

GSM3660EAF

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.

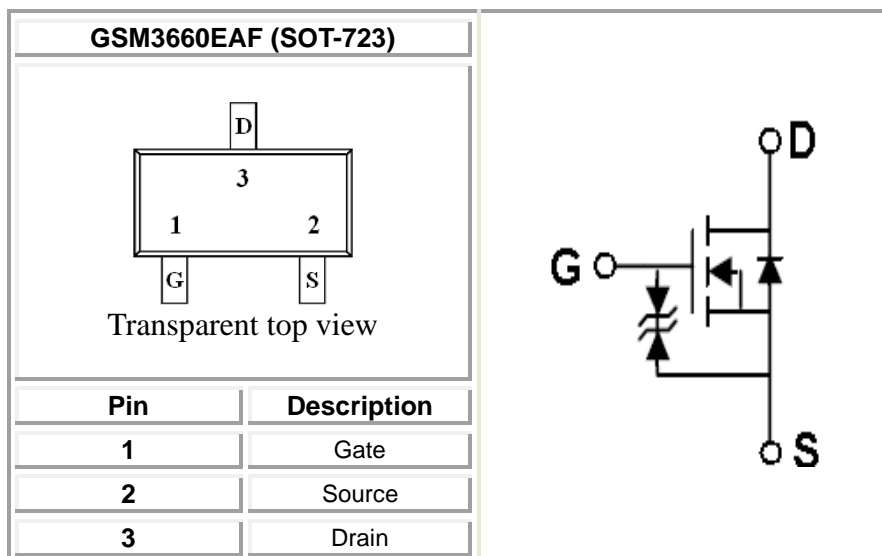
Features

- Low Gate Charge
- ESD Protected
- SOT-723 package design

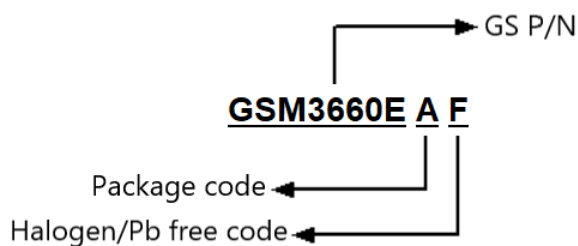
Applications

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

Packages & Pin Assignments

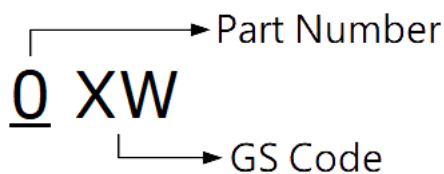


Ordering Information



Part Number	Package	Quantity Reel
GSM3660EAF	SOT-723	8000 PCS

Marking Information



Absolute Maximum Ratings

($T_A=25^{\circ}\text{C}$ 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 ($T_A=25^{\circ}\text{C}$)	0.37	A
I_{DM}	Pulsed Drain Current	1.0	A
P_D	Power Dissipation	0.15	W
$R_{\theta JA}$	Thermal Resistance Junction to ambient ¹	833	$^{\circ}\text{C}/\text{W}$
T_J	Operating Junction Temperature Range	-55 to +150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range	-55 to +150	$^{\circ}\text{C}$

Notes:

1. Surface mounted on a 1 inch² FR-4 board with 2oz copper.
2. Pulse width limited by maximum junction temperature, Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 1\%$.

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
		$V_{DS}=24V, V_{GS}=0V$ $T_J=85^\circ\text{C}$			30	μA
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=0.5A$		350	600	m Ω
		$V_{GS}=4.5V, I_D=0.4A$		400	650	
		$V_{GS}=2.5V, I_D=0.3A$		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						
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	$V_{DS}=15V, V_{GS}=0V$ $f=1\text{MHz}$		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

