GSM3660ETF

30V N-Channel MOSFET

Product Description

The N-Channel enhancement mode power field effect transistor is using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode.

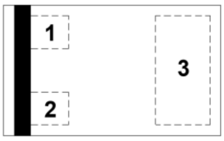
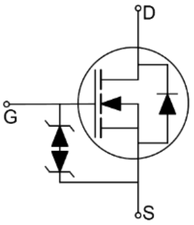
Features

- $R_{DS(ON)}$ = 0.48Ω @ V_{GS}=10V
- ESD Protected
- DFN1006-3L Package
- RoHS Compliant and Halogen Free

Applications

- Load Switch
- Portable Appliances

Packages & Pin Assignments

<table>
<tr><th colspan="3">DFN1006-3L</th><th colspan="3">Equivalent Circuit</th></tr>
<tr><td colspan="3">
Top View (Transparent)</td><td colspan="3"> </td></tr>
<tr><th>Pin</th><th>Symbol</th><th>Description</th><th>Pin</th><th>Symbol</th><th>Description</th></tr>
<tr><td>1</td><td>G</td><td>Gate</td><td>3</td><td>D</td><td>Drain</td></tr>
<tr><td>2</td><td>S</td><td>Source</td><td></td><td></td><td></td></tr>
</table>

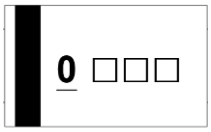
Ordering and Marking Information

Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSM3660ETF	DFN1006-3L	0□□□	10,000 PCS

GSM3660E 1 2

- **Product Code:**
  GSM3660E
- **Package Code:**
  1 is **T** for DFN1006-3L
- **Green Level:**
  2 is **F** for RoHS Compliant and Halogen Free

Marking Information



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

Absolute Maximum Ratings (T

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=25ºC	0.6	A
I_{DM}	Pulsed Drain Current [1]		1.8	A
P_D	Power Dissipation	T_A=25ºC	0.41	W
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient [2]		300	ºC/W
T_J	Operating Junction Temperature Range		-55 to +150	ºC
T_{STG}	Storage Temperature Range		-55 to +150	ºC

NOTE:

1. Single pulse width is limited by max junction temperature.
2. The device mounted on 1in^2 FR-4 board with 2oz. Copper

Electrical Characteristics (T_J = 25ºC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	30	-	-	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=24V, V_{GS}=0V	-	-	100	nA
I_{GSS}	Gate-Source Leakage Current	V_{DS}=0V, V_{GS}=±12V	-	-	±10	μA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	0.5	-	1.5	V
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS}=10V, I_D=0.5A		325	480	mΩ
		V_{GS}=4.5V, I_D=0.4A	-	400	650	
		V_{GS}=2.5V, I_D=0.3A		600	900	
gfs	Forward Transconductance	V_{DS}=10V, I_D=0.5A		0.85	-	S
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	-	
Q_g	Total Gate Charge	V_{DS}=15V, I_D=0.5A V_{GS}=10V	-	1.5	-	nC
Q_{gs}	Gate-Source Charge		-	0.2	-	
Q_{gd}	Gate-Drain Charge		-	0.2	-	
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=15V, I_D=0.5A V_{GS}=4.5V, Rg=6Ω	-	5.3	-	ns
t_r	Turn-On Rise Time		-	16	-	
$t_{d(off)}$	Turn-Off Delay Time		-	20	-	
t_f	Turn-Off Fall Time		-	18	-	
Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_S=0.2A	-	-	1.2	V

