GSM3660EX5F

30V N-Channel MOSFETs

Product Description

GSM3660E, 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 low in-line power loss are needed in commercial industrial surface mount applications.

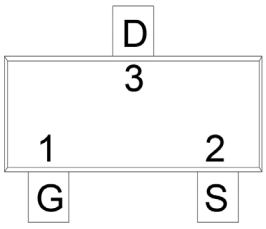
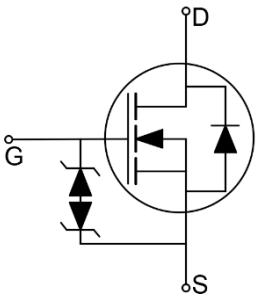
Features

- Low Gate Charge
- ESD Protected
- SOT-323 package design

Applications

- Power Management in Note book
- Portable Equipment
- Load Switch

Packages & Pin Assignments

SOT-323	Equivalent Circuit
 Top Views	

Pin	Description
1	Gate
2	Source
3	Drain

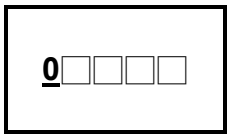
Ordering and Marking Information

Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSM3660EX5F	SOT-323	0□□□□	3,000 PCS

GSM3660E 1 2

- **Product Code:** GS3660E
- **Package Code:** 1 is **X5** for SOT-323
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information



- **Product Code:** 0
- **GS Code:** □□□□

Absolute Maximum Ratings (T_A=25ºC unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DSS}	Drain-Source Voltage	30	V
V_{GSS}	Gate-Source Voltage	±12	V
I_D	Continuous Drain Current (T_A=25℃)[1]	0.56	A
I_{DM}	Pulsed Drain Current[3]	2.3	A
P_D	Power Dissipation	0.34	W
$R_{\theta JA}$	Thermal Resistance Junction to ambient[1]	370	ºC/W
T_J	Operating Junction Temperature Range	-55 to +150	ºC
T_{STG}	Storage Temperature Range	-55 to +150	ºC

Notes:
1. Surface mounted on a 1 inch2 FR-4 board with 2oz copper.
2. Pulse width limited by maximum junction temperature, Pulse Width≤300μs, Duty Cycle≤1%.

Electrical Characteristics (T_A=25ºC unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	30			V
$V_{GS\ (th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	0.5		1.5	
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±12V			10	uA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=24V, V_{GS}=0V			100	nA
$R_{DS\ (on)}$	Drain-Source On-Resistance[3]	V_{GS}=10V, I_D=0.5A		345	600	mΩ
		V_{GS}=4.5V, I_D=0.2A		425	650	
		V_{GS}=2.5V, I_D=0.1A		650	1200	
g_{FS}	Forward Transconductance	V_{DS}=10V, I_D=0.5A		1.2		S
V_{SD}	Diode Forward Voltage	I_S=0.5A, V_{GS}=0V			1.35	V
Dynamic characteristics						
Q_g	Total Gate Charge	V_{DS}=15V, V_{GS}=10V, I_D=0.5A		1.5		nC
Q_{gs}	Gate-Source Charge			0.2		
Q_{gd}	Gate-Drain Charge			0.2		
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V f=1MHz		39		pF
C_{oss}	Output Capacitance			9		
C_{rss}	Reverse Transfer Capacitance			6		
$t_{d(on)}$	Turn-On Time	V_{DD}=15V, I_D=0.5A, V_{GS}=10V, R_G=2.5Ω		5.3		ns
t_r				16		
$t_{d(off)}$	Turn-Off Time			20		
t_f				18		

