_{DS(ON)}=45m\Omega@V_{GS}=1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- TSSOP-8P package design

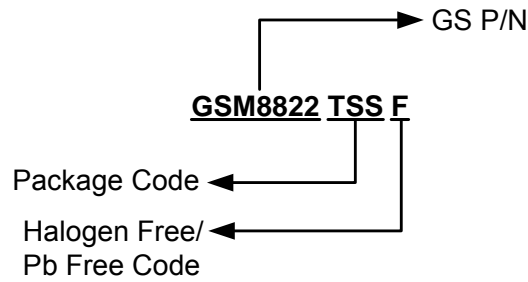
Applications

- Load Switch
- Portable Equipment
- Battery Powered System

Packages & Pin Assignments

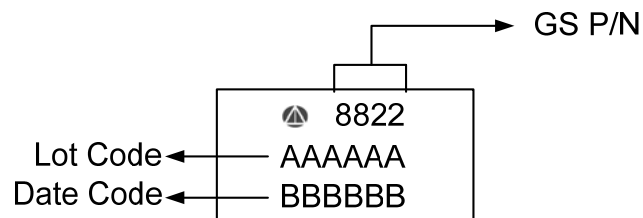


Ordering Information



Part Number	Package	Quantity Reel
GSM8822TSSF	TSSOP-8P	3000 PCS

Marking Information



Absolute Maximum Ratings

(T_A=25°C unless otherwise noted)

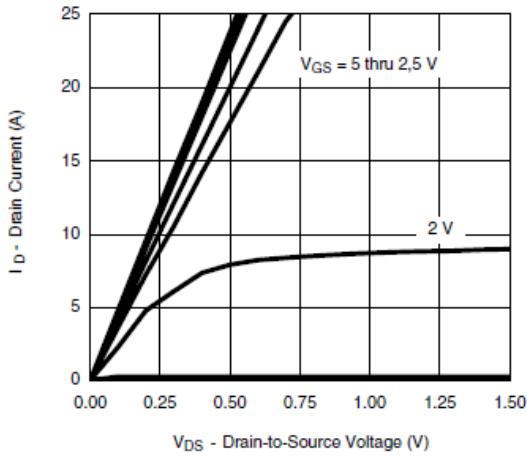
Symbol	Parameter	Typical	Unit	
V _{DSS}	Drain-Source Voltage	20	V	
V _{GSS}	Gate –Source Voltage	±12	V	
I _D	Continuous Drain Current(T _J =150°C)	T _A =25°C	7.2	A
		T _A =70°C	4.8	
I _{DM}	Pulsed Drain Current	20	A	
I _S	Continuous Source Current(Diode Conduction)	1.5	A	
P _D	Power Dissipation	T _A =25°C	2.8	W
		T _A =70°C	1.8	
T _J	Operating Junction Temperature	150	°C	
T _{STG}	Storage Temperature Range	-55/150	°C	
R _{θJA}	Thermal Resistance-Junction to Ambient	62.5	°C/W	

Electrical Characteristics

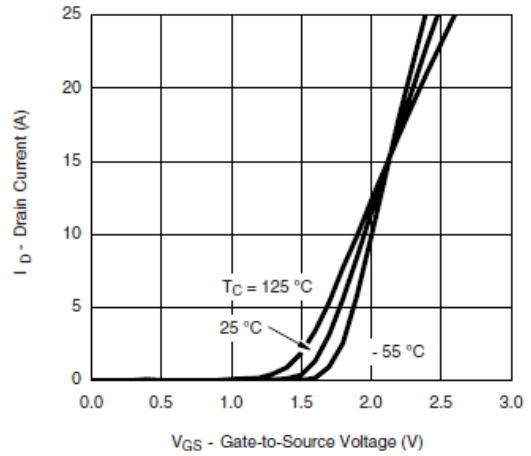
($T_A=25^\circ\text{C}$ unless otherwise noted)

