

# GSM3760EX7F

## 30V Dual N-Channel MOSFETs

### Product Description

GSM3760E, 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.

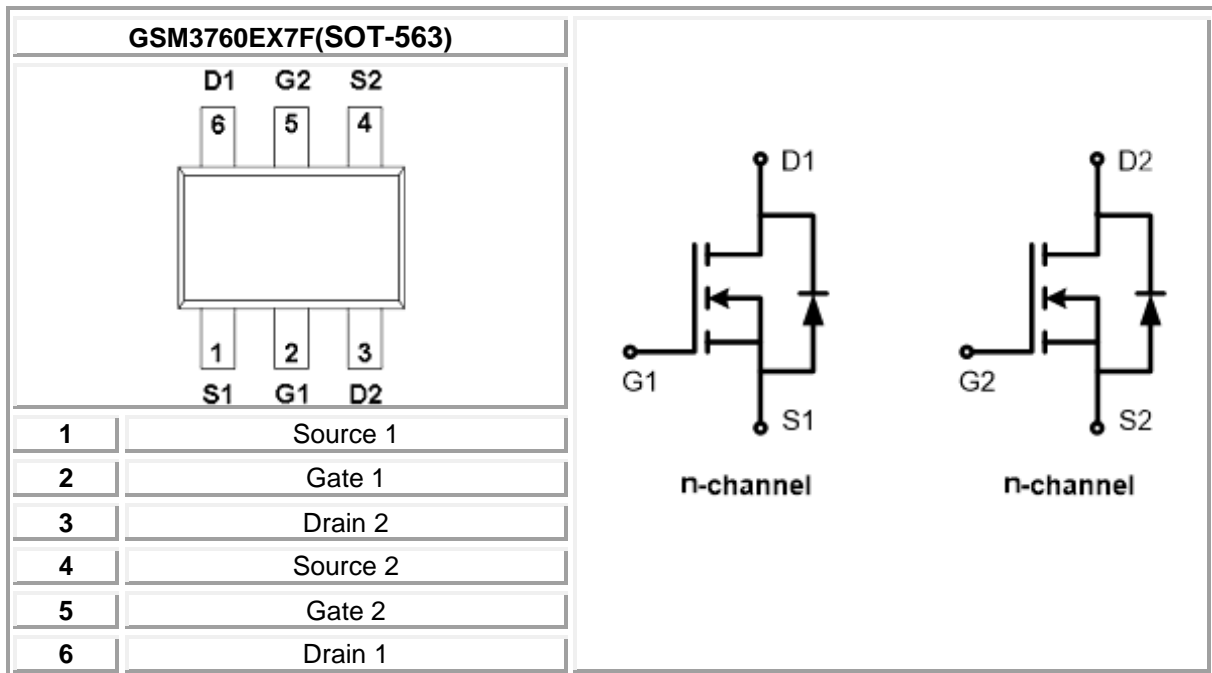
### Features

- Low Gate Charge
- ESD Protected
- SOT-563 package design

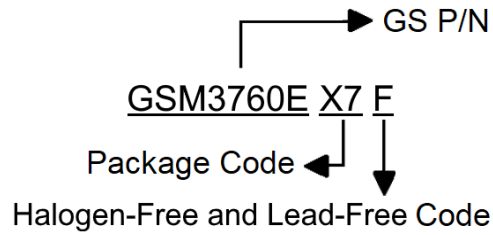
### Applications

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

### Packages & Pin Assignments

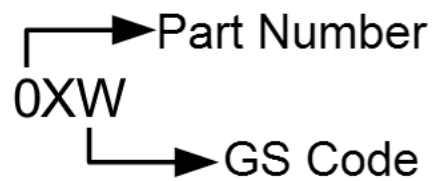


## Ordering Information



Part Number	Package	Quantity Reel
GSM3760EX7F	SOT-563	3000 PCS

## Marking Information



## Absolute Maximum Ratings

(T<sub>A</sub>=25°C unless otherwise noted)

