

GSM8459

30V N-Channel Enhancement Mode MOSFET

Product Description

GSM8459, 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.

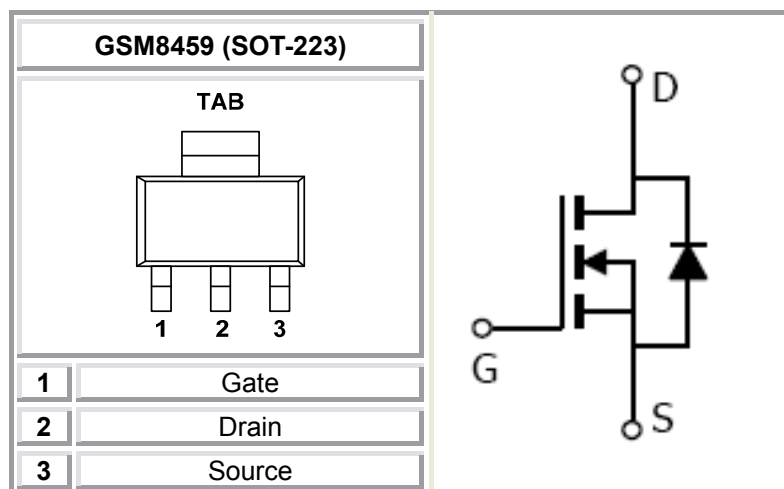
Features

- 30V/6.0A, $R_{DS(ON)}=44m\Omega@V_{GS}=10V$
- 30V/5.5A, $R_{DS(ON)}=50m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOT-223 package design

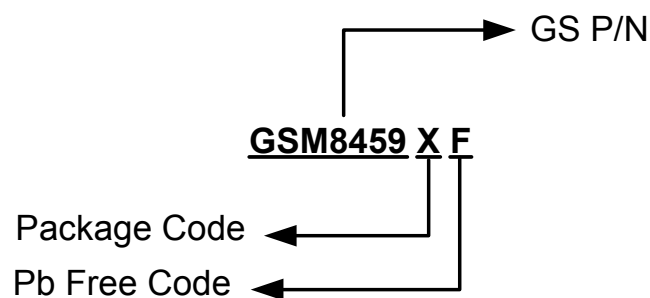
Applications

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

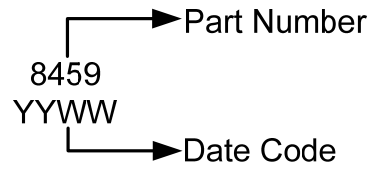
Packages & Pin Assignments



Ordering Information



Marking Information



Part Number	Package	Part Marking	Quantity Reel
GSM8459XF	SOT-223	8459YYWW	2500PCS

Absolute Maximum Ratings

(T_A=25°C Unless otherwise noted)

