

GSM1073KAF

20V P-Channel MOSFET

Product Description

GSM1073KAF, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

This device is 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.

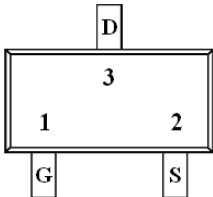
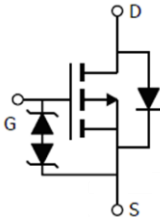
Features

- $R_{DS(ON)}=800m\Omega@V_{GS}=-4.5V$
- $R_{DS(ON)}=1100m\Omega@V_{GS}=-2.5V$
- $R_{DS(ON)}=1800m\Omega@V_{GS}=-1.8V$
- ESD Protection
- SOT-723 Package
- RoHS Compliant and Halogen Free

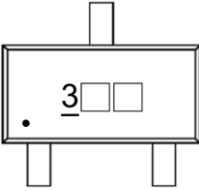
Applications

- Drivers: Relays, Solenoids, Lamps
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Smart Phones, Pagers

Packages & Pin Assignments

SOT-723			Equivalent Circuit		
					
Pin	Symbol	Description	Pin	Symbol	Description
1	G	Gate	3	D	Drain
2	S	Source			

Ordering and Marking Information

Ordering Information			
Part Number	Package	Part Marking	Quantity / Reel
GSM1073KAF	SOT-723	3□□	8,000 PCS
GSM1073K 1 2			
- Product Code: GSM1073K - Package Code: 1 is A for SOT-723 - Green Level: 2 is F for RoHS Compliant and Halogen Free			
Marking Information			
 - Product Code: 3 - GS Code: □□			

Absolute Maximum Ratings (T_A=25°C, unless otherwise specified)

Symbol	Parameter	Value	Unit
V _{DSS}	Drain-Source Voltage	-20	V
V _{GSS}	Gate-Source Voltage	±8	V
I _D	Continuous Drain Current	T _A =25°C	A
		T _A =70°C	
I _{DM}	Pulsed Drain Current ¹	-1.8	A
P _D	Power Dissipation	T _A =25°C	W
		T _A =70°C	
R _{θJA}	Thermal Resistance-Junction to Ambient ²	417	°C/W
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C

NOTE:

- Single pulse width is limited by max junction temperature.
- The device was mounted on 1in² FR-4 board with 2oz.copper.

Electrical Characteristics (T_A=25°C, 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	-20	-	-	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-20V, V _{GS} =0V	-	-	-1	μA
I _{GSS}	Gate-Source Leakage Current	V _{DS} =0V, V _{GS} =±8V	-	-	±10	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-0.3	-	-1	V
R _{DS(ON)}	Drain-Source On-Resistance	V _{GS} =-4.5V, I _D =-0.4A	-	-	800	mΩ
		V _{GS} =-2.5V, I _D =-0.3A	-	-	1100	
		V _{GS} =-1.8V, I _D =-0.1A	-	-	1800	
g _{FS}	Forward Transconductance	V _{DS} =-10V, I _D =-0.25A	-	0.4	-	S
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =-0.15A	-	-0.8	-1.2	V
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V, f=1MHz	-	36	-	pF
C _{oss}	Output Capacitance		-	12	-	
C _{rss}	Reverse Transfer Capacitance		-	6.4	-	
Q _g	Total Gate Charge	V _{DS} =-10V, I _D =-0.4A V _{GS} =-4.5V,	-	1.4	-	nC
Q _{gs}	Gate-Source Charge		-	0.4	-	
Q _{gd}	Gate-Drain Charge		-	0.3	-	
t _{d(on)}	Turn-On Delay Time	V _{DD} =-10V, I _D =-0.4A, V _{GS} =-4.5V, R _G =10Ω	-	5	-	ns
t _r	Turn-On Rise Time		-	15	-	
t _{d(off)}	Turn-Off Delay Time		-	8	-	
t _f	Turn-Off Fall Time		-	14	-	

