

GSM3660EX7F

30V N-Channel MOSFET

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.

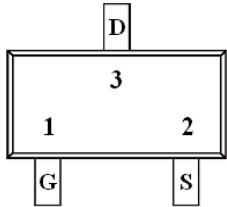
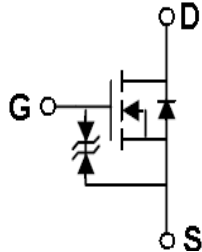
Features

- Low Gate Charge
- ESD Protected
- SOT-523 Package
- RoHS Compliant and Halogen Free

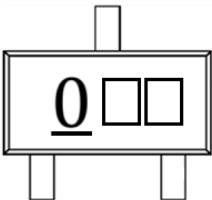
Applications

- MB / VGA / Vcore
- POL Applications
- Load Switch
- LED Application

Package & Pin Assignment

GSM3660EX7F (SOT-523)			Equivalent Circuit
			
Pin	Symbol	Description	
1	G	Gate	
2	S	Source	
3	D	Drain	

Ordering and Marking Information

Ordering Information			
Part Number	Package	Part Marking	Quantity / Reel
GSM3660EX7F	SOT-523	0 □ □	3,000 PCS
GSM3660E 1 2			
- Product Code: GSM3660E - Package Code: 1 is X7 for SOT-523 - Green Level: 2 is F for RoHS Compliant and Halogen Free			
Marking Information			
 - Product Code: 0 - GS Code: □ □			

Absolute Maximum Ratings (T_A = 25°C unless otherwise specified)

Symbol	Parameter	Value	Unit
V _{DS}	Drain-Source Voltage	30	V
V _{GS}	Gate-Source Voltage	±12	V
I _D	Continuous Drain Current	T _A =25°C	A
I _{DM}	Pulsed Drain Current ^{1,2}	2	A
P _D	Power Dissipation	T _A =25°C	W
R _{θJA}	Thermal Resistance - Junction to Ambient	450	°C/W
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C

Notes:

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

Electrical Characteristics (T_A = 25°C unless otherwise specified)

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	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±12V			10	uA
I _{DSS}	Drain-Source Leakage Current	V _{DS} =24V, V _{GS} =0V			100	nA
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =0.5A		355	600	mΩ
		V _{GS} =4.5V, I _D =0.4A		435	650	
		V _{GS} =2.5V, I _D =0.3A		665	1200	
g _{FS}	Forward Transconductance	V _{DS} =10V, I _D =0.5A		1.1		S
V _{SD}	Diode Forward Voltage	I _S =0.25A, V _{GS} =0V			1.35	V
Gate charge characteristics						
Q _g	Total Gate Charge ^{3,4}	V _{DS} =15V, V _{GS} =10V, I _D =0.5A		1.5		nC
Q _{gs}	Gate-Source Charge ^{3,4}			0.2		
Q _{gd}	Gate-Drain Charge ^{3,4}			0.2		
Dynamic characteristics						
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	Rise Time			16		
t _{d(off)}	Turn-Off Time			20		
t _f	Fall Time			18		

Typical Performance Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise specified)

