GSM8823

20V Common-Drain P-Channel Enhancement Mode MOSFET

Product Description

GSM8823, P-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

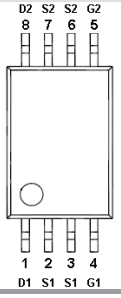
- -20V/-7.2A,$R_{DS(ON)}$=48mΩ@V_{GS}=-4.5V
- -20V/-4.8A,$R_{DS(ON)}$=62mΩ@V_{GS}=-2.5V
- -20V/-3.0A,$R_{DS(ON)}$=88mΩ@V_{GS}=-1.8V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- TSSOP-8P package design

Applications

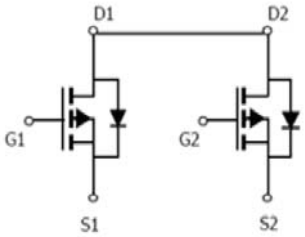
- Load Switch
- Portable Equipment
- Battery Powered System

Packages & Pin Assignments

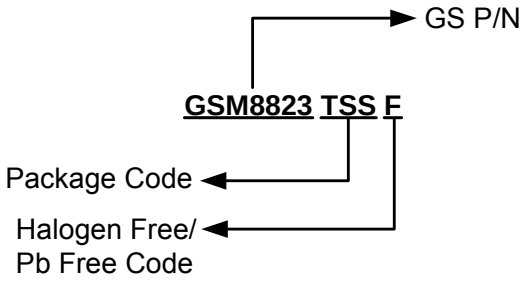
GSM8823TSSF(TSSOP-8P)



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

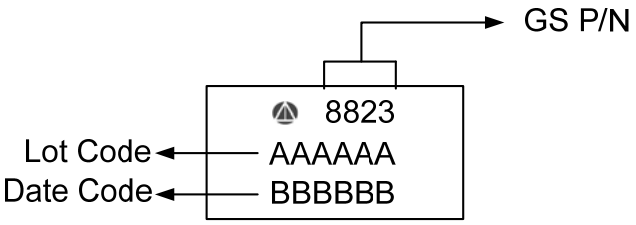


Ordering Information



Part Number	Package	Quantity Reel
GSM8823TSSF	TSSOP-8P	3000 PCS

Marking Information



Absolute Maximum Ratings

(T_A=25ºC unless otherwise noted)

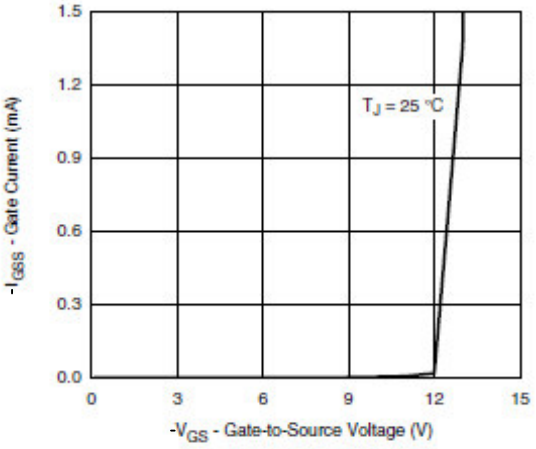
Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		-20	V
V_{GSS}	Gate –Source Voltage		±12	V
I_D	Continuous Drain Current(T_J=150℃)	T_A=25℃	-7.2	A
		T_A=70℃	-4.8	
I_{DM}	Pulsed Drain Current		-20	A
I_S	Continuous Source Current(Diode Conduction)		-1.5	A
P_D	Power Dissipation	T_A=25℃	2.8	W
		T_A=70℃	1.8	
T_J	Operating Junction Temperature		150	ºC
T_{STG}	Storage Temperature Range		-55/150	ºC
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		62.5	ºC/W