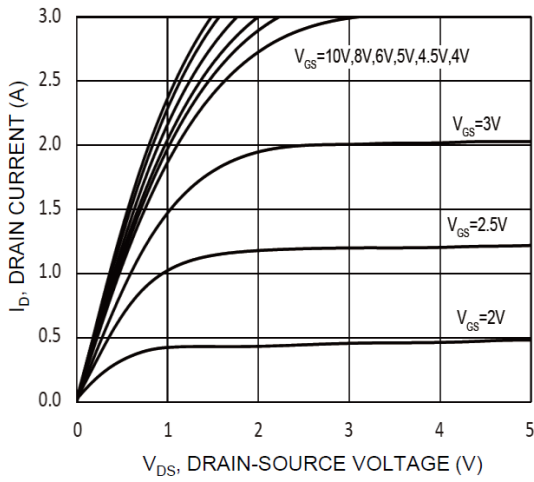


Fig. 1 Typical Output Characteristics

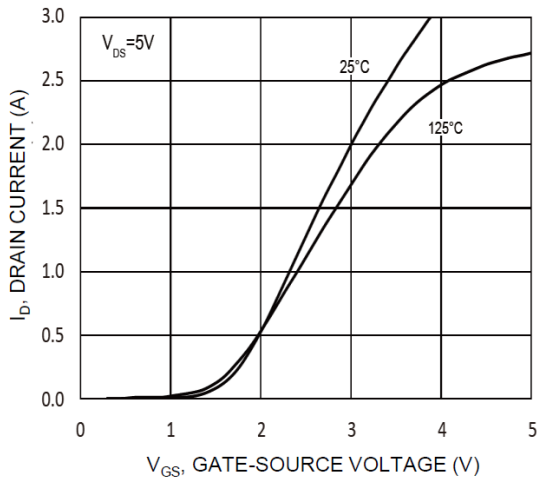


Fig. 2 Typical Transfer Characteristics

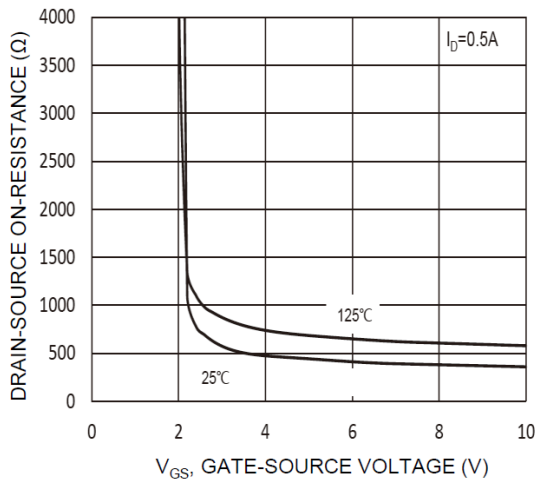


Fig. 3 Typical On-Resistance vs. V_{GS}

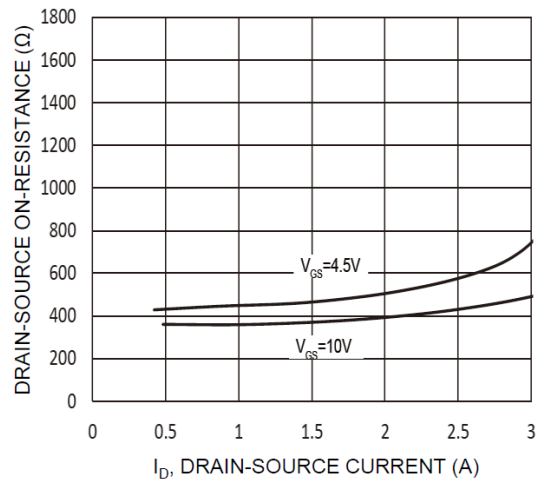


Fig. 4 Typical On-Resistance vs. I_D

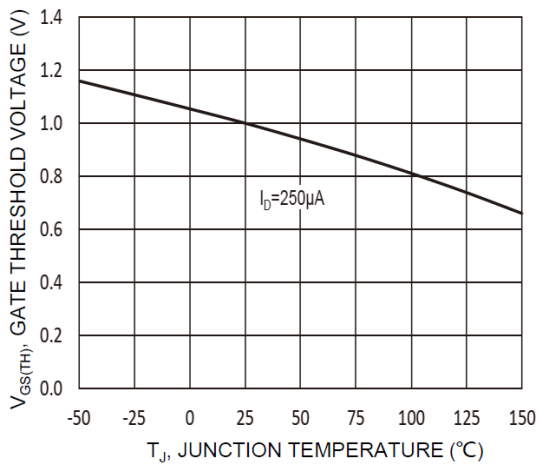


Fig. 5 Normalized Threshold Voltage

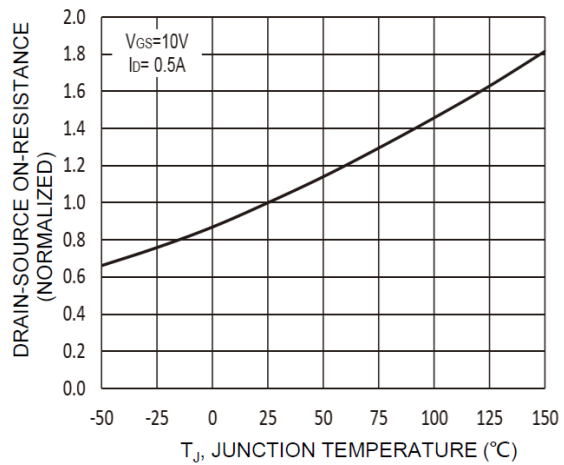


Fig. 6 On-Resistance Variation with T_J

Typical Performance Characteristics (Continue)