Typical Performance Characteristics

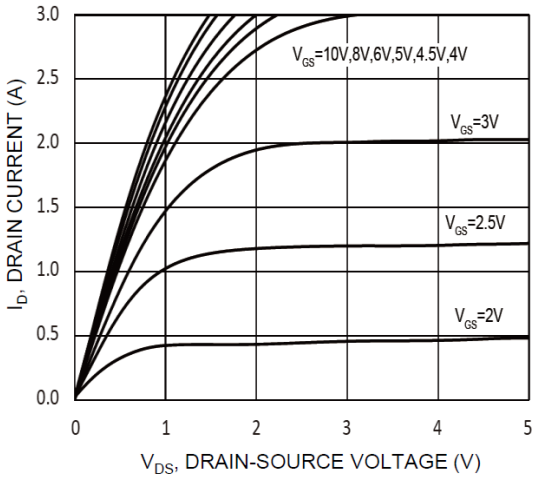


Fig. 1 Typical Output Characteristics

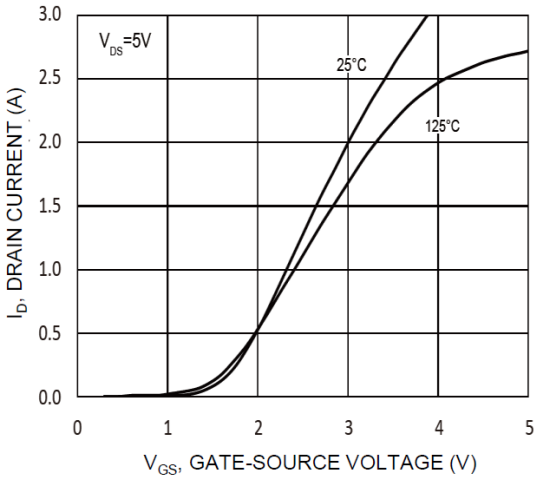


Fig. 2 Typical Transfer Characteristics

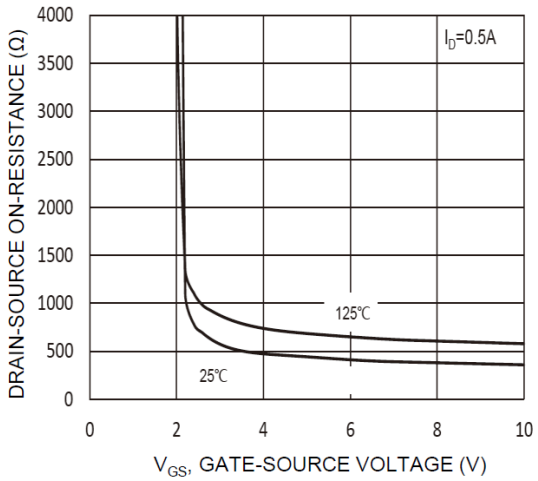


Fig. 3 Typical On-Resistance vs. V_{GS}

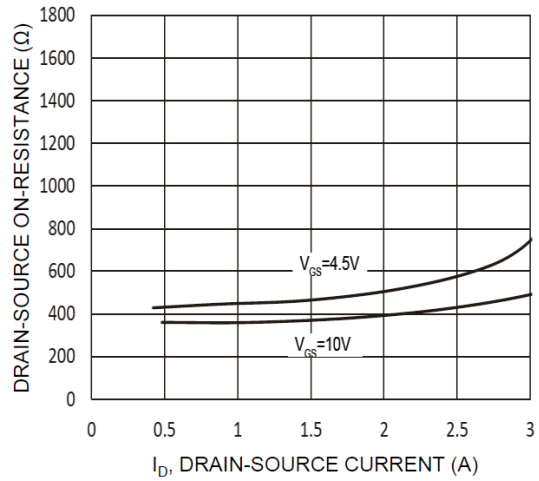


Fig. 4 Typical On-Resistance vs. I_D

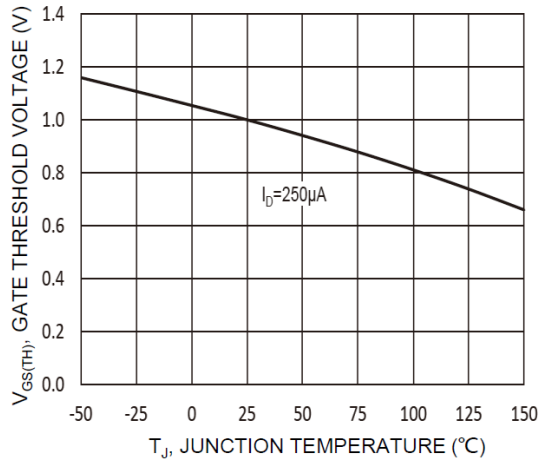


Fig. 5 Normalized Threshold Voltage

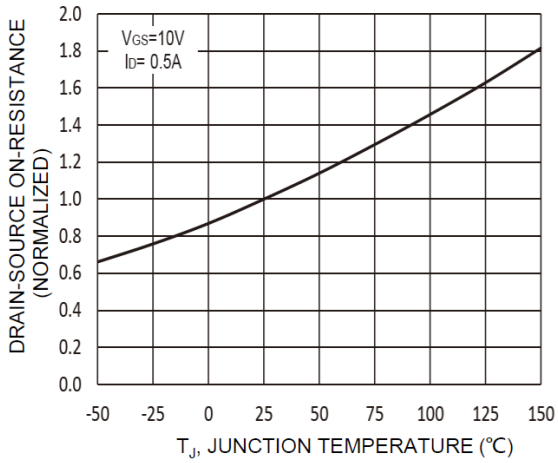


Fig. 6 On-Resistance Variation with T_J

Typical Performance Characteristics (Continue)