Electrical Characteristics

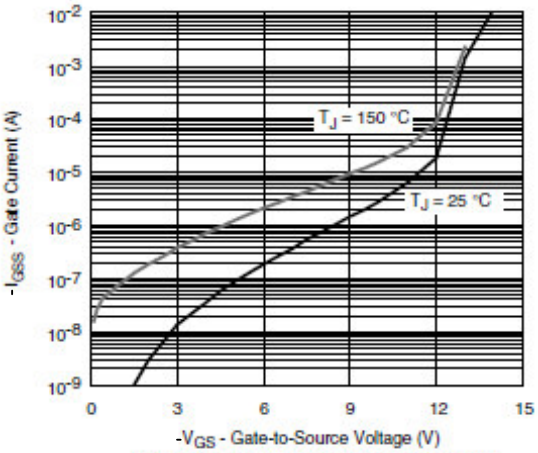
(T_A=25°C unless otherwise noted)

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	-0.4		-0.8	
I_{GSS}	Gate Leakage Current	V_{DS}=0V,V_{GS}=±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℃			-10	
$I_{D(on)}$	On-State Drain Current	V_{DS}≦-5V,V_{GS}=-4.5V	-6			A
		V_{DS}≦-5V,V_{GS}=-2.5V	-4			
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=-4.5V,I_D=-7.2A		42	48	mΩ
		V_{GS}=-2.5V,I_D=-4.8A		54	62	
		V_{GS}=-1.8V,I_D=-3.0A		75	88	
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=-4.0A		8.0	12	nC
Q_{gs}	Gate-Source Charge			0.9		
Q_{gd}	Gate-Drain Charge			3.0		
C_{iss}	Input Capacitance	V_{DS}=-10V,V_{GS}=0V f=1MHz		780		pF
C_{oss}	Output Capacitance			115		
C_{rss}	Reverse Transfer Capacitance			55		
$t_{d(on)}$	Turn-On Time	V_{DD}=-10V,R_L=2.3Ω I_D=-4.0A,V_{GEN}=-4.5V R_G=1Ω		0.2	0.3	us
t_r				1.0	1.5	
$t_{d(off)}$	Turn-Off Time			4.0	6.0	
t_f				2.0	3.0	

