GSM3619KA

30V P-Channel MOSFET

Product Description

These P-Channel enhancement mode power field effect transistors are 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.

These devices are well suited for high efficiency fast switching applications.

Features

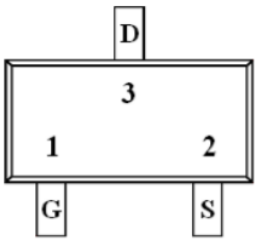
- -30V,-0.55A, RDS(ON) =1Ω@VGS = -4.5V
- Fast switching
- Green Device Available
- Suit for -2.5V Gate Drive Applications

Applications

- Notebook
- Load Switch
- Battery Protection
- Hand-held Instruments

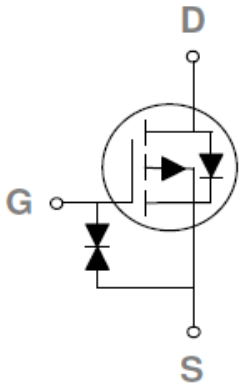
Packages & Pin Assignments

GSM3619KAF (SOT-723)

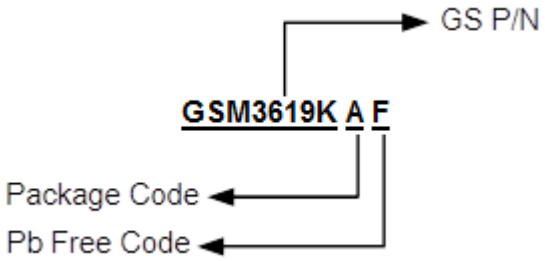


Top View

Pin	Description
1	Gate
2	Source
3	Drain

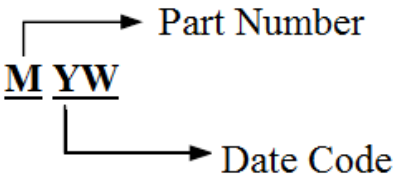


Ordering Information



Part Number	Package	Part Marking	Quantity
GSM3619KAF	SOT-723	MYW	8000pcs

Marking Information



Absolute Maximum Ratings

T_C=25ºC Unless otherwise noted

Symbol	Parameter		Typical	Unit
V_{DS}	Drain-Source Voltage		-30	V
V_{GS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current	T_A=25℃	-0.55	A
		T_A=70℃	-0.44	
I_{DM}	Pulsed Drain Current[1]		-2.28	A
P_D	Power Dissipation		0.45	W
	Power Dissipation-Derate above 25℃		0.004	W/℃
T_J	Operating Junction Temperature Range		-55 to +150	℃
T_{STG}	Storage Temperature Range		-55 to +150	℃
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		280	℃/W

Note :
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.

Electrical Characteristics

T_J=25℃ Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-30			V
$\triangle V_{(BR)DSS}$ / $\triangle T_J$	$V_{(BR)DSS}$ Temperature Coefficient	Reference to 25℃, I_D=-1mA		-0.015		V/℃
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-0.5	-0.7	-1.2	V
$\triangle V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient			-1.78		mV/℃
I_{GSS}	Gate-Source Leakage Current	V_{DS}=0V, V_{GS}=±12V			±40	nA
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-30V, V_{GS}=0V			-1	uA
		V_{DS}=-24V, V_{GS}=0V T_J=125℃			-10	
I_S	Continuous Source Current	V_G=V_D=0V, Force Current			-0.55	A
I_{SM}	Pulsed Source Current				-1.1	A
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS} =-4.5V, I_D=-0.3A		780	1000	mΩ
		V_{GS} =-2.5V, I_D=-0.2A		1160	1600	
g_{FS}	Forward Transconductance	V_{DS}=-4V, I_D=-0.3A		0.8		S
V_{SD}	Diode Forward Voltage	I_S=-0.3A, V_{GS}=0V			-1	V

Electrical Characteristics (Continue)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Dynamic						
Q_g	Total Gate Charge[2,3]	V_{DS}=-15V, V_{GS}=-4.5V, I_D=-0.3A	-	3.12	6.2	nC
Q_{gs}	Gate-Source Charge[2,3]		-	1.3	2.6	
Q_{gd}	Gate-Drain Charge[2,3]		-	0.5	1	
C_{iss}	Input Capacitance	V_{DS}=-15V,V_{GS}=0V, f=1MHz	-	73.4	146	pF
C_{oss}	Output Capacitance		-	19.1	38	
C_{rss}	Reverse Transfer Capacitance			12.1	25	
$t_{d(on)}$	Turn-On Time[2,3]	V_{DD}=-15V, I_D=-1A, V_{GS}=-10V, R_G=6Ω		7.4	15	ns
t_r	Rise Time[2,3]			21.5	43	
$t_{d(off)}$	Turn-Off Time[2,3]			46.9	92	
t_f	Fall Time[2,3]			14.4	29	

Note :

2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
3. Essentially independent of operating temperature.