Symbol	Parameter	Typical	Unit
V <sub>DSS</sub>	Drain-Source Voltage	30	V
V <sub>GSS</sub>	Gate-Source Voltage	±12	V
I <sub>D</sub>	Continuous Drain Current(T <sub>A</sub> =25°C) <sup>1</sup>	0.5	A
I <sub>DM</sub>	Pulsed Drain Current	2	A
P <sub>D</sub>	Power Dissipation	0.28	W
R <sub>θJA</sub>	Thermal Resistance Junction to ambient <sup>1</sup>	450	°C/W
T <sub>J</sub>	Operating Junction Temperature Range	-55 to +150	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to +150	°C

Notes:

1. Surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2oz copper.

## Electrical Characteristics

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static</b>						
$V_{(BR)DSS}$	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	$\mu A$
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=24V, V_{GS}=0V$			100	nA
$R_{DS(on)}$	Drain-Source On-Resistance <sup>3</sup>	$V_{GS}=10V, I_D=0.5A$		365	600	m $\Omega$
		$V_{GS}=4.5V, I_D=0.4A$		440	650	
		$V_{GS}=2.5V, I_D=0.3A$		670	1200	
$g_{FS}$	Forward Transconductance	$V_{DS}=10V, I_D=0.5A$		1.25		S
$V_{SD}$	Diode Forward Voltage	$I_S=0.25A, V_{GS}=0V$			1.1	V
<b>Dynamic</b>						
$Q_g$	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