Typical Performance Characteristics

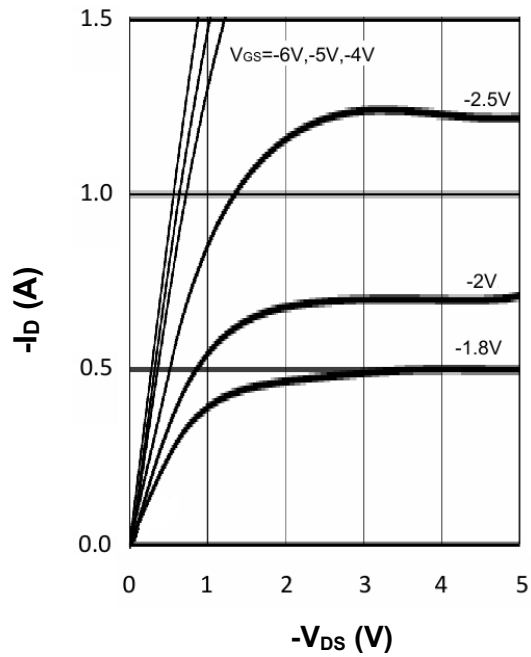


FIG.1 Output Characteristics

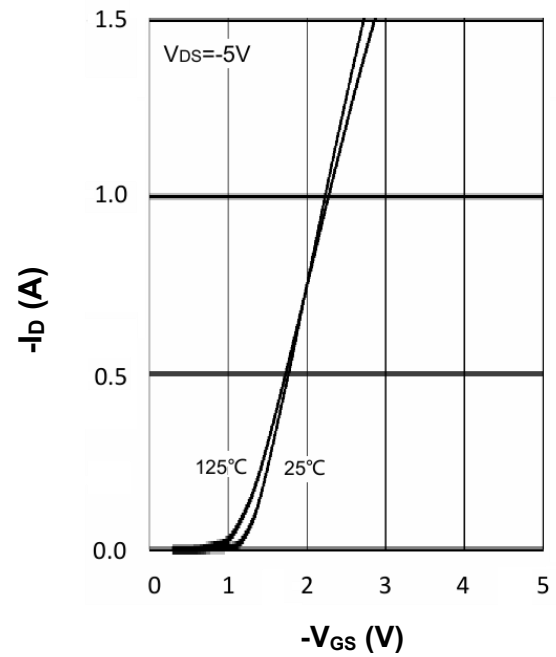


FIG.2 Transfer Characteristics

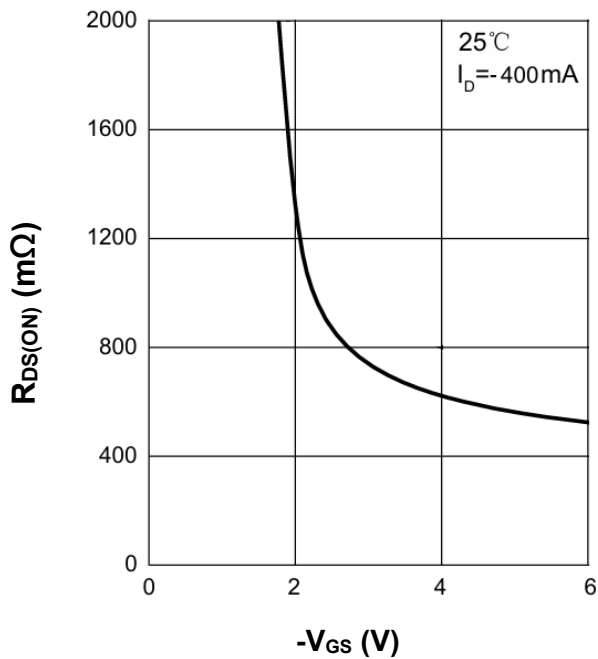


FIG.3 On-Resistance vs. Gate Voltage

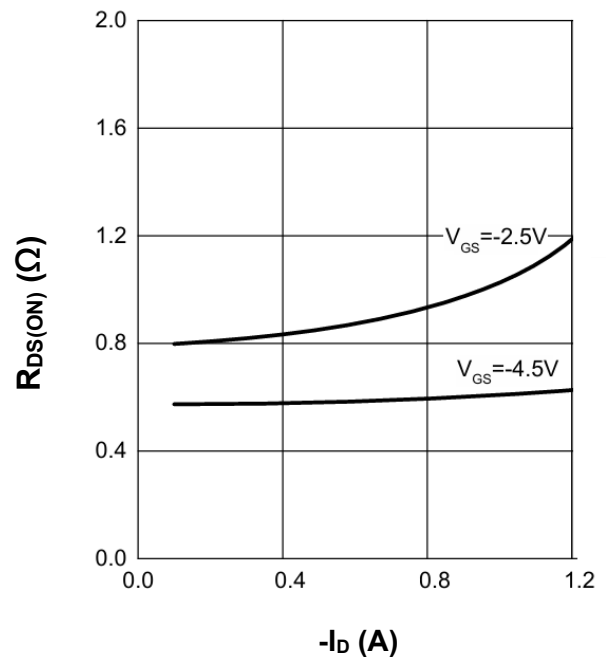


FIG.4 On-Resistance vs. Drain Current

Typical Performance Characteristics