Typical Performance Characteristics

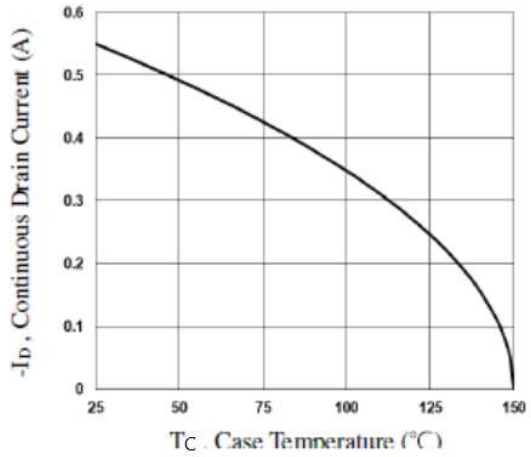


Fig.1 Continuous Drain Current vs. T_C

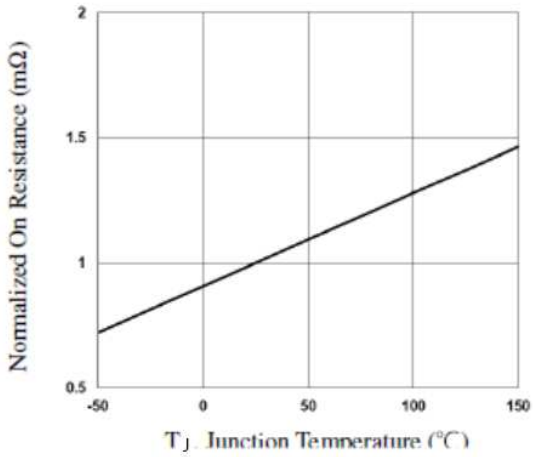


Fig.2 Normalized RDSON vs. T_J

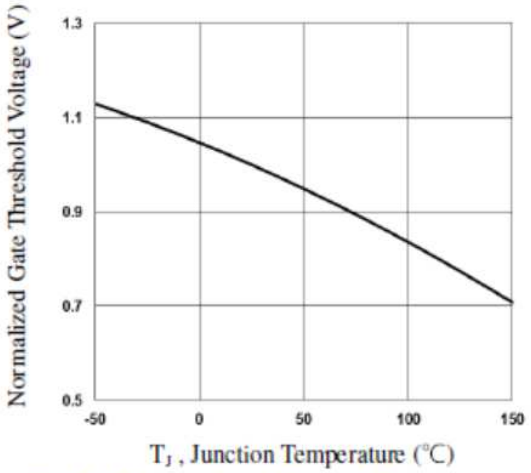


Fig.3 Normalized V_{th} vs. T_J

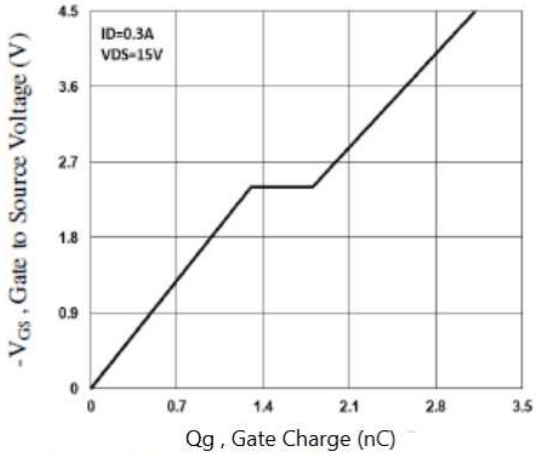


Fig.4 Gate Charge Waveform

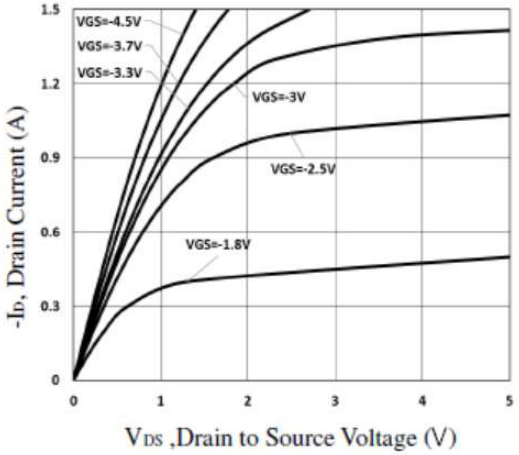


Fig.5 Typical Output Characteristics

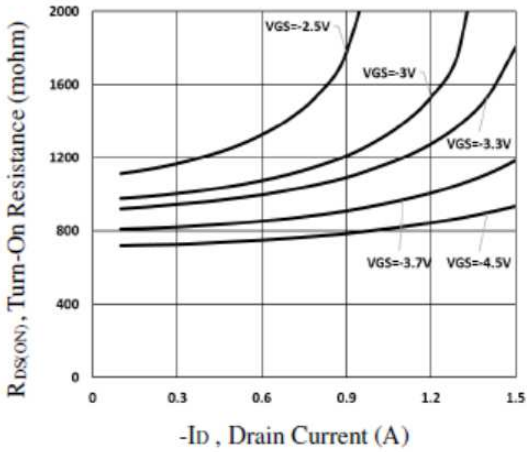


Fig.6 Turn-On Resistance vs. I_D

Typical Performance Characteristics (Continue)