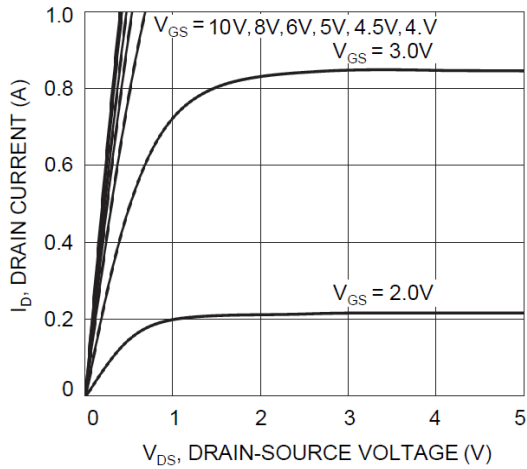


Fig. 1 Typical Output Characteristics

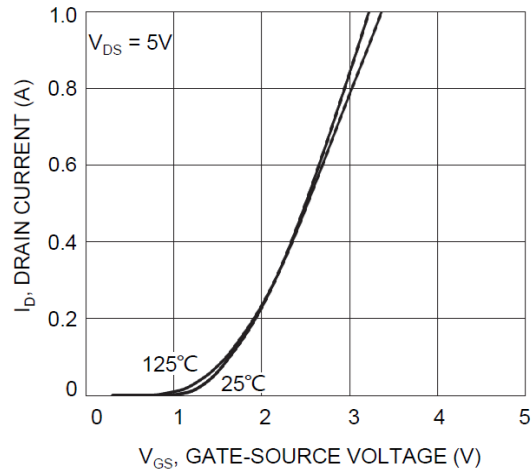


Fig. 2 Typical Transfer Characteristics

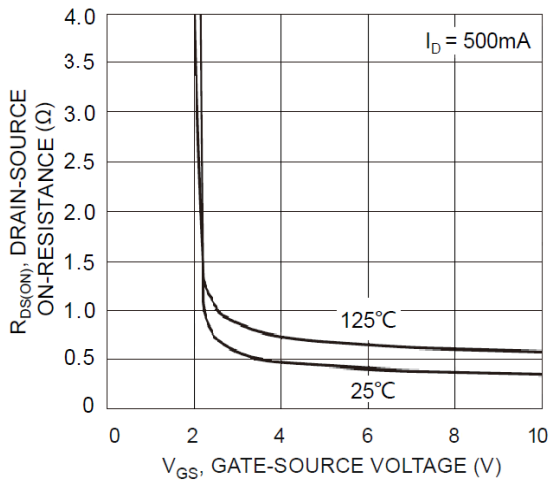


Fig. 3 Typical On-Resistance vs.  $V_{GS}$

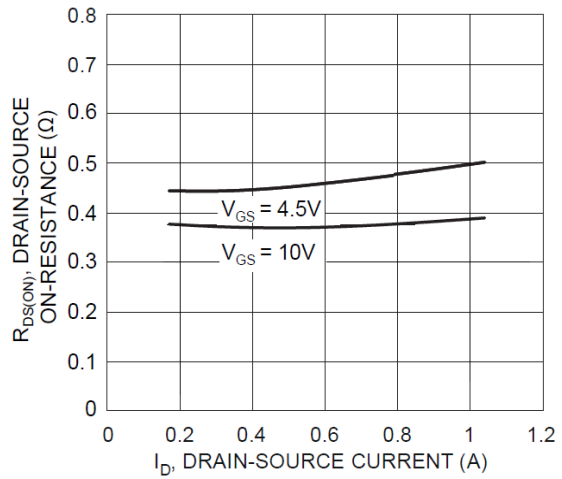


Fig. 4 Typical On-Resistance vs.  $I_D$

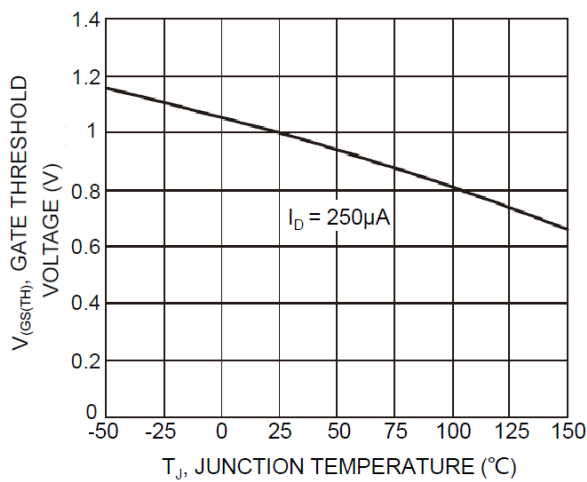


Fig. 5 Normalized Threshold Voltage

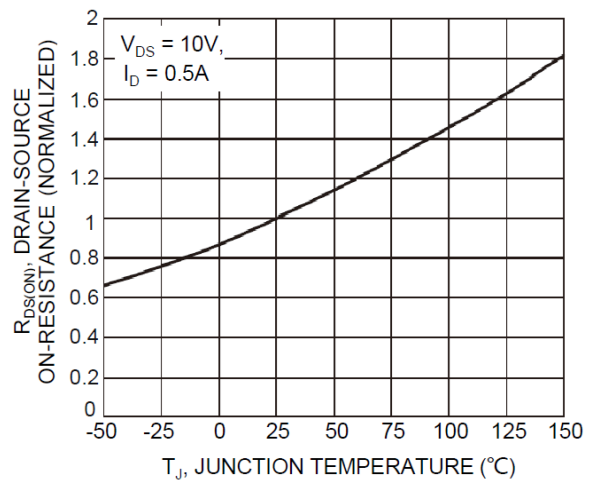


Fig. 6. On-Resistance Variation with  $T_J$