Typical Performance Characteristics

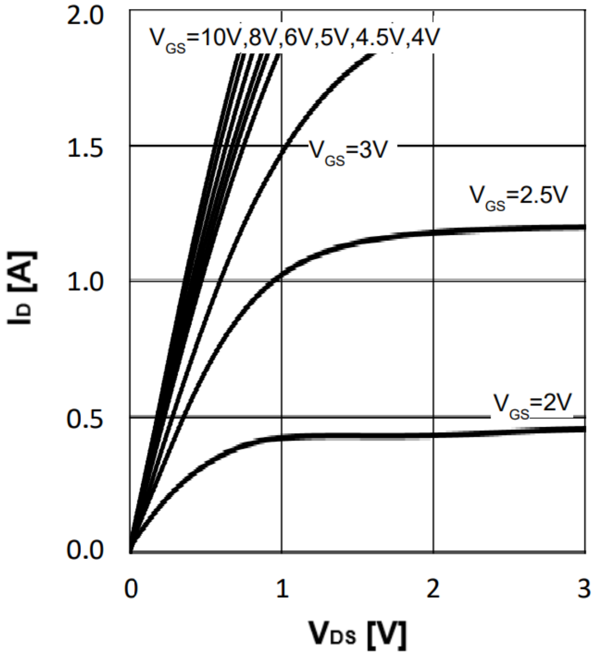


FIG.1 Output Characteristics

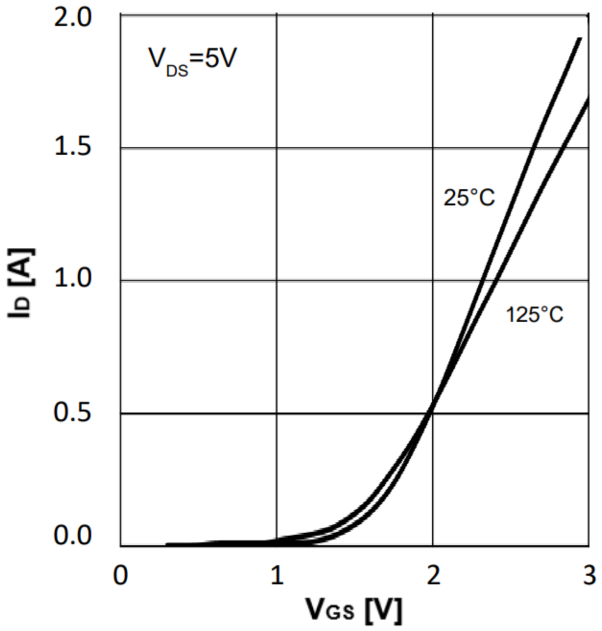


FIG.2 Transfer Characteristics

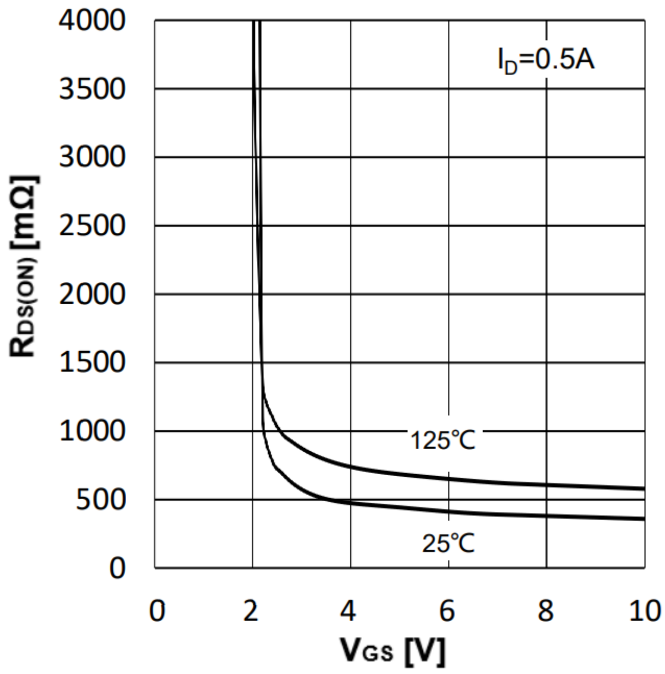


FIG.3 On-Resistance vs. Gate Voltage

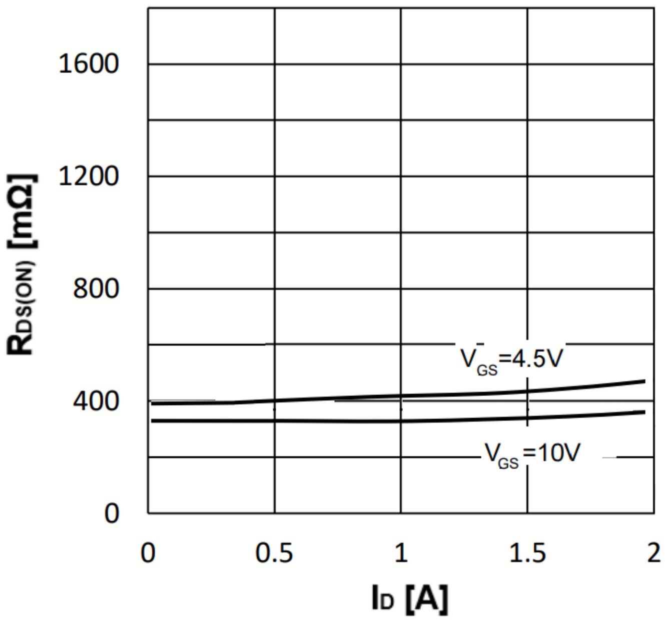


FIG.4 On-Resistance vs. Drain Current

Typical Performance Characteristics

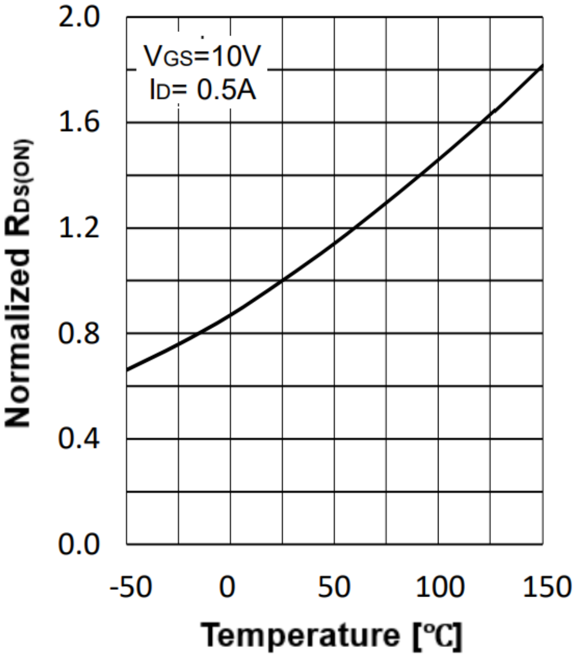