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	$V_{DS}=V_{GS}, I_D=250\mu A$	0.4		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
		$V_{DS}=16V, V_{GS}=0V$ $T_J=85^\circ\text{C}$			30	
$I_{D(on)}$	On-State Drain Current	$V_{DS} \geq 5V, V_{GS}=4.5V$	10			A
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=4.5V, I_D=7.2A$		24	28	m Ω
		$V_{GS}=2.5V, I_D=4.8A$		27	32	
		$V_{GS}=1.8V, I_D=3.0A$		36	45	
g_{FS}	Forward Transconductance	$V_{DS}=5V, I_D=7A$		25		S
V_{SD}	Diode Forward Voltage	$I_S=1.6A, V_{GS}=0V$		0.7	1.2	V
Dynamic						
Q_g	Total Gate Charge	$V_{DS}=10V, V_{GS}=4.5V$ $I_D=7.0A$		650		pC
Q_{gs}	Gate-Source Charge			200		
Q_{gd}	Gate-Drain Charge			180		
C_{iss}	Input Capacitance	$V_{DS}=20V, V_{GS}=0V$ $f=1\text{MHz}$		700		pF
C_{oss}	Output Capacitance			75		
C_{rss}	Reverse Transfer Capacitance			45		
$t_{d(on)}$	Turn-On Time	$V_{DD}=10V, R_L=1.4\Omega$ $I_D=1.0A, V_{GEN}=4.5V$ $R_G=3\Omega$		8	12	ns
t_r				12	20	
$t_{d(off)}$	Turn-Off Time			32	40	
t_f				10	15	