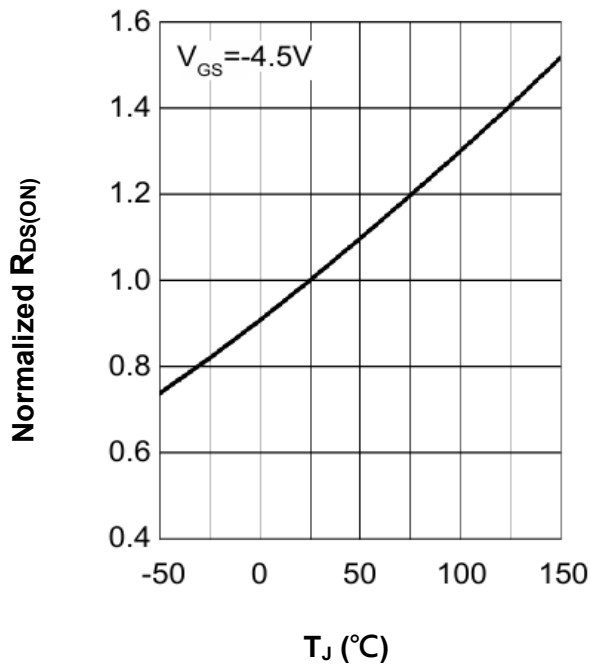


FIG.5 Normalized On-Resistance vs. T_J

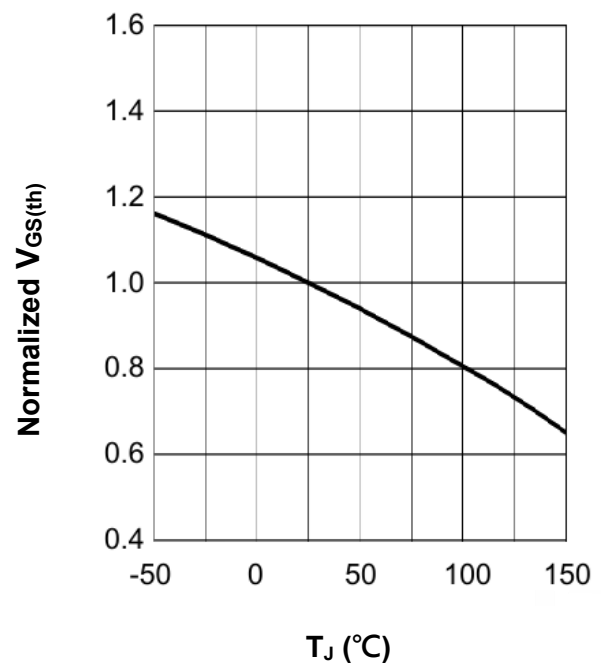


FIG.6 Normalized $V_{GS(th)}$ vs. T_J

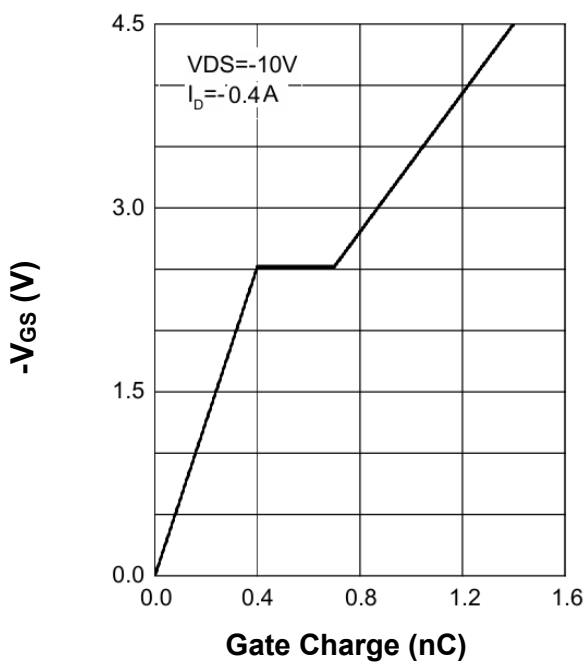


FIG.7 Gate Charge Characteristics

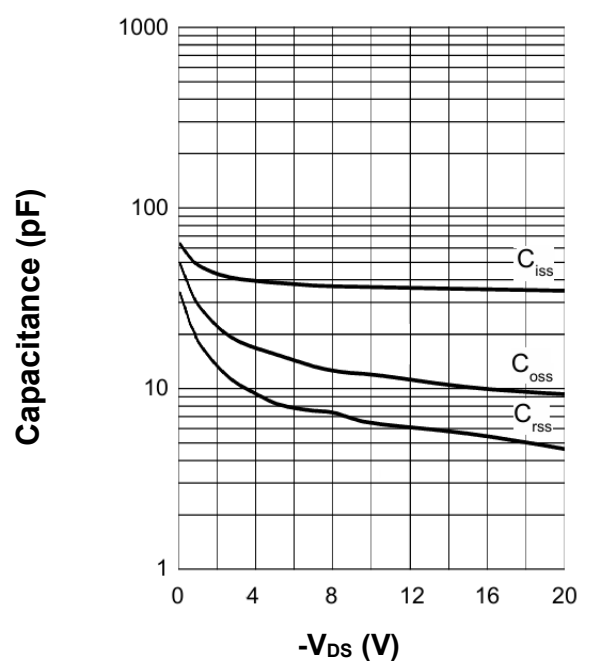


FIG.8 Capacitance Characteristics

Typical Performance Characteristics

