

GSM3660EX7F

30V N-Channel Enhancement Mode 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.

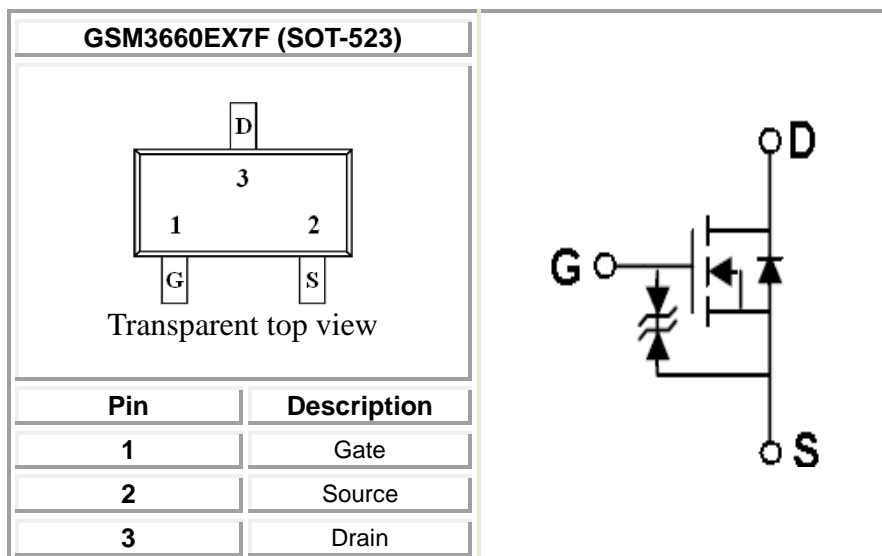
Features

- Low Gate Charge
- ESD Protected
- SOT-523 package design

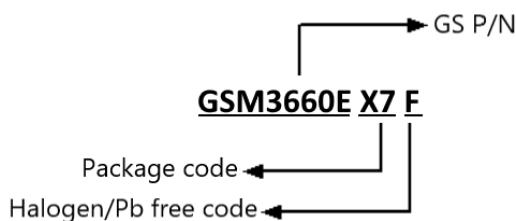
Applications

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

Packages & Pin Assignments

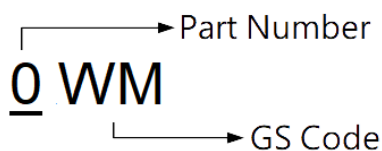


Ordering Information



Part Number	Package	Quantity Reel
GSM3660EX7F	SOT-523	3000 PCS

Marking Information



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	±12	V
I _D	Continuous Drain Current(T _A =25°C) ¹	0.51	A
I _{DM}	Pulsed Drain Current ³	2	A
P _D	Power Dissipation	0.3	W
R _{θJA}	Thermal Resistance Junction to ambient ¹	450	°C/W
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C

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

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5		1.5	
I_{GSS}	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 12V$			10	μA
I_{DSS}	Zero Gate Voltage Drain 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	m Ω
		$V_{GS}=4.5V, I_D=0.4A$		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
Dynamic						
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	$V_{DD}=15V, I_D=0.5A, V_{GS}=10V, R_G=2.5\Omega$		5.3		ns
t_r				16		
$t_{d(off)}$	Turn-Off Time			20		
t_f				18		