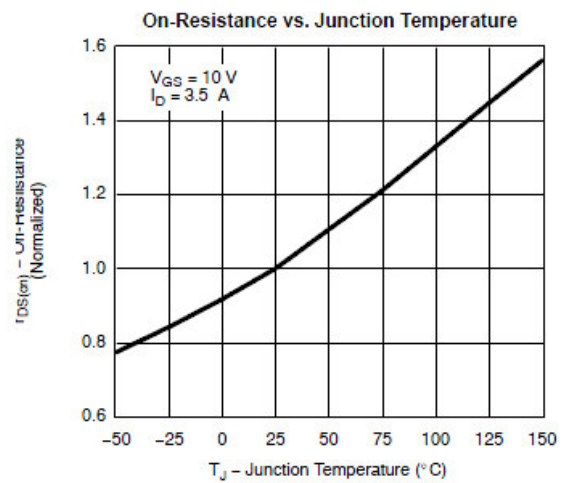
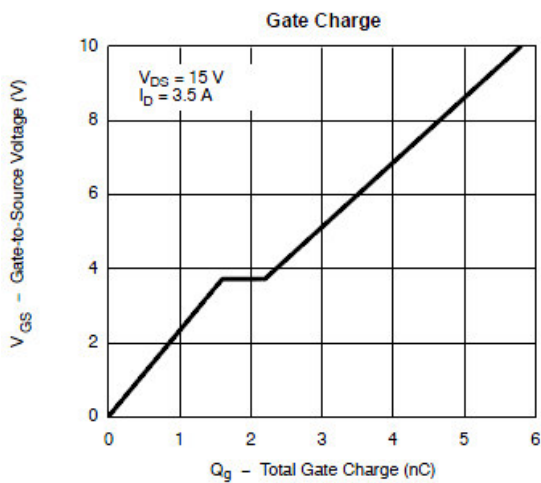
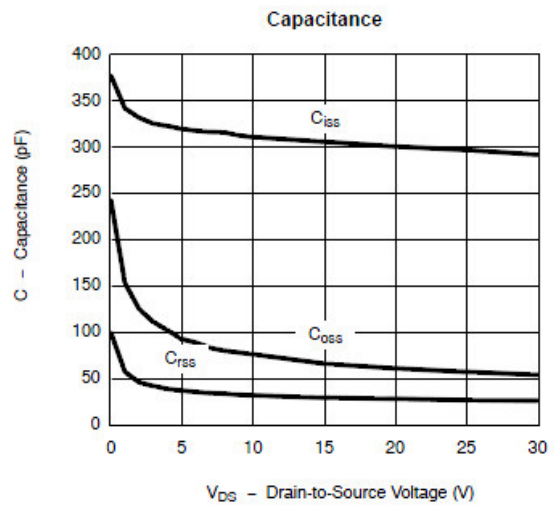
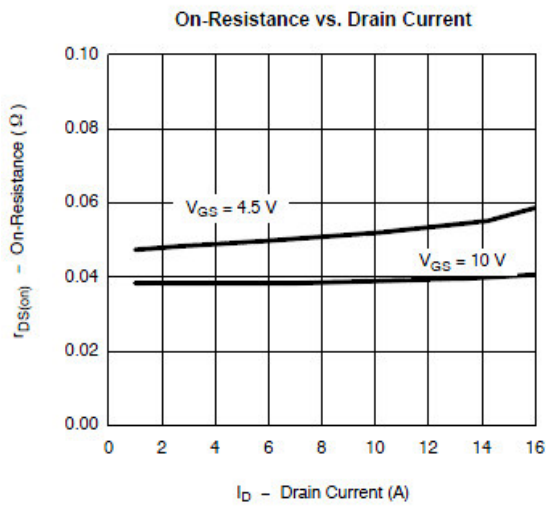
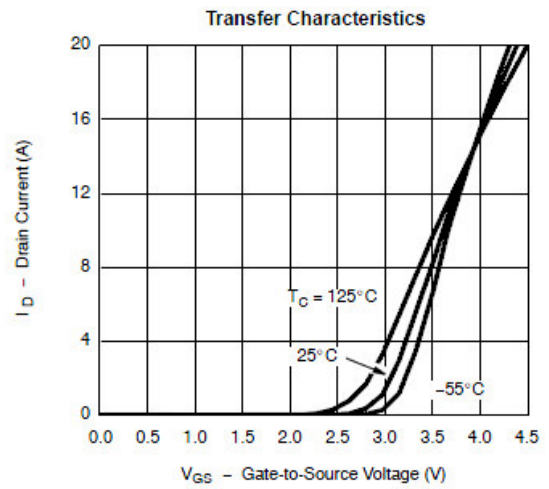
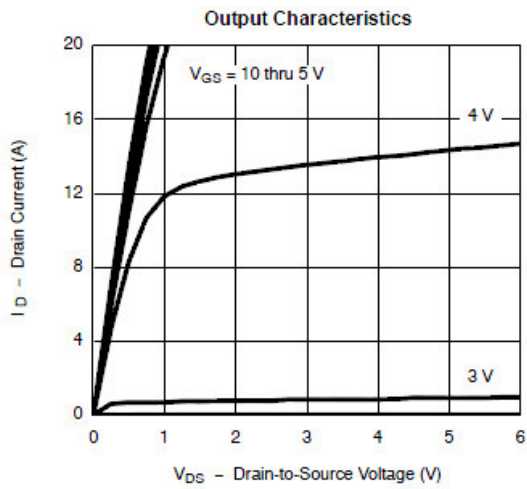
Symbol	Parameter	Typical	Unit	
V _{DSS}	Drain-Source Voltage	30	V	
V _{GSS}	Gate -Source Voltage	±20	V	
I _D	Continuous Drain Current(T _J =150°C)	T _A =25°C	6.0	A
		T _A =70°C	4.8	
I _{DM}	Pulsed Drain Current	20	A	
I _S	Continuous Source Current(Diode Conduction)	1.5	A	
P _D	Power Dissipation	T _A =25°C	2.8	W
		T _A =70°C	1.2	
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

