GSM1618JXF

100V 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.

The device is well suited for high efficiency fast switching applications.

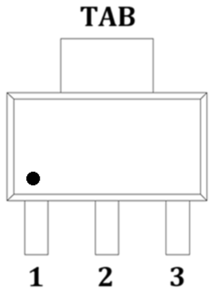
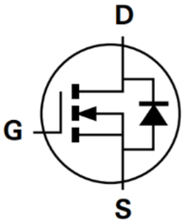
Features

- $R_{DS(ON)}$ = 186mΩ @ V_{GS}=10V
- $R_{DS(ON)}$ = 196mΩ @ V_{GS}=4.5V
- SOT-223 Package
- RoHS Compliant and Halogen Free

Applications

- MB / VGA / Vcore
- POL Applications
- SMPS

Packages & Pin Assignments

<table>
<tr><th colspan="3">SOT-223</th><th colspan="3">Equivalent Circuit</th></tr>
<tr><td colspan="3">
</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>2</td><td>D</td><td>Drain</td></tr>
<tr><td>3</td><td>S</td><td>Source</td><td>TAB</td><td>D</td><td>Drain</td></tr>
</table>

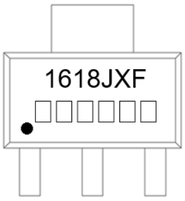
Ordering and Marking Information

Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSM1618JXF	SOT-223	1618JXF □□□□□□	2,500 PCS

GSM1618 **1** **2**

- **Product Code:**
  GSM1618
- **Package Code:**
  1 is **JX** for SOT-223
- **Green Level:**
  2 is **F** for RoHS Compliant and Halogen Free

Marking Information



- **Product Code:**
  1618JXF
- **GS Code:**
  □□□□□□

●The dot indicates pin1

Absolute Maximum Ratings (T_A = 25ºC unless otherwise specified)

Symbol	Parameter		Value	Unit
V_{DSS}	Drain-Source Voltage		100	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_A=25ºC	2	A
		T_A=70ºC	1.6	
I_{DM}	Pulsed Drain Current [1]		8	A
P_D	Power Dissipation	T_A=25ºC	1.78	W
		T_A=70ºC	1.14	
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient [2]		70	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	100	-	-	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=100V, V_{GS}=0V	-	-	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1.2	-	2.5	V
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS}=10V, I_D=2A	-	160	186	mΩ
		V_{GS}=4.5V, I_D=1A	-	168	196	
gfs	Forward Transconductance	V_{DS}=5V, I_D=1A	-	3	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=50V, V_{GS}=0V, f=1MHz	-	820	1190	pF
C_{oss}	Output Capacitance		-	35	-	
C_{rss}	Reverse Transfer Capacitance		-	20	-	
Q_g	Total Gate Charge	V_{DS}=50V, I_D=2A V_{GS}=10V	-	13.4	21	nC
Q_{gs}	Gate-Source Charge		-	2.9	-	
Q_{gd}	Gate-Drain Charge		-	1.7	-	
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=30V, I_D=1A V_{GS}=10V, R_g=3.3Ω	-	1.6	-	ns
t_r	Turn-On Rise Time		-	6.6	-	
$t_{d(off)}$	Turn-Off Delay Time		-	11.5	-	
t_f	Turn-Off Fall Time		-	3.6	-	
Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_S=1A	-	-	1	V