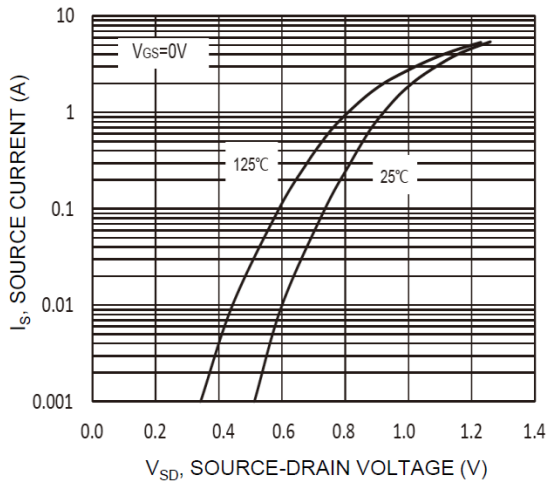


Fig. 7 Diode Forward Voltage vs. Current

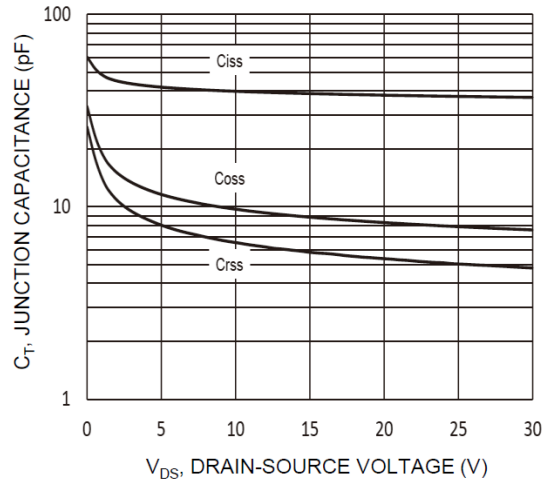


Fig. 8 Typical Capacitance

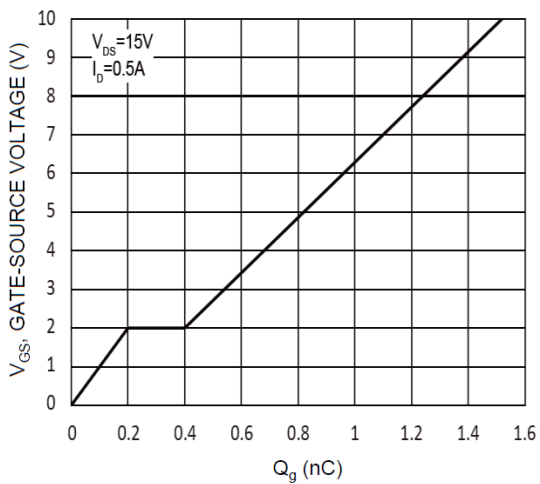


Fig. 9 Gate Charge

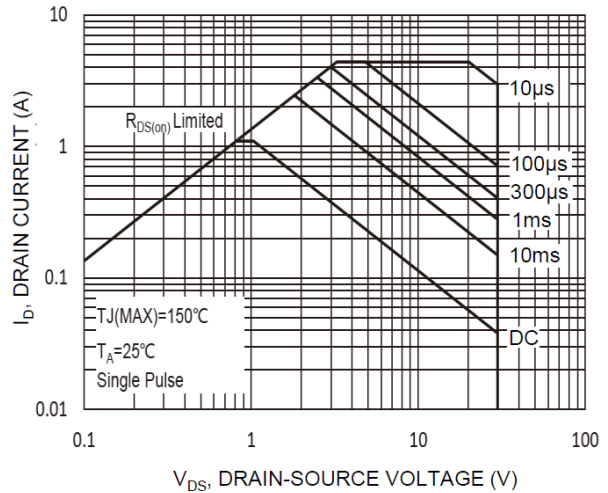


Fig. 10 Safe Operation Area

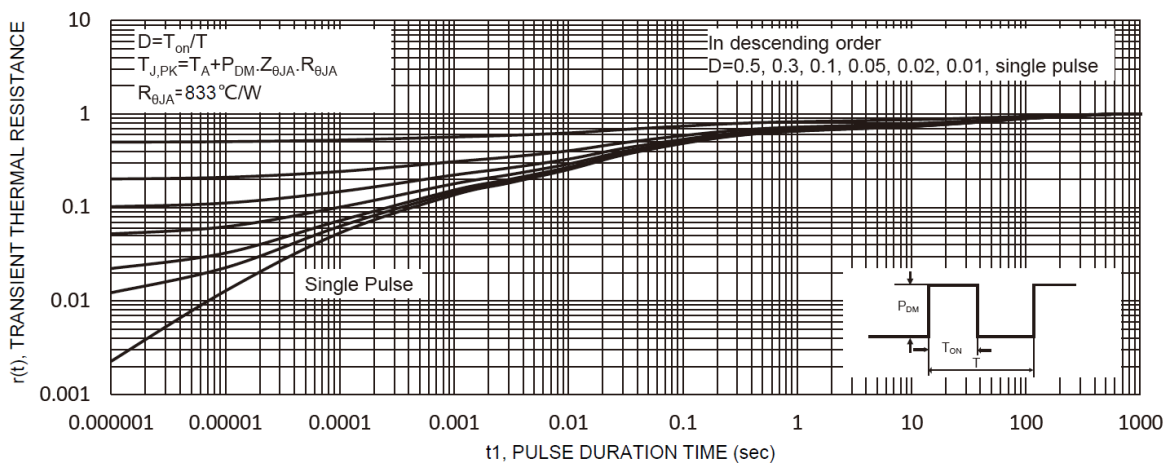
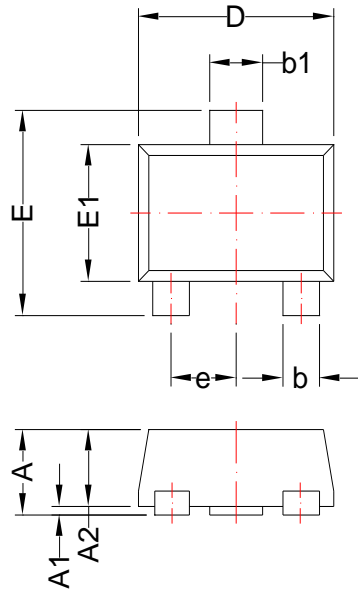


Fig. 11 Transient Thermal Response

Package Dimension

SOT-723









Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.45	0.55	0.018	0.022
A1	0.00	0.10	0.000	0.004
A2	0.45	0.55	0.018	0.022
b	0.15	0.30	0.006	0.012
b1	0.25	0.40	0.010	0.016
c	0.08	0.20	0.003	0.008
D	1.10	1.30	0.043	0.051
E	1.10	1.30	0.043	0.051
E1	0.70	0.90	0.028	0.035
e	0.4 BSC		0.016 BSC	
L	0.2	0.42	0.008	0.017

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