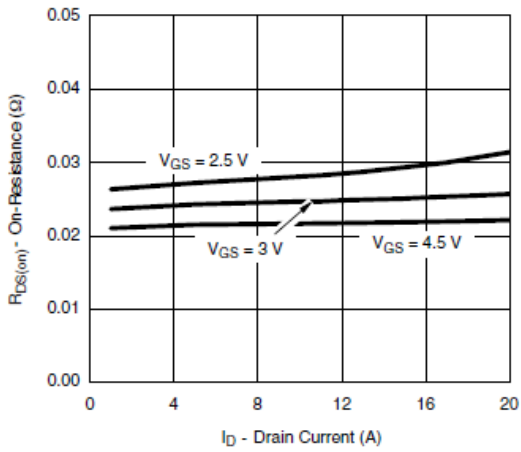
Typical Performance Characteristics



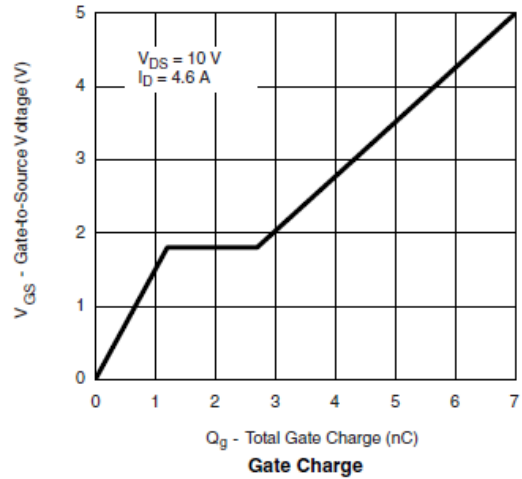
Output Characteristics



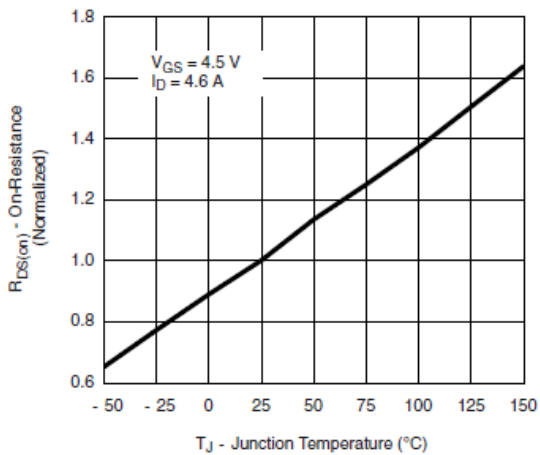
Transfer Characteristics



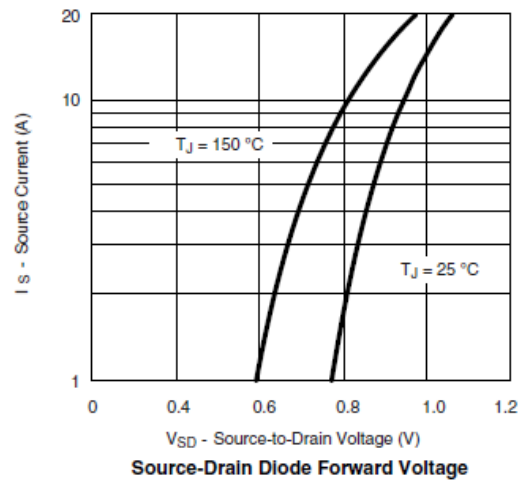
On-Resistance vs. Drain Current



Gate Charge

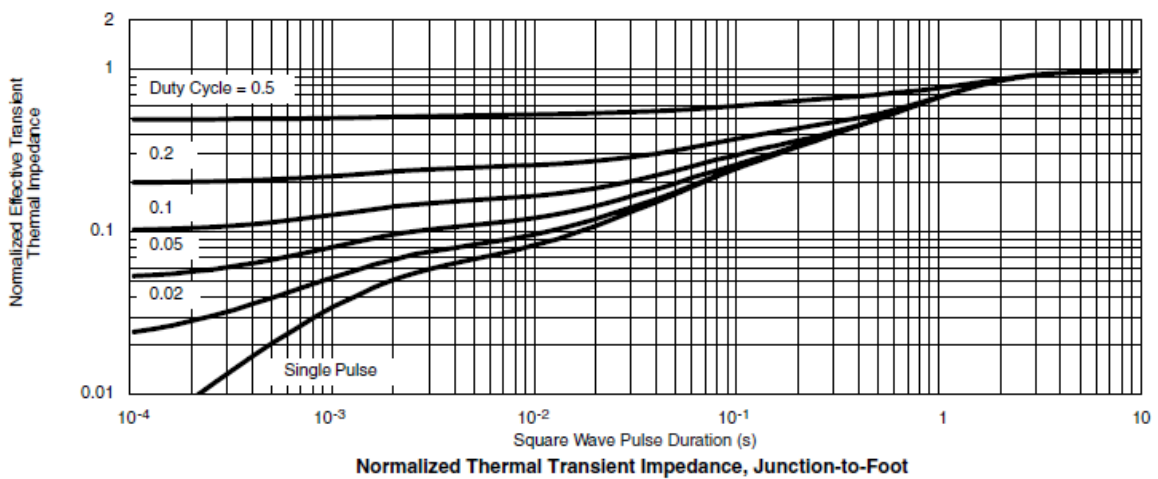
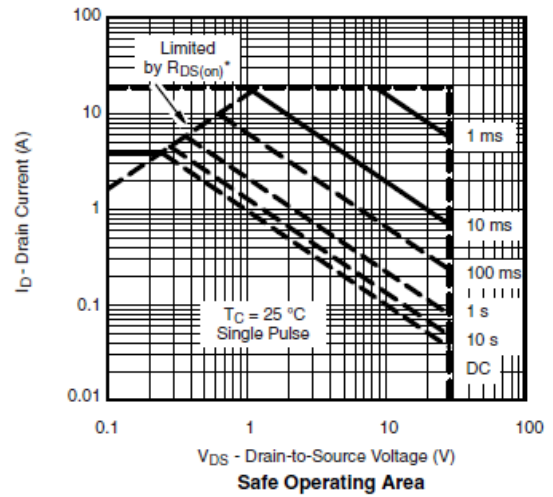
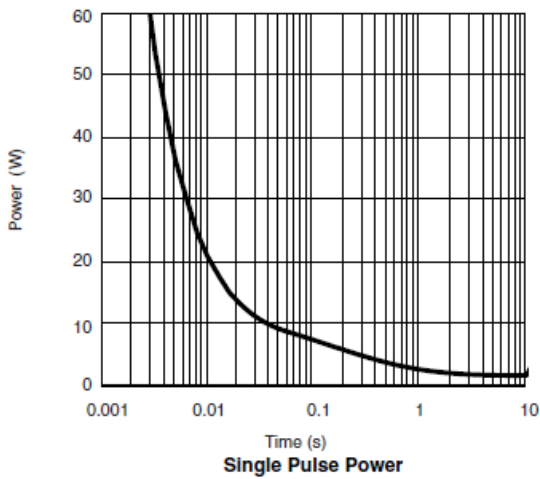
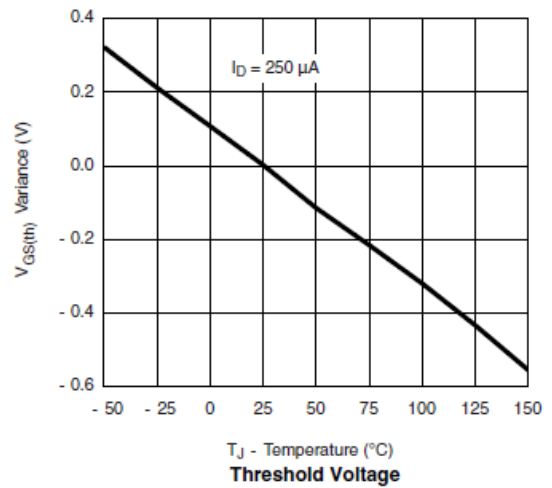
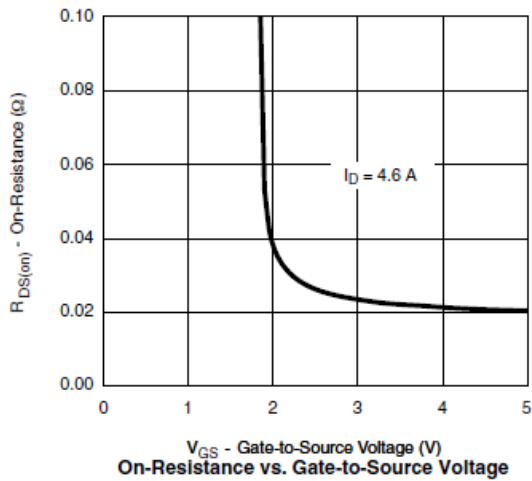