Typical Performance Characteristics

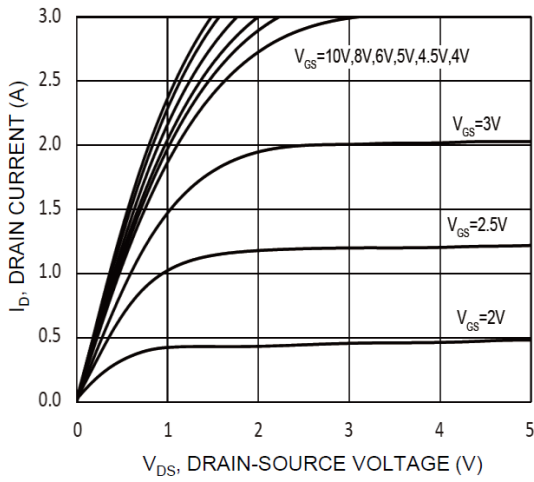


Fig. 1 Typical Output Characteristics

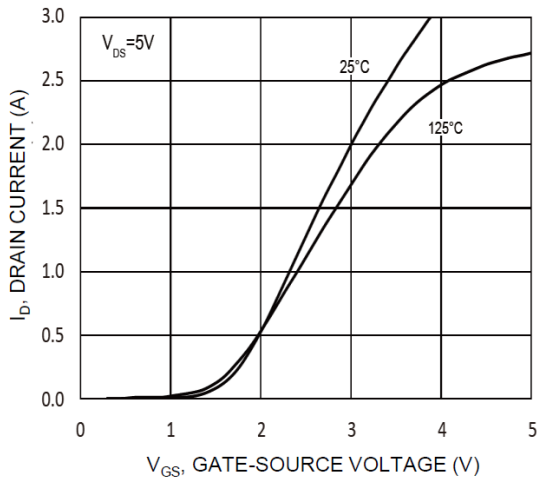


Fig. 2 Typical Transfer Characteristics

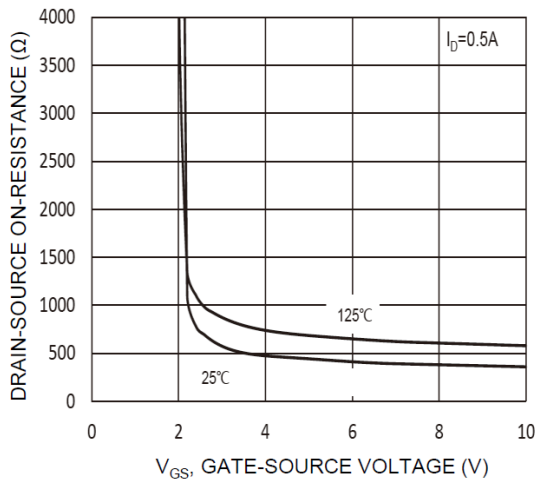


Fig. 3 Typical On-Resistance vs. V_{GS}

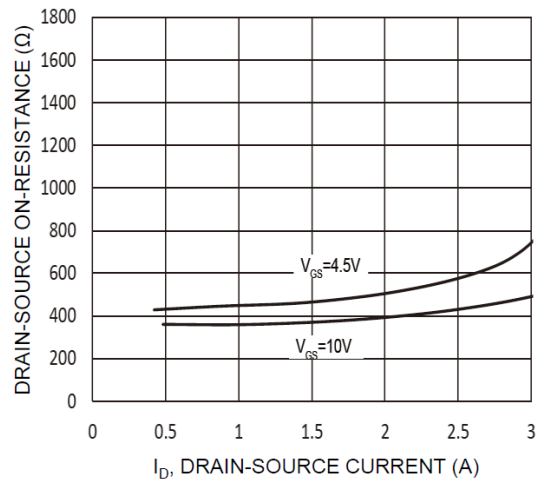


Fig. 4 Typical On-Resistance vs. I_D

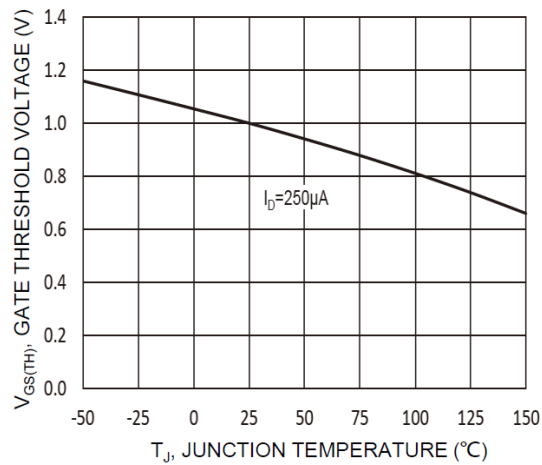


Fig. 5 Normalized Threshold Voltage

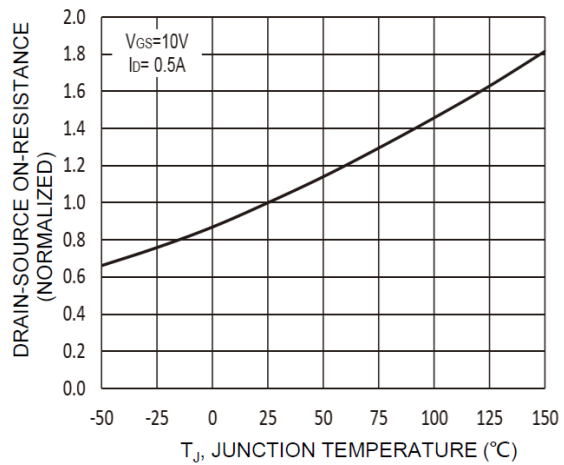


Fig. 6 On-Resistance Variation with T_J

Typical Performance Characteristics (Continue)