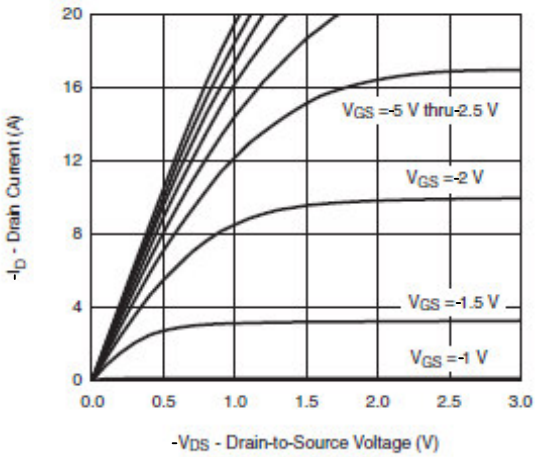
Typical Performance Characteristics



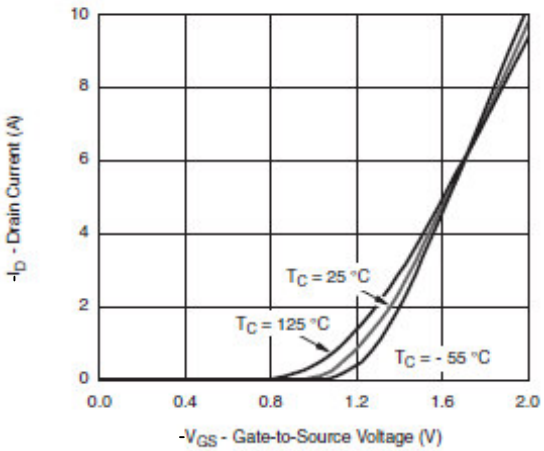
Gate Current vs. Gate-Source Voltage



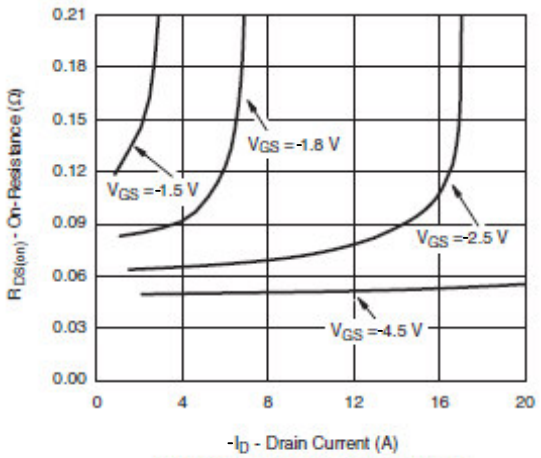
Gate Current vs. Gate-Source Voltage



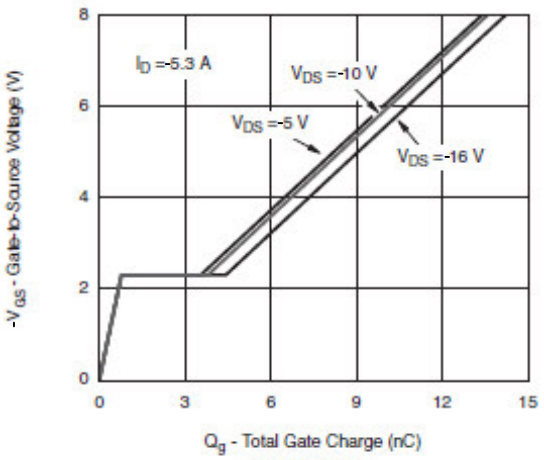
Output Characteristics



Transfer Characteristics

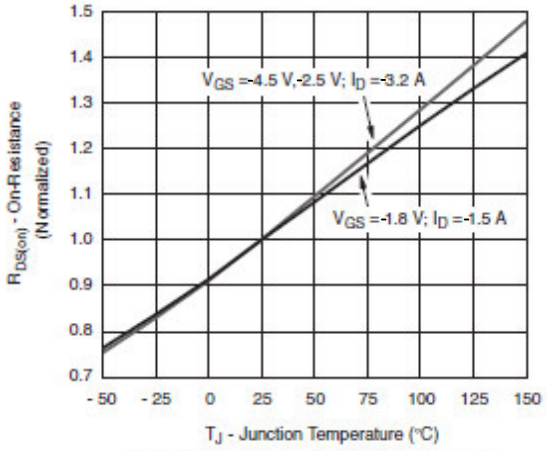


On-Resistance vs. Drain Current

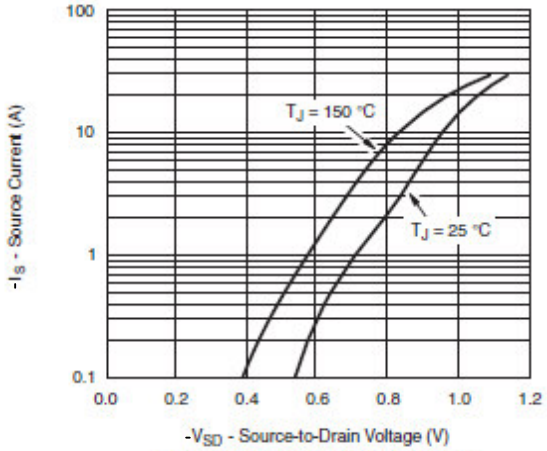


Gate Charge

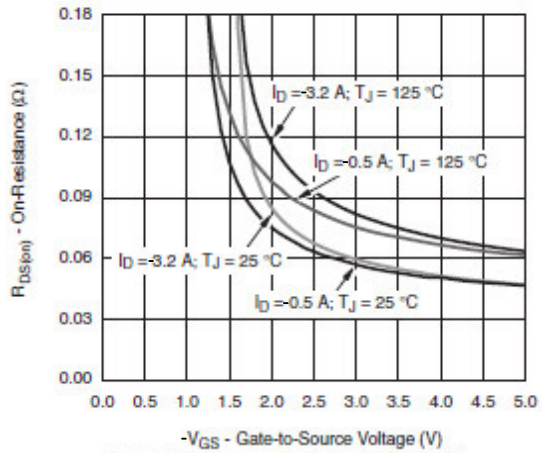
Typical Performance Characteristics (continue)