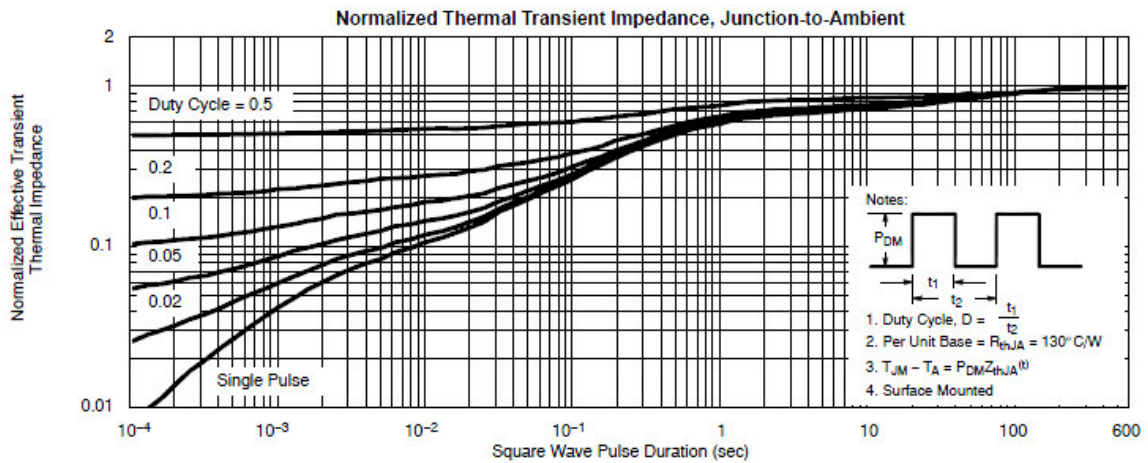
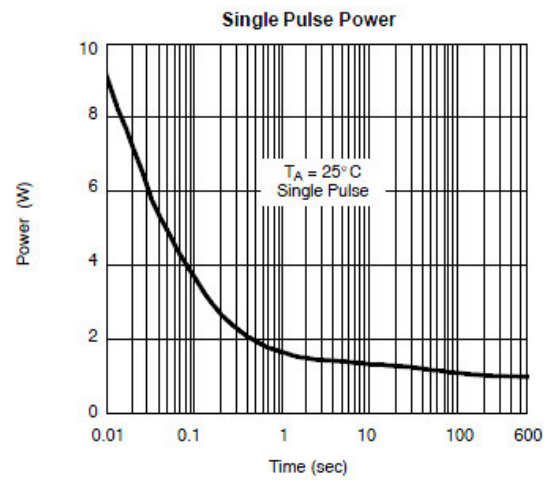
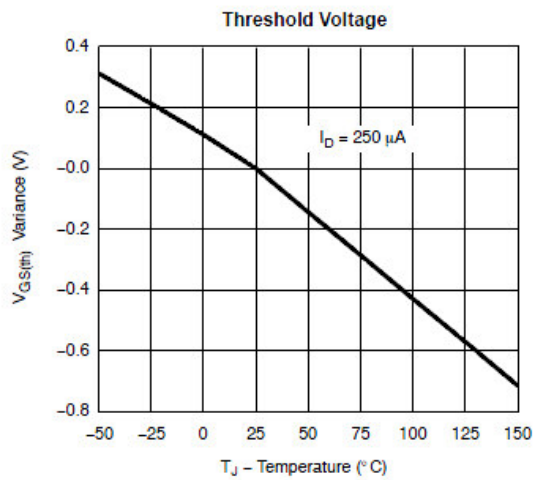
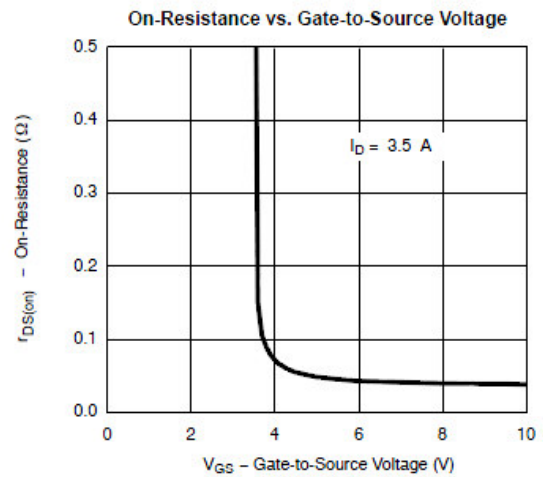
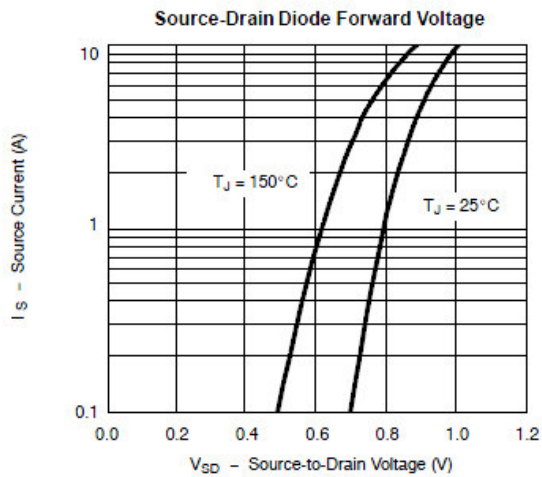
(T_A=25°C Unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ	Max.	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0		2.0	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±12V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 24V, V _{GS} =0V			1	μA
		V _{DS} = 24V, V _{GS} =0V , T _J =85°C			30	
I _{D(on)}	On-State Drain Current	V _{DS} ≥ 4.5V, V _{GS} =10V	6			A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =6.0A		37	44	mΩ
		V _{GS} =4.5V, I _D =5.5A		42	50	
g _{FS}	Forward Transconductance	V _{DS} =4.5V, I _D =2.5A		8		S
V _{SD}	Diode Forward Voltage	I _S =3.4A, V _{GS} =0V		0.8	1.2	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _D =2.6A		3.0	4.5	nC
Q _{gs}	Gate-Source Charge			1.6		
Q _{gd}	Gate-Drain Charge			0.6		
C _{ISS}	Input Capacitance	V _{DS} =15V, V _{GS} =0V f=1MHz		320		pF
C _{OSS}	Output Capacitance			70		
C _{RSS}	Reverse Transfer Capacitance			30		
td(on)	Turn-On Time	V _{DD} =15V, R _L =15Ω I _D ≅1.0A, V _{GEN} =10V R _G =6.0Ω		8	12	ns
tr				12	18	
td(off)	Turn-Off Time			15	30	
tf				8	15	