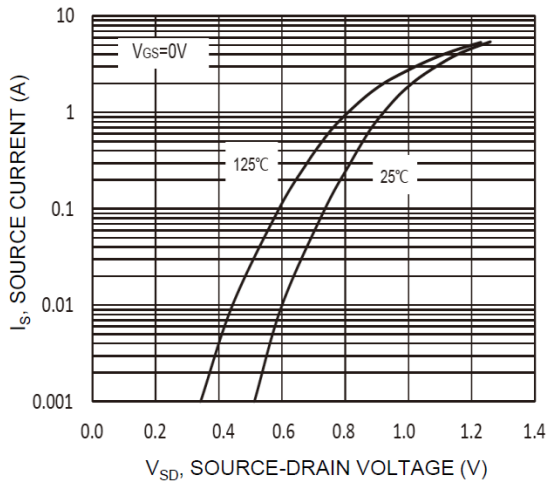


Fig. 7 Diode Forward Voltage vs. Current

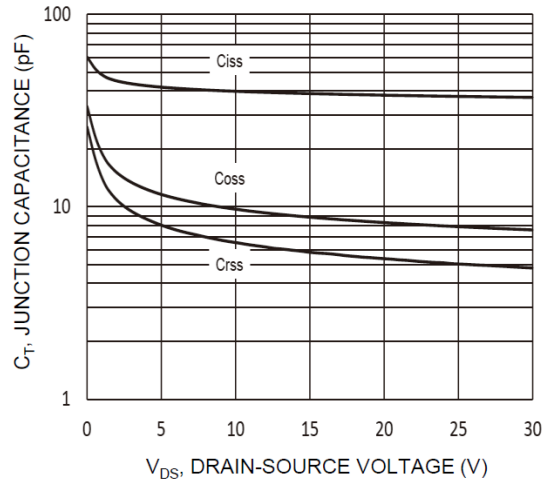


Fig. 8 Typical Capacitance

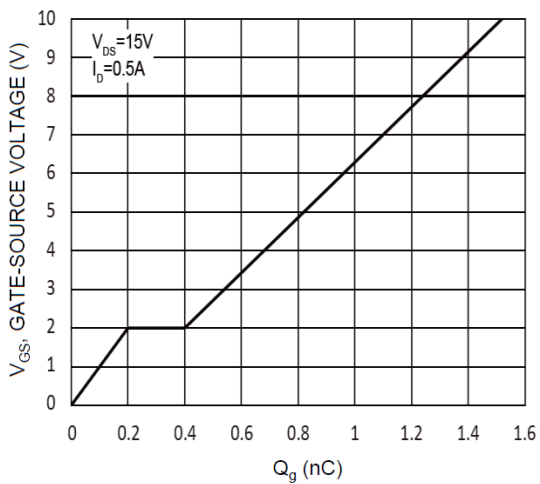


Fig. 9 Gate Charge

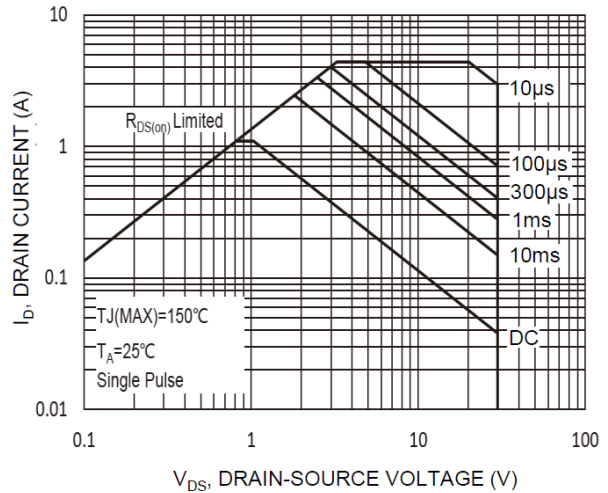


Fig. 10 Safe Operation Area