Typical Performance Characteristics

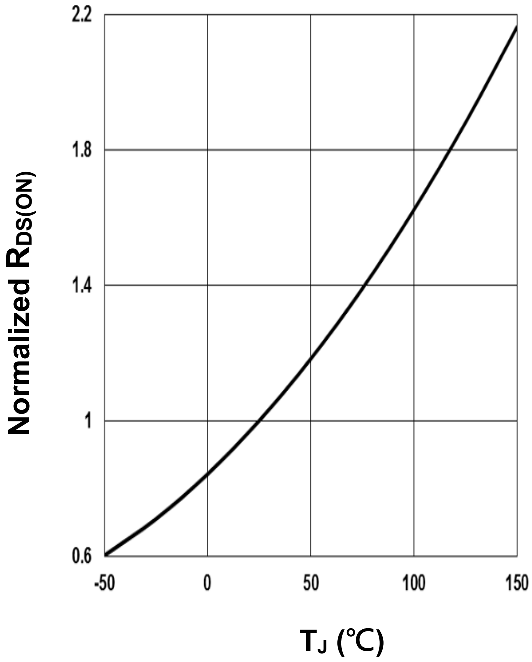


FIG.1 Normalized On-Resistance vs. T_J

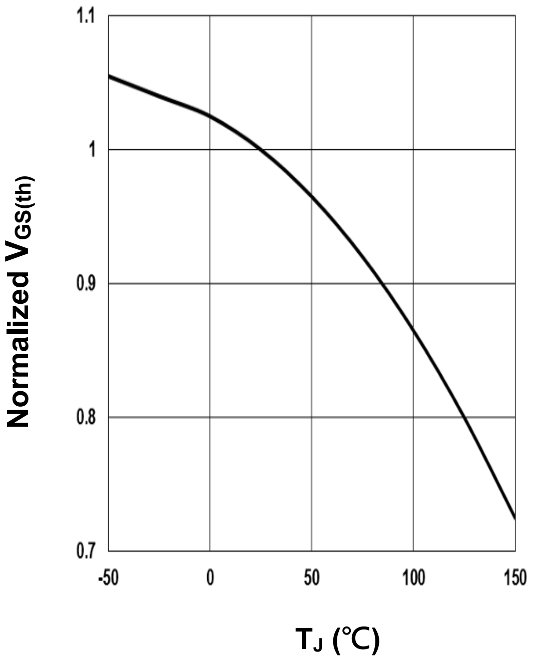


FIG.1 Normalized $V_{GS(th)}$ vs. T_J

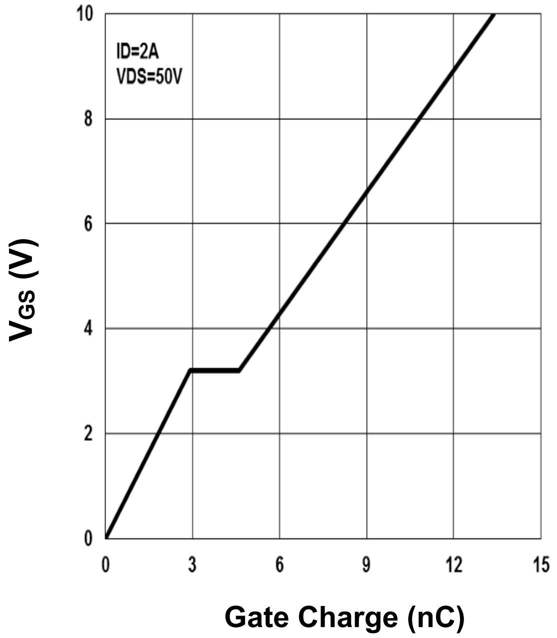


FIG.3 Gate Charge Characteristics

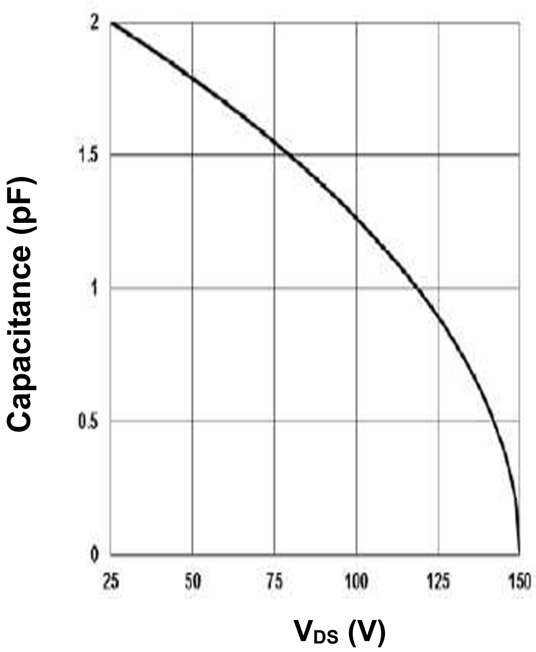


FIG.4 I_D vs. T_J

Typical Performance Characteristics

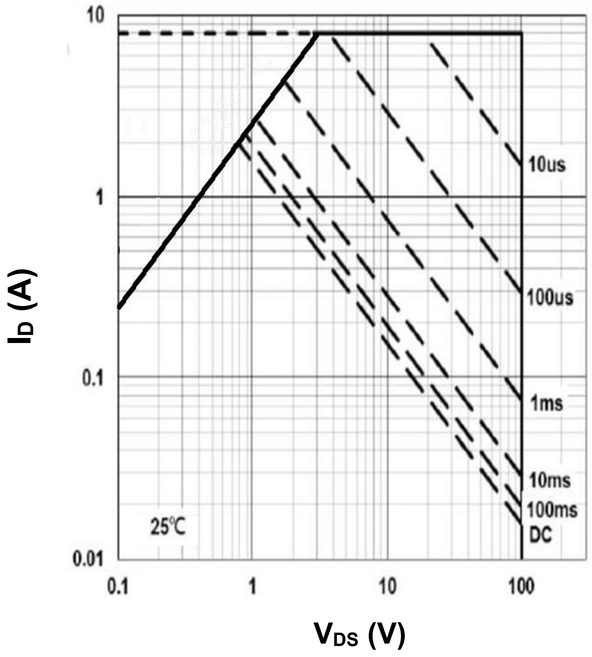


FIG.5 Maximum Safe Operation Area

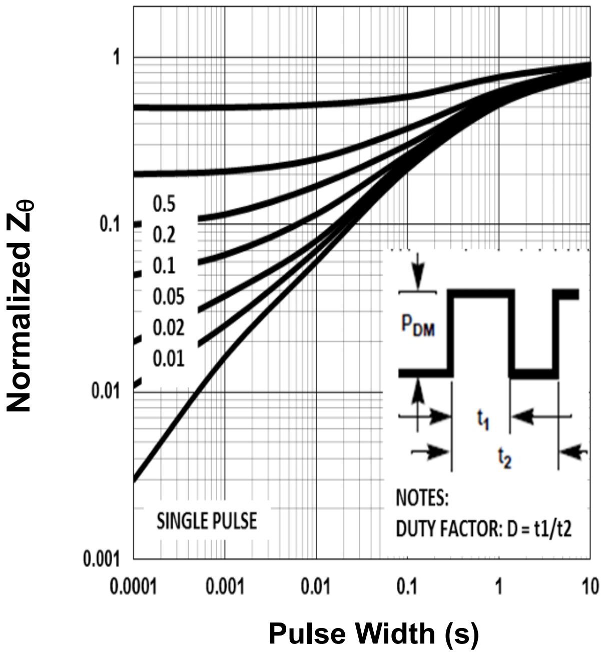
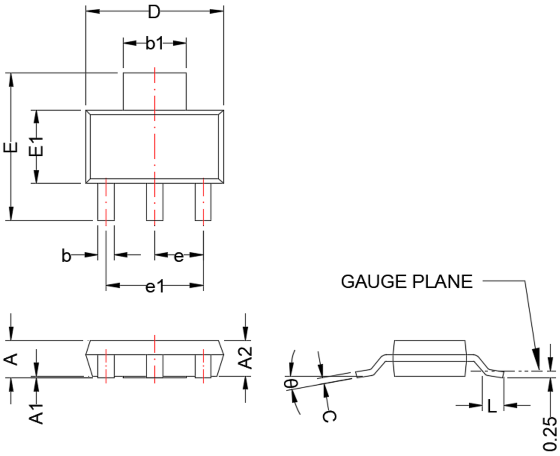


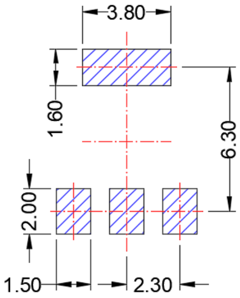
FIG.6 Normalized Transient Impedance

SOT-223

Package Dimension



Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	**Millimeters**		**Inches**	
	Min	**Max**	**Min**	**Max**
A	1.50	1.80	0.059	0.071
A1	0.00	0.12	0.000	0.005
A2	1.45	1.75	0.057	0.069
b	0.60	0.84	0.024	0.033
b1	2.90	3.10	0.114	0.122
c	0.23	0.35	0.009	0.014
D	6.20	6.70	0.244	0.264
E	6.70	7.30	0.264	0.287
E1	3.30	3.70	0.130	0.146
e	2.30 BSC		0.091 BSC	
e1	4.60 BSC		0.181 BSC	
L	0.75	---	0.030	---
θ	0°	10°	0°	10°

NOTE:

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

NOTICE

- Globaltech Semiconductor assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all Globaltech Semiconductor products described or contained herein. Globaltech Semiconductor products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner.

- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Globaltech Semiconductor makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

- Information furnished is believed to be accurate and reliable. However Globaltech Semiconductor assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties, which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Globaltech Semiconductor. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information without express written approval of Globaltech Semiconductor.

CONTACT US

	GS Headquarter
🏢	4F, NO.43-1, Lane 11, Sec. 6, Minquan E. Rd Neihu District, Taipei City 114761, Taiwan (R.O.C).
☎	886-2-2657-9980
📠	886-2-2657-3630
✉@	sales_twn@gs-power.com

	RD Division
🏢	824 Bolton Drive Milpitas. CA. 95035
☎	1-408-457-0587

GLOBALTECH SEMICONDUCTOR