On-Resistance vs. Junction Temperature



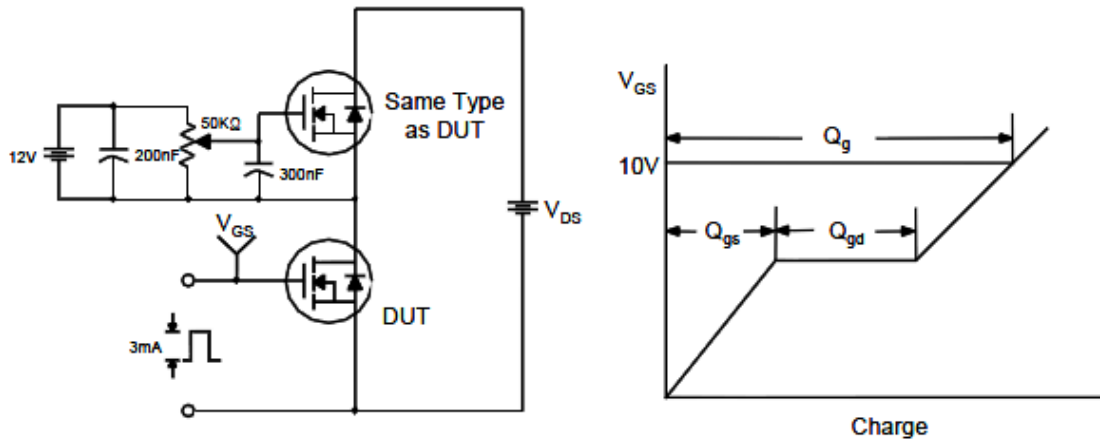
Source-Drain Diode Forward Voltage

Typical Performance Characteristics (continue)