Typical Performance Characteristics

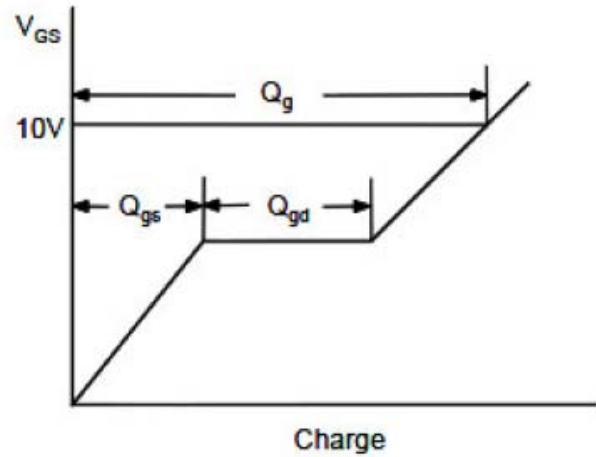
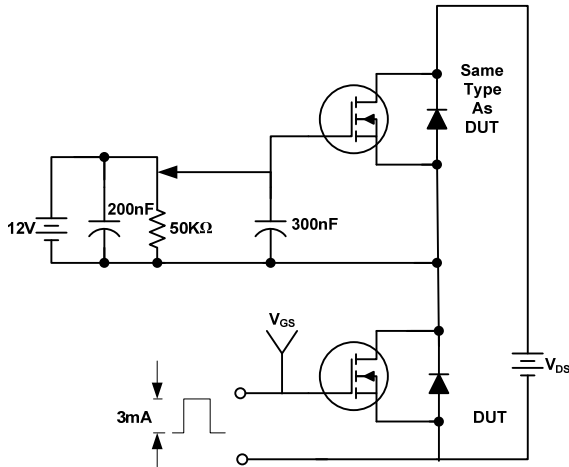


Typical Performance Characteristics(continue)

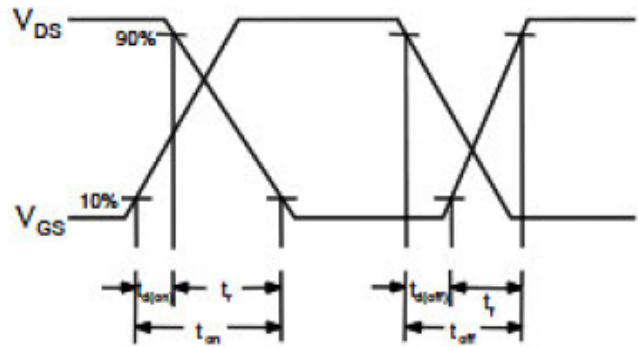
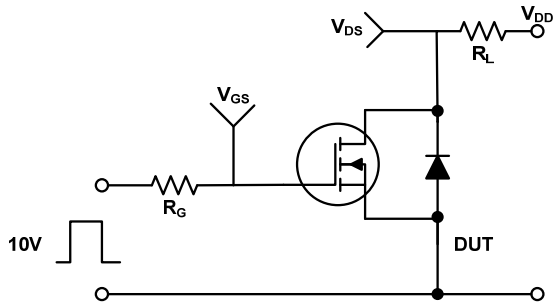