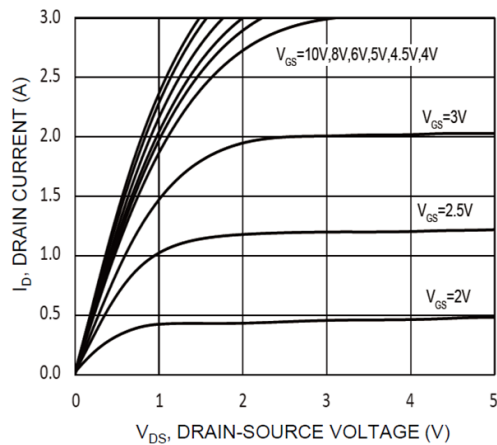


Fig.1 Output Characteristics

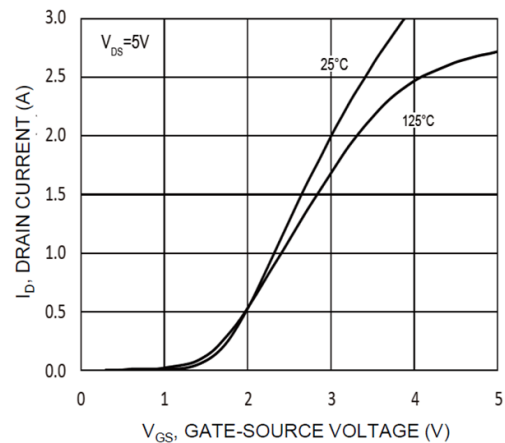


Fig.2 Transfer Characteristics

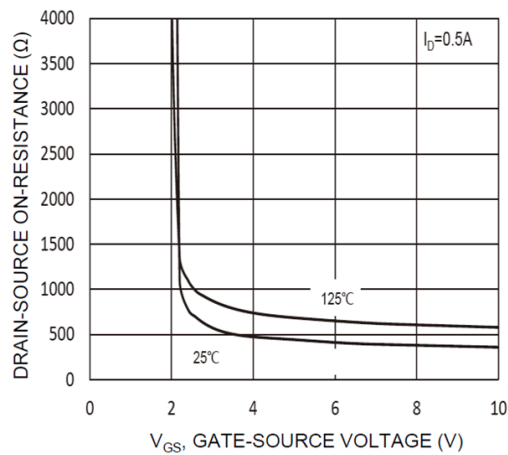


Fig.3 On-Resistance vs. V_{GS}

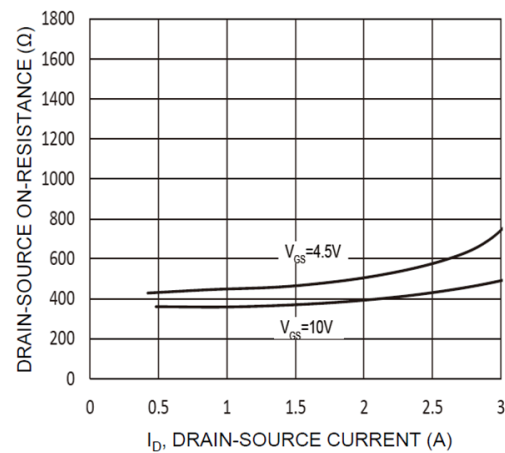


Fig.4 On-Resistance vs. I_D

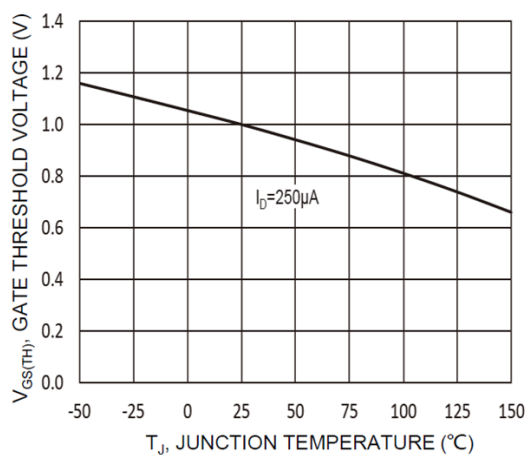


Fig.5 Normalized Threshold Voltage

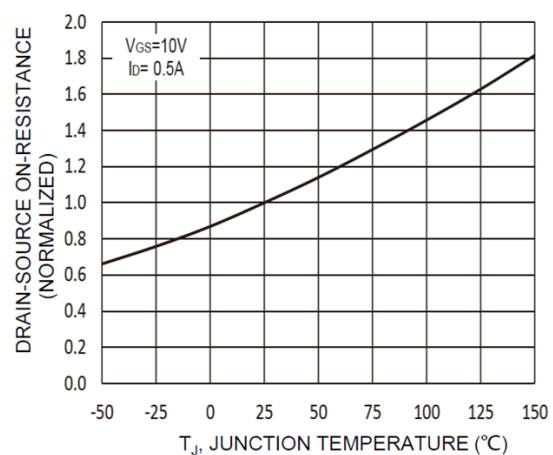


Fig.6 On-Resistance vs. T_J

Typical Performance Characteristics (Continued)