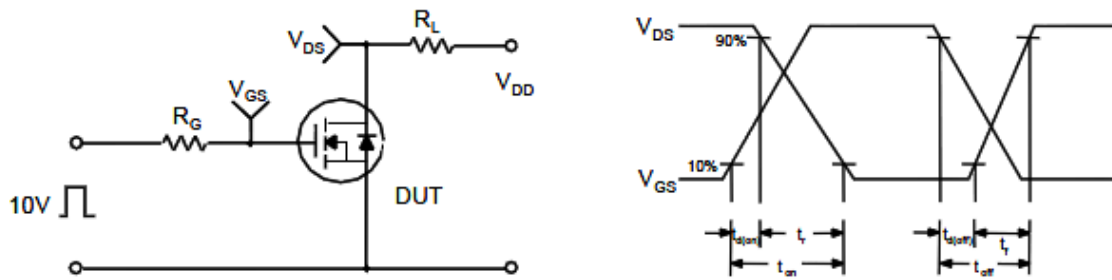


Typical Characteristics

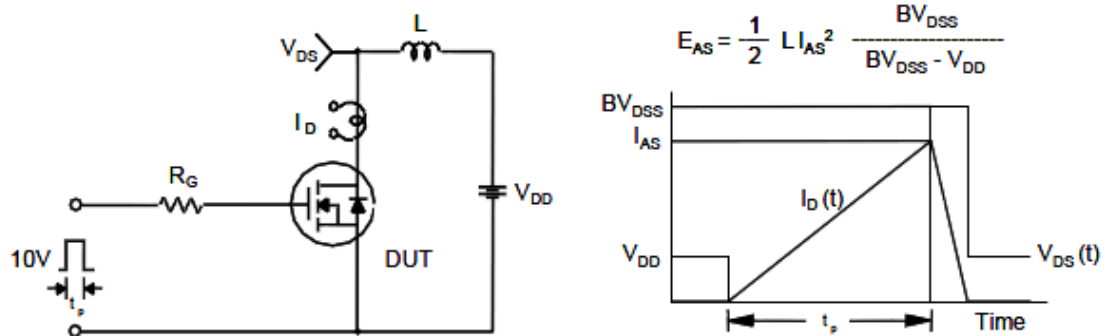
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

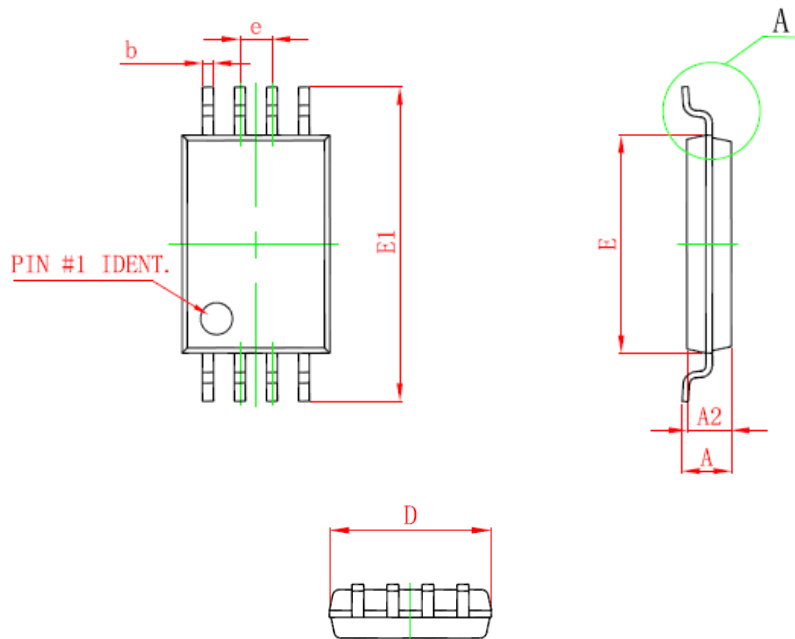


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

TSSOP-8P PLASTIC PACKAGE











Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A	-	1.100	-	0.043
A2	0.800	1.000	0.031	0.039
A1	0.020	0.150	0.001	0.006
e	0.65 BSC		0.026 BSC	
L	0.500	0.700	0.020	0.028
H	0.25 TYP		0.01 TYP	
θ	1°	7°	1°	7°



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