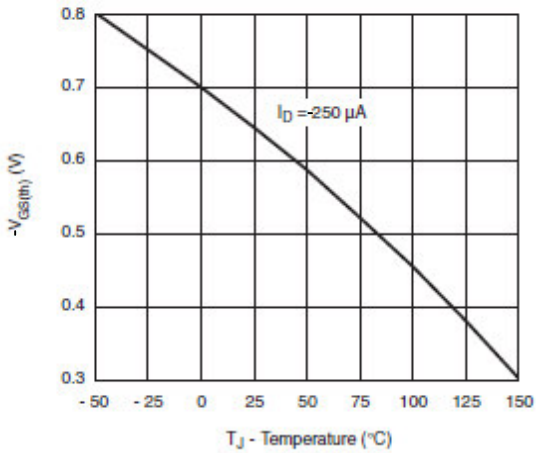
On-Resistance vs. Junction Temperature



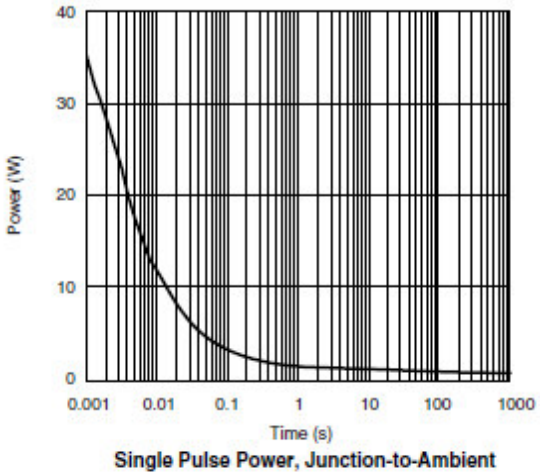
Soure-Drain Diode Forward Voltage



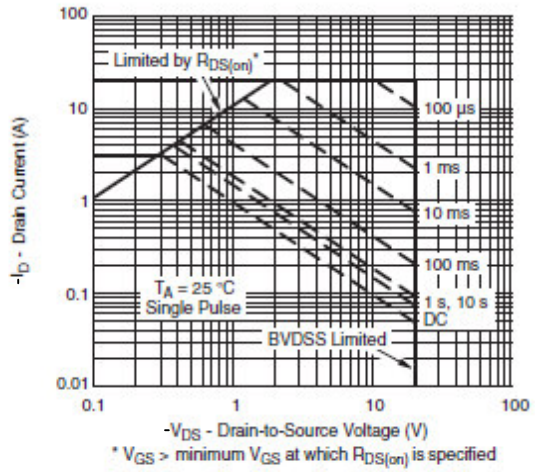
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