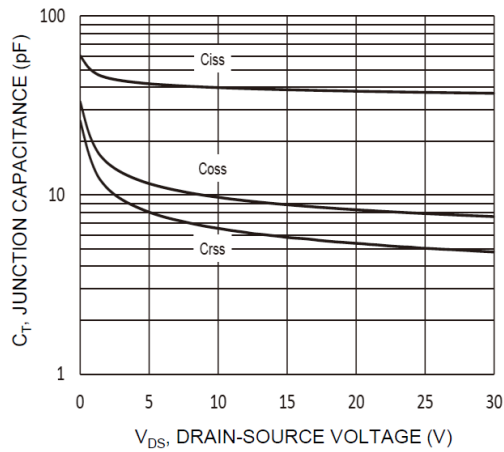


Fig.7 Capacitance

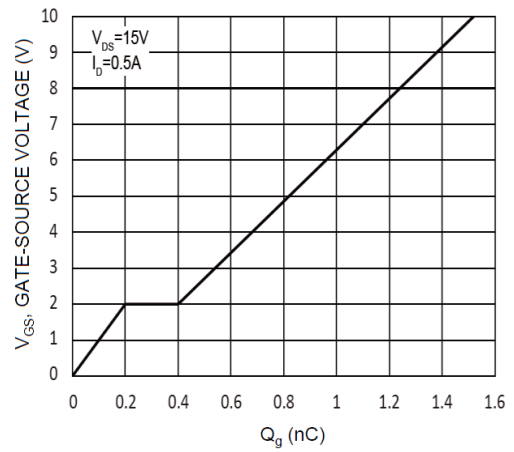


Fig.8 Gate Charge

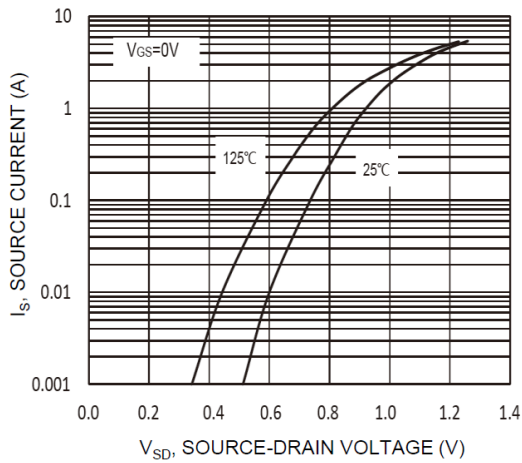


Fig.9 Diode Forward Voltage vs. Current

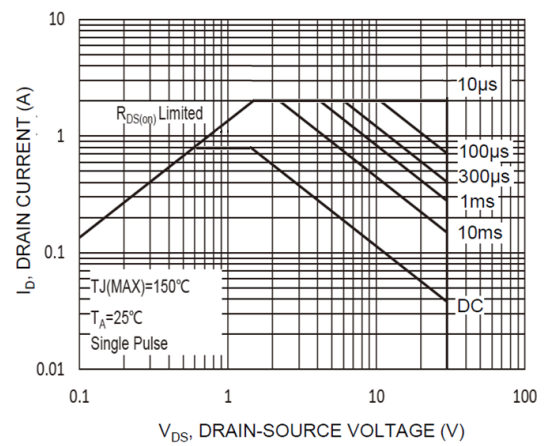


Fig.10 Safe Operation Area

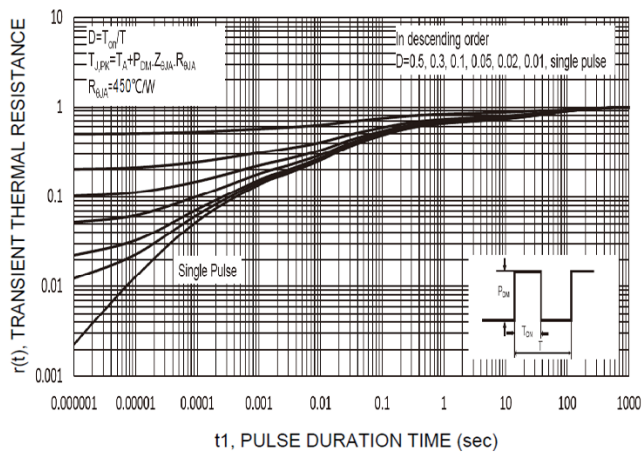
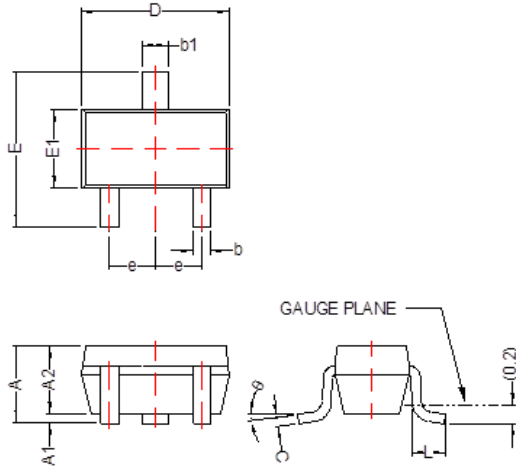


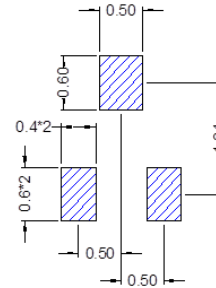
Fig.11 Normalized Transient Impedance

SOT-523

Package Dimension



Recommended Land Pattern



Unit: mm

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.60	0.95	0.024	0.037
A1	0.00	0.10	0.000	0.004
A2	0.60	0.85	0.024	0.033
b	0.15	0.30	0.006	0.012
b1	0.25	0.40	0.010	0.016
c	0.08	0.25	0.003	0.010
D	1.40	1.80	0.055	0.071
E	1.40	1.80	0.055	0.071
E1	0.70	0.90	0.028	0.035
e	0.50 BSC		0.020 BSC	
L	0.26	0.46	0.010	0.018
θ	0°	8°	0°	8°

NOTE:

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

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