Typical Performance Characteristics(continue)

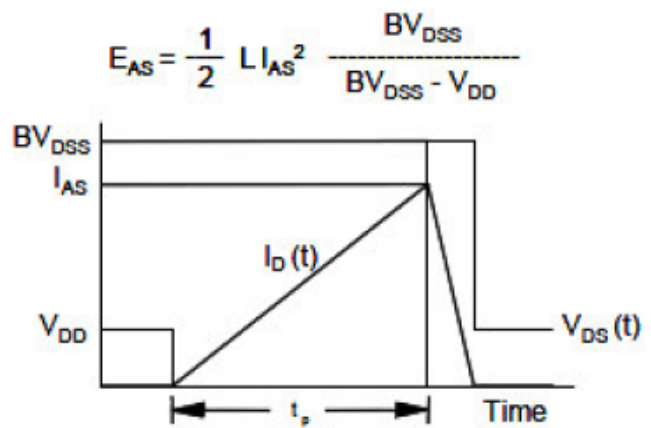
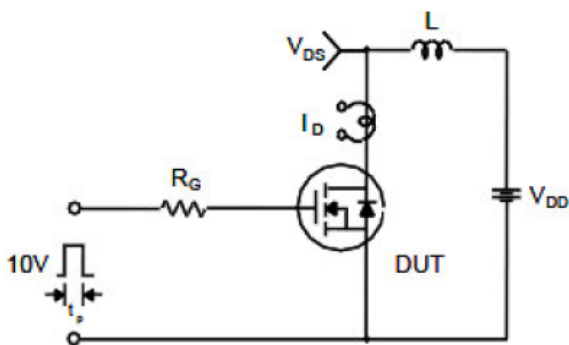
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

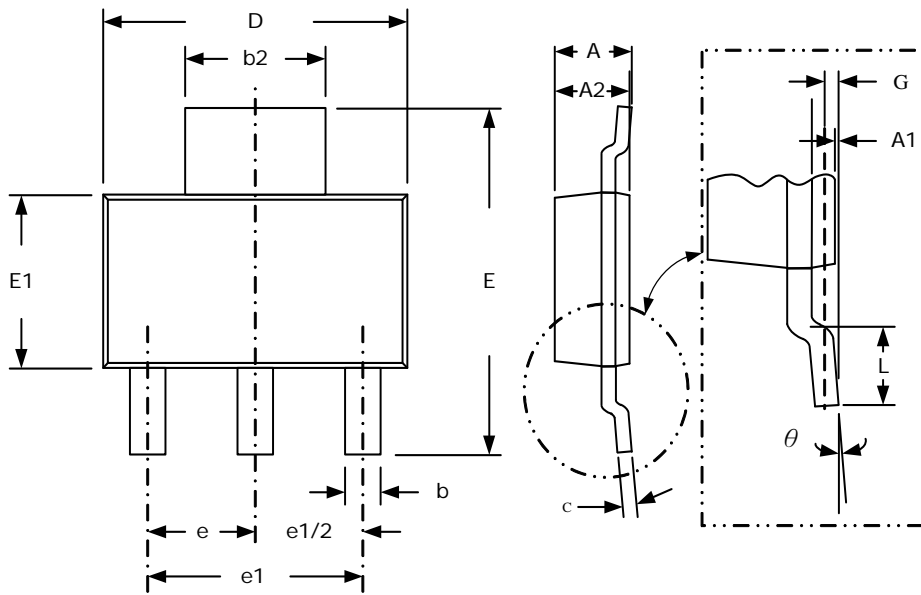


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

SOT-223 PLASTIC PACKAGE



Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	-	1.80	-	.071
A1	0.02	0.10	.001	.004
A2	1.55	1.65	.061	.065
b	0.66	0.84	.026	.033
b2	2.90	3.10	.114	.122
c	0.23	0.33	.009	.013
D	6.30	6.70	.248	.264
E	6.70	7.30	.264	.288
E1	3.30	3.70	.130	.146
e	2.30 (TYP)		.091 (TYP)	
e1	4.60 (TYP)		.181 (TYP)	
L	0.90	-	.035	-
G	0.25 (TYP)		.010 (TYP)	
θ	0°	8°	0°	8°

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