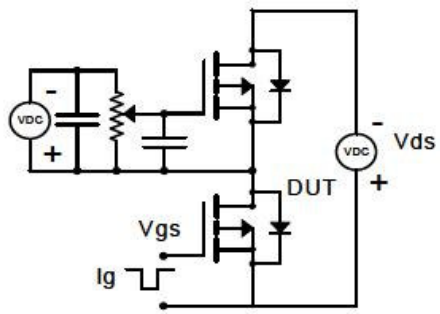
Single Pulse Power, Junction-to-Ambient

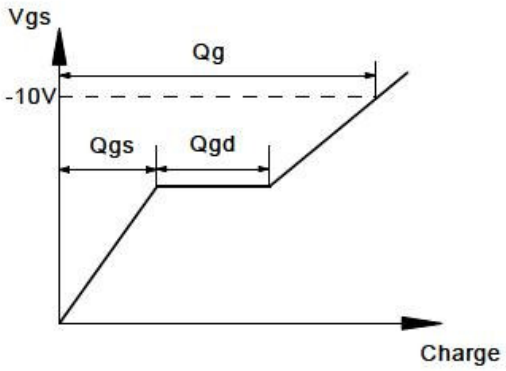


Safe Operating Area, Junction-to-Ambient

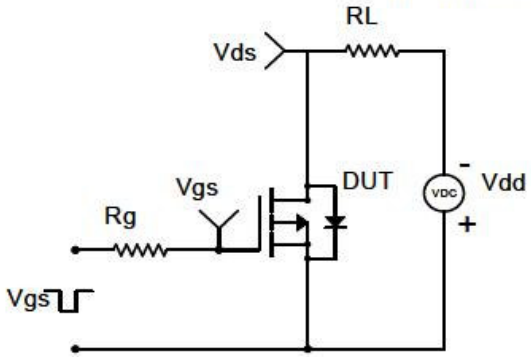
Typical Characteristics

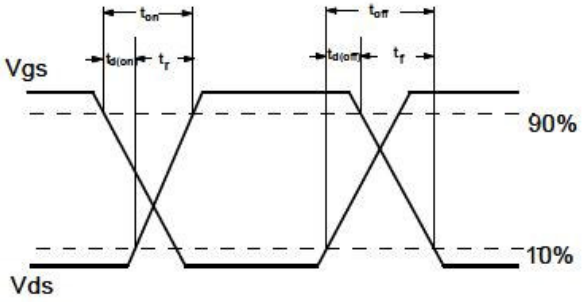
Gate Charge Test Circuit & Waveform



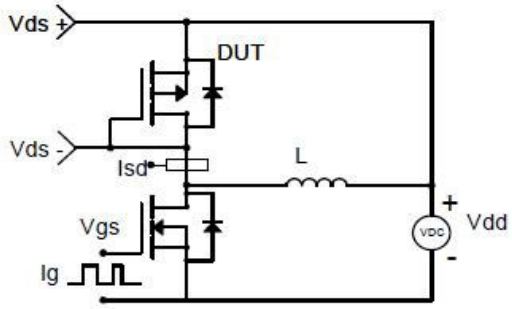


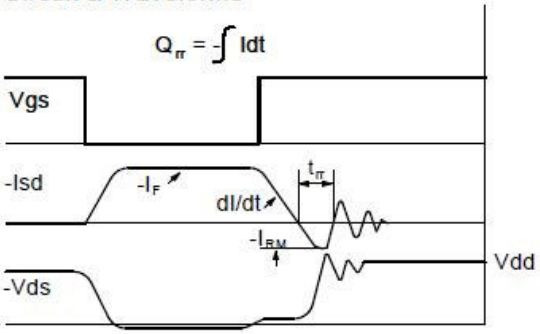
Resistive Switching Test Circuit & Waveforms





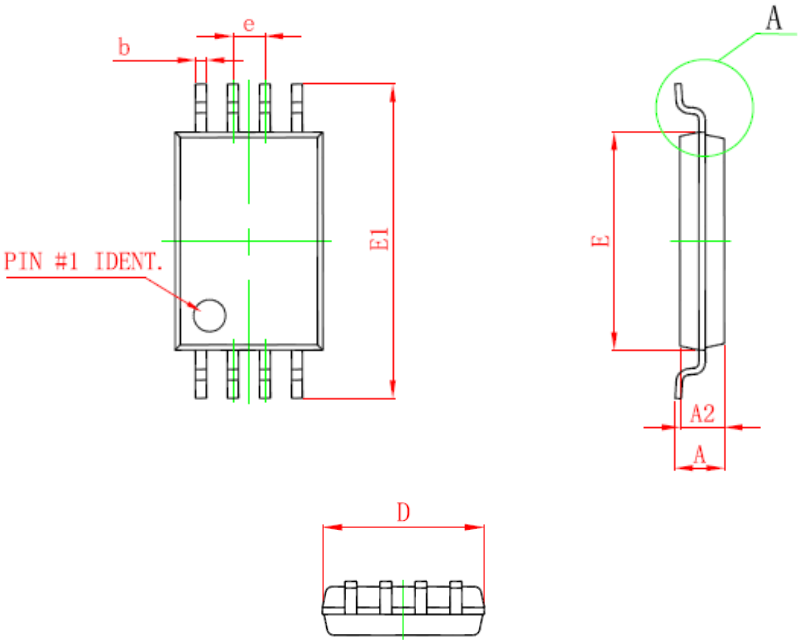
Diode Recovery Test Circuit & Waveforms





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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