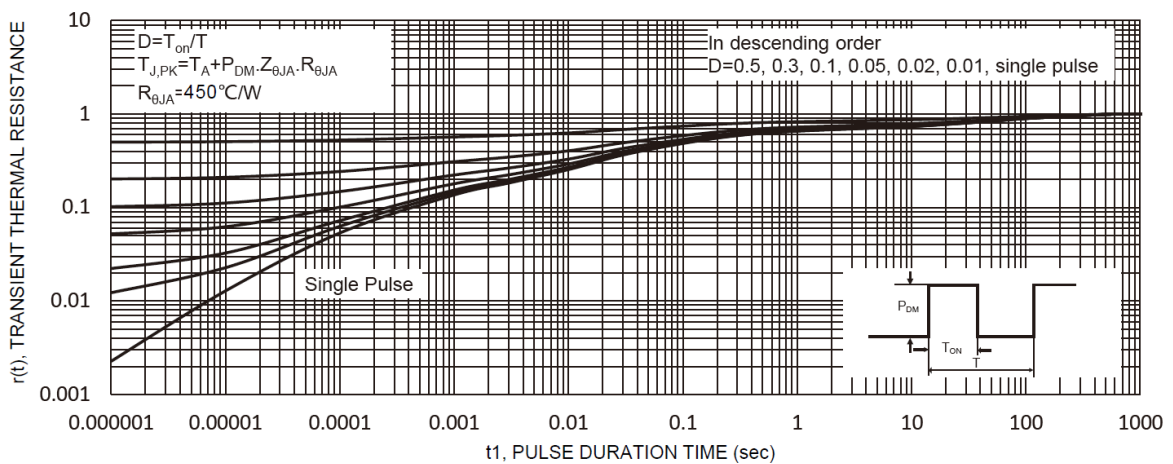
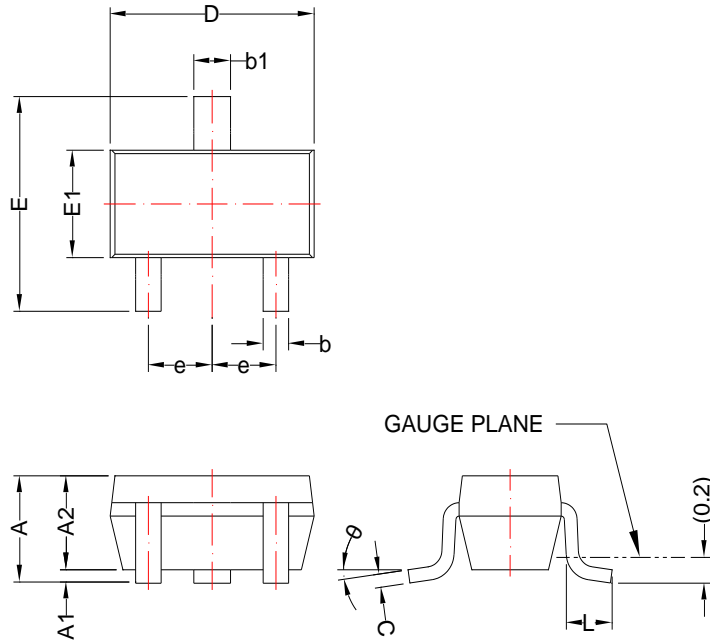


Fig. 11 Transient Thermal Response

Package Dimension

SOT-523









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	0.45	0.010	0.018
θ	0°	8°	0°	8°

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