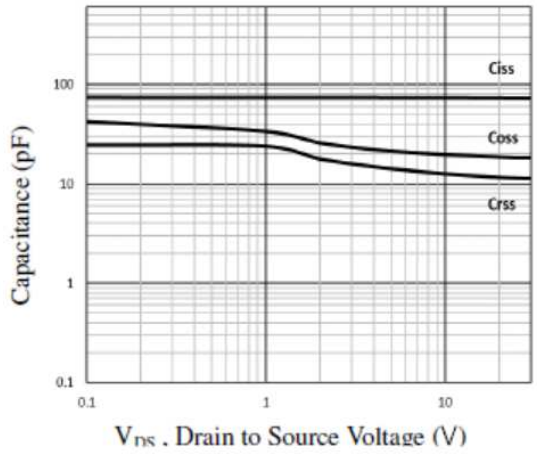


Fig.7 Capacitance Characteristics

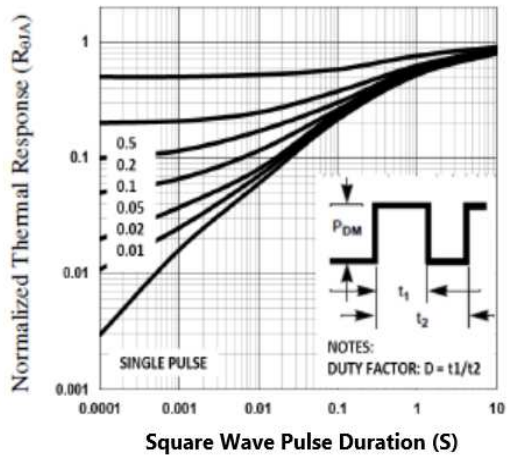


Fig.8 Normalized Transient Impedance

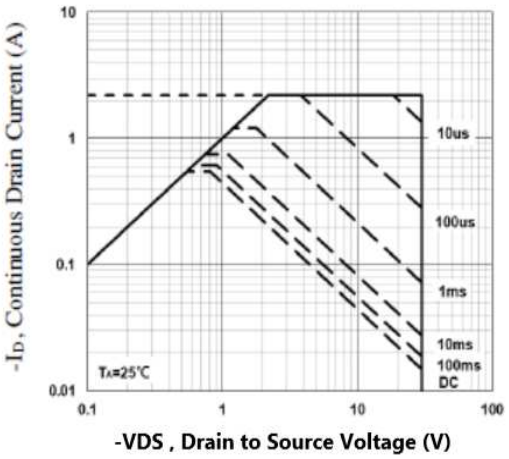


Fig.9 Maximum Safe Operation Area

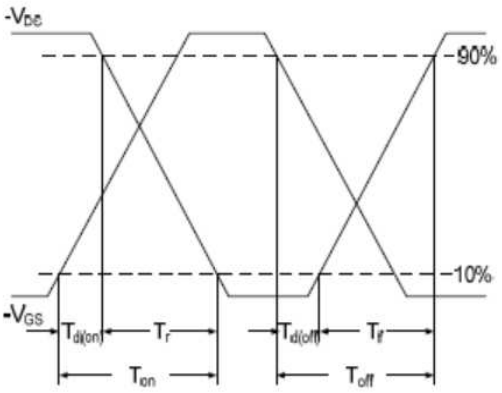


Fig.10 Switching Time Waveform

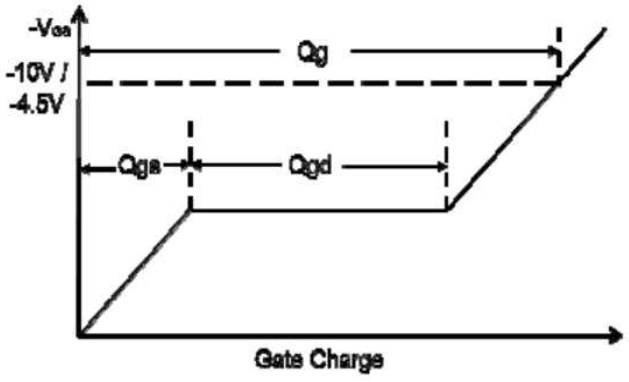
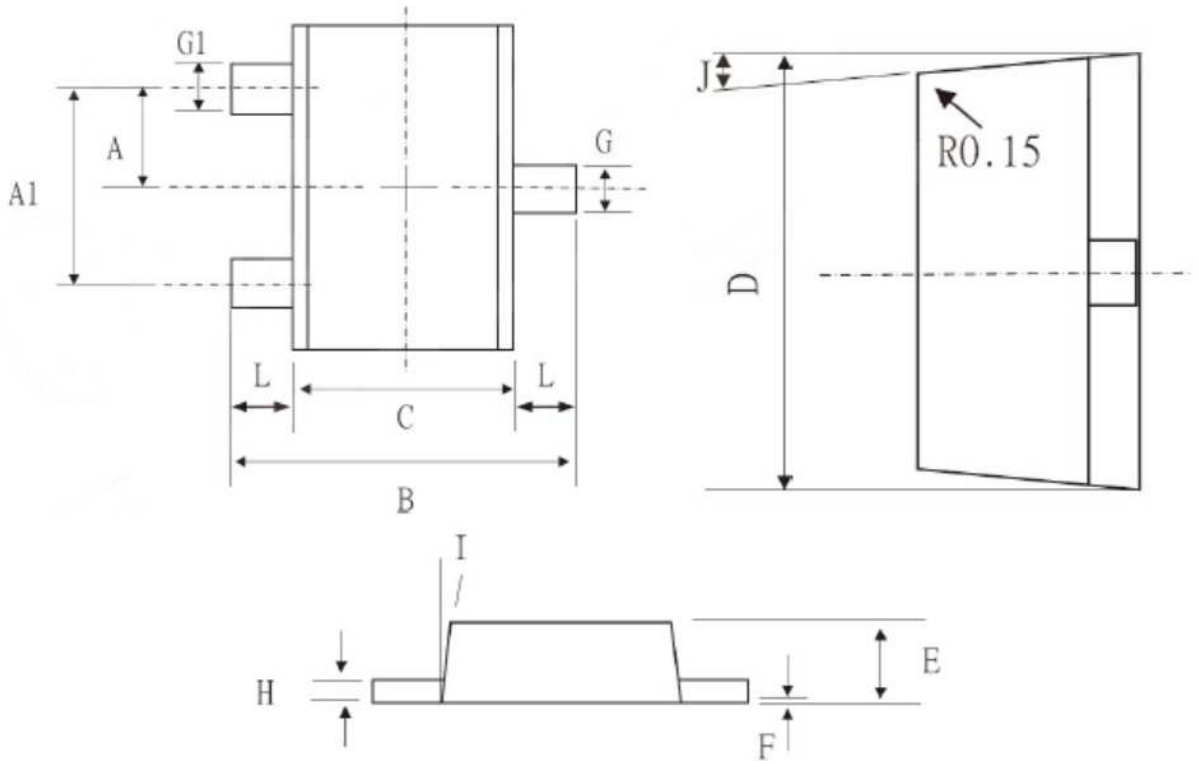


Fig.11 Gate Charge Waveform

Package Dimension

SOT-723



Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.4BSC		0.016BSC	
A1	0.8BSC		0.031BSC	
B	1.250	1.150	0.049	0.045
C	0.850	0.750	0.033	0.030
D	1.250	1.150	0.049	0.045
E	0.390	0.370	0.015	0.015
F	0.050	0.000	0.002	0.000
G	0.270	0.220	0.011	0.009
G1	0.220	0.170	0.009	0.007
H	0.110	0.009	0.004	0.000
I	13°	9°	13°	9°
L	0.250	0.150	0.010	0.006
J	11°	7°	11°	7°

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