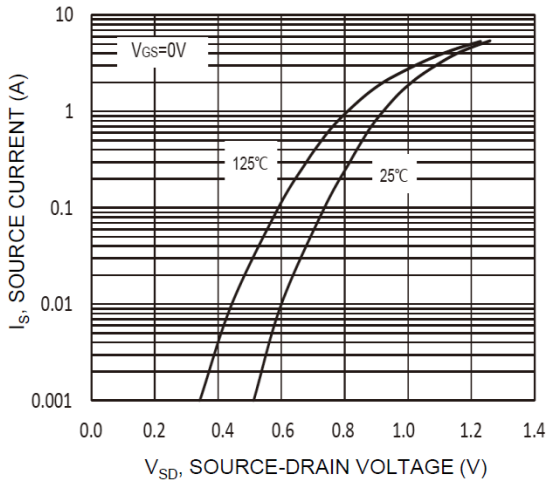


Fig. 7 Diode Forward Voltage vs. Current

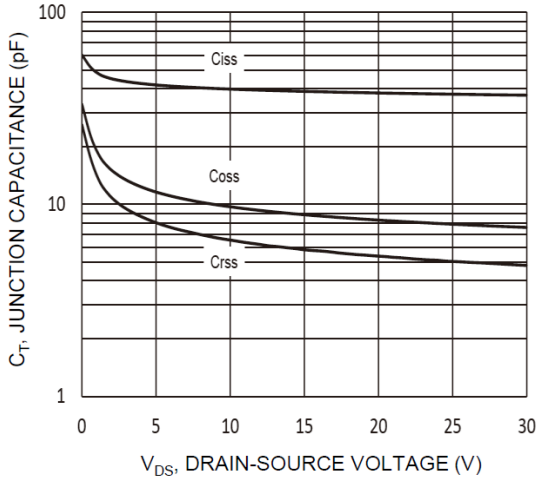


Fig. 8 Typical Capacitance

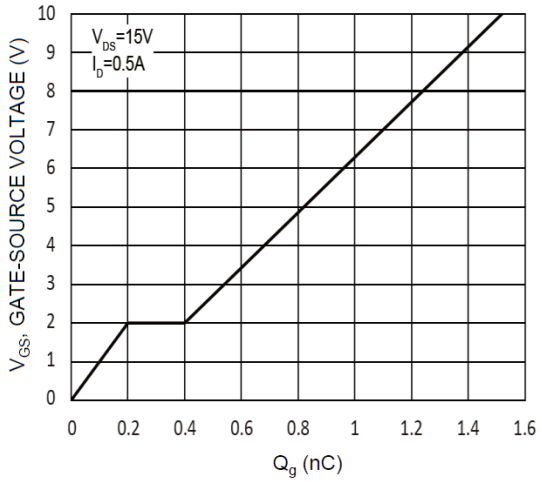


Fig. 9 Gate Charge

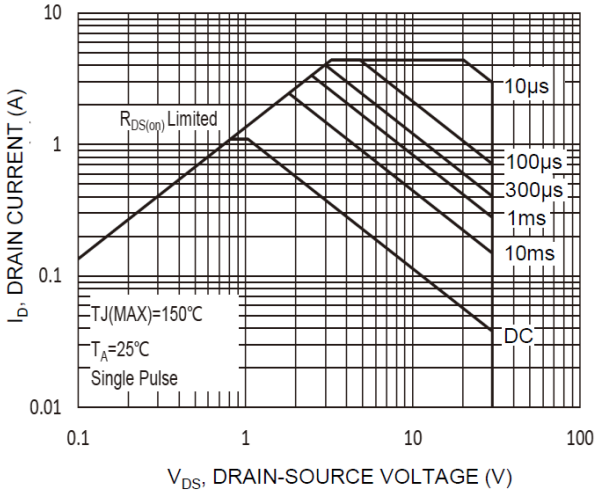


Fig. 10 Safe Operation Area

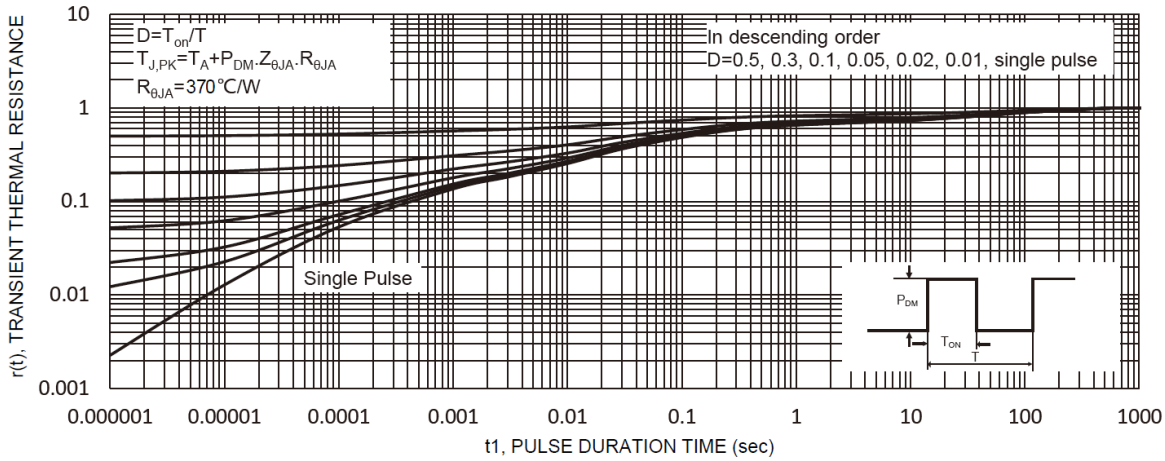
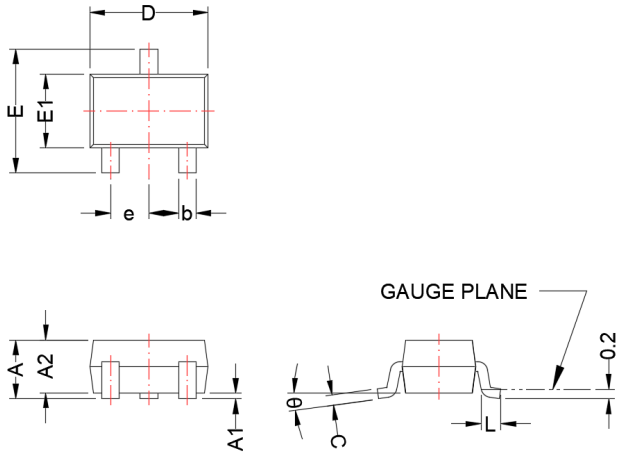


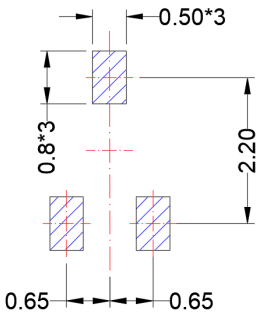
Fig. 11 Transient Thermal Response

SOT-323

Package Dimension



Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.80	1.10	0.031	0.043
A1	0.00	0.10	0.000	0.004
A2	0.80	1.00	0.031	0.039
b	0.20	0.40	0.008	0.016
c	0.08	0.26	0.003	0.010
D	1.80	2.20	0.071	0.087
E	1.80	2.40	0.071	0.094
E1	1.15	1.35	0.045	0.053
e	0.65 BSC		0.026 BSC	
L	0.26	0.45	0.010	0.018
θ	0°	8°	0°	8°

NOTE:

Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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