## Typical Performance Characteristics (Continue)

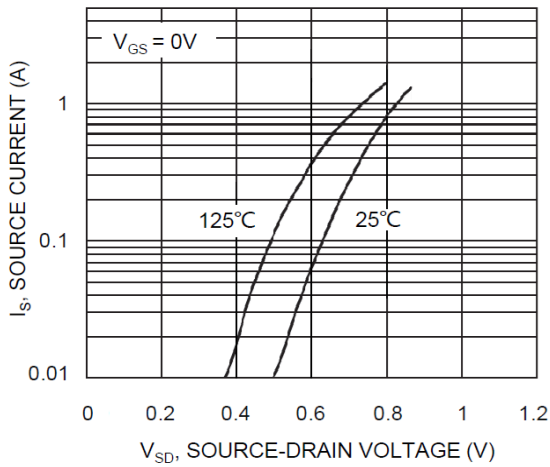


Fig. 7 Diode Forward Voltage vs. Current

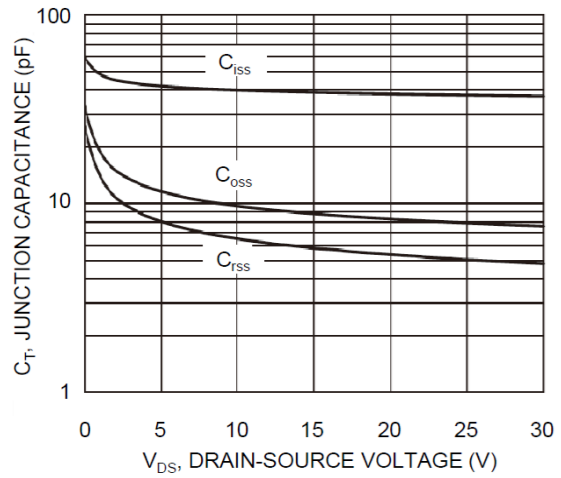


Fig. 8 Typical Capacitance

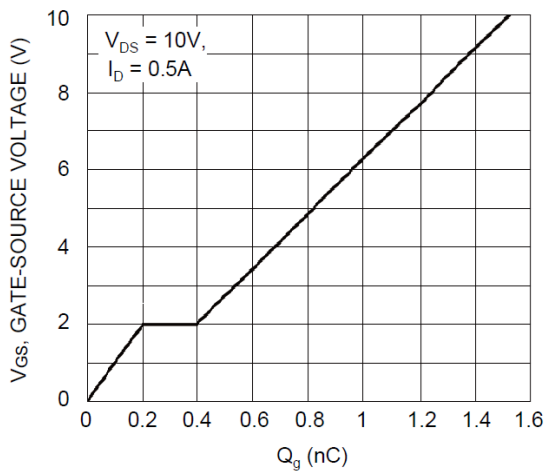


Fig. 9 Gate Charge

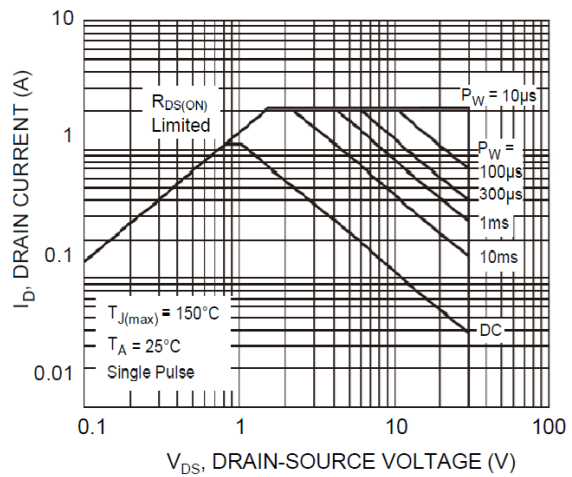


Fig. 10 Safe Operation Area

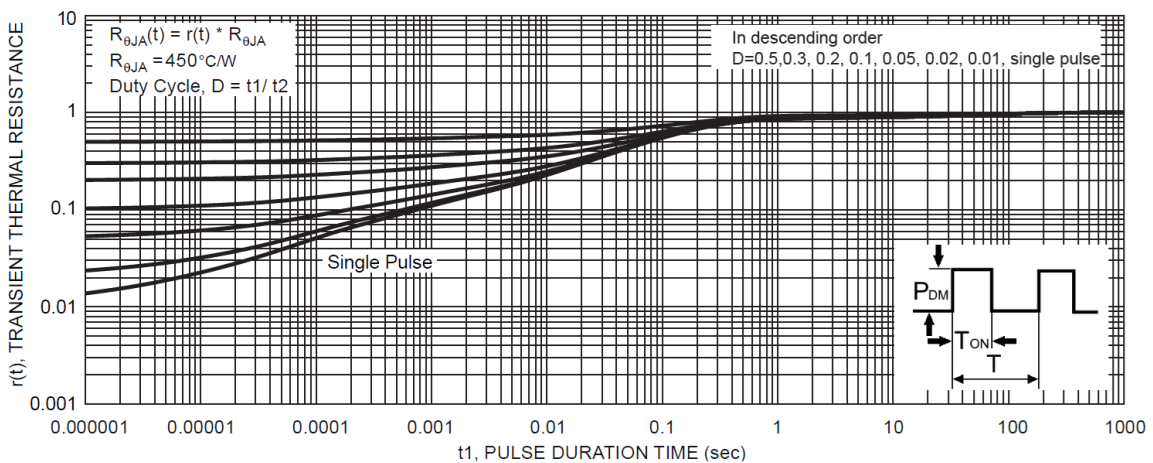
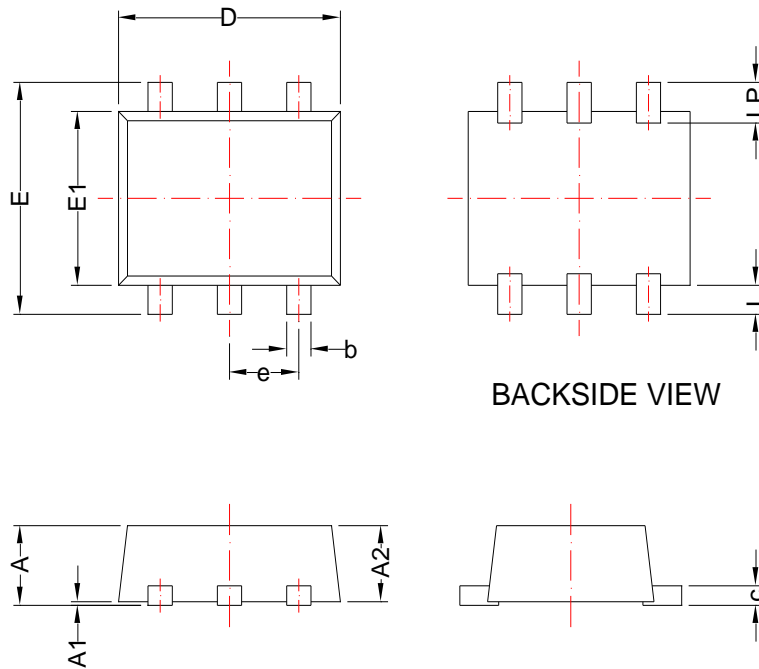


Fig. 11 Transient Thermal Response

Package Dimension

SOT-563



DIMENSION D AND E1 DO NOT INCLUDE MOLD FLASH, TIE BAR BURRS, GATE BURRS, AND INTERLEAD FLASH, NOT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.45	0.65	0.018	0.026
A1	0.00	0.10	0.000	0.004
A2	0.45	0.60	0.018	0.024
b	0.15	0.30	0.006	0.012
c	0.07	0.20	0.003	0.008
D	1.50	1.70	0.059	0.067
E	1.50	1.70	0.059	0.067
E1	1.10	1.30	0.043	0.051
e	0.50 BSC		0.020 BSC	
L	0.10	0.30	0.004	0.012
LP	0.16	0.4	0.006	0.016





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