FIG.5 On-Resistance vs. T_J

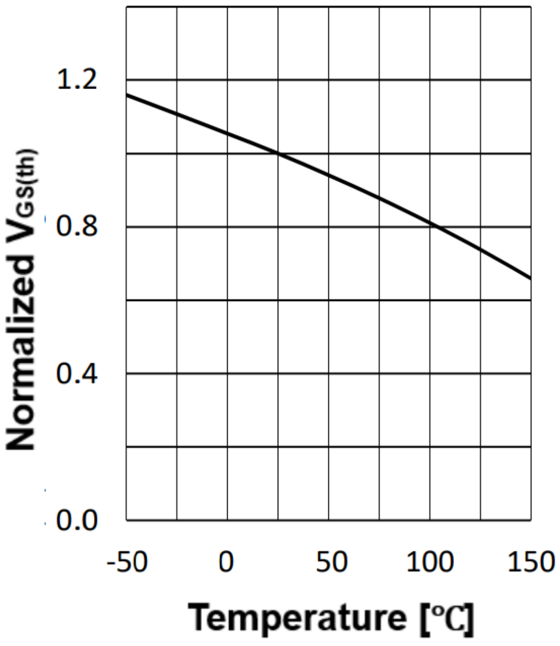


FIG.6 $V_{GS(th)}$ vs. T_J

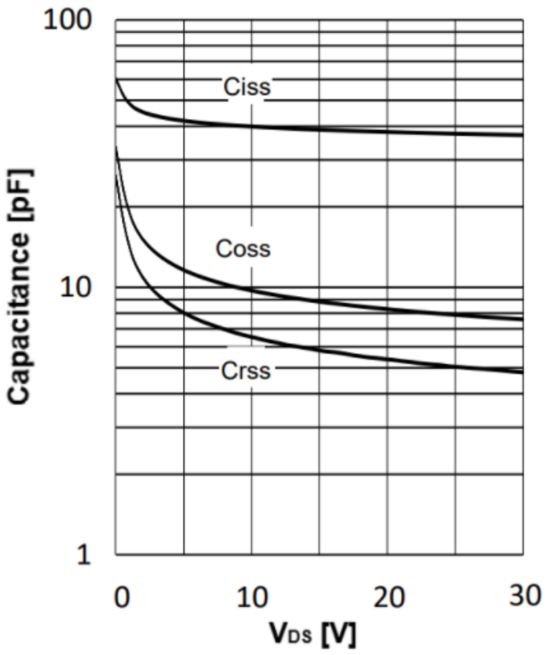


FIG.7 Capacitance Characteristics

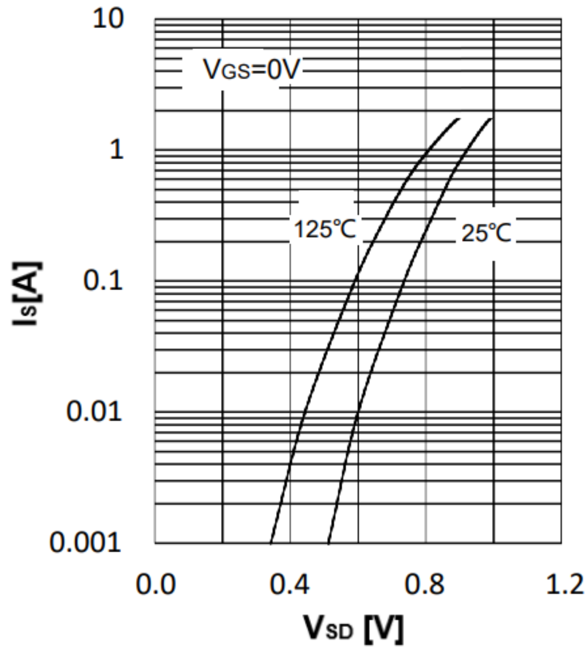
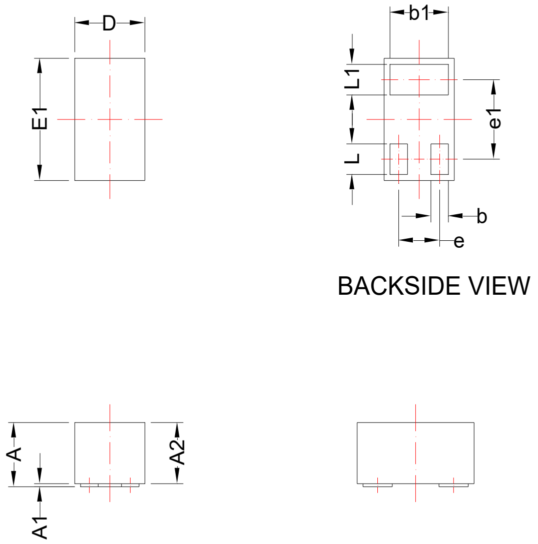


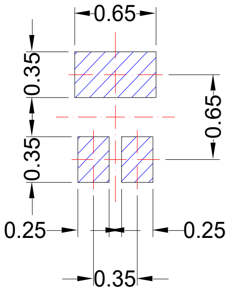
FIG.8 Body-Diode Characteristics

DFN1006-3L

Package Dimension



Recommended Land Pattern



Unit: mm

Dimensions				
Symbol	**Millimeters**		**Inches**	
	MIN	**MAX**	**MIN**	**MAX**
A	0.45	0.60	0.018	0.024
A1	0.00	0.05	0.000	0.002
A2	0.40	0.60	0.016	0.024
b	0.10	0.20	0.004	0.008
b1	0.45	0.55	0.018	0.022
D	0.55	0.65	0.022	0.026
E1	0.95	1.05	0.037	0.041
e	0.35 BSC		0.014 BSC	
e1	0.65 BSC		0.026 BSC	
L	0.20	0.30	0.008	0.012
L1	0.20	0.30	0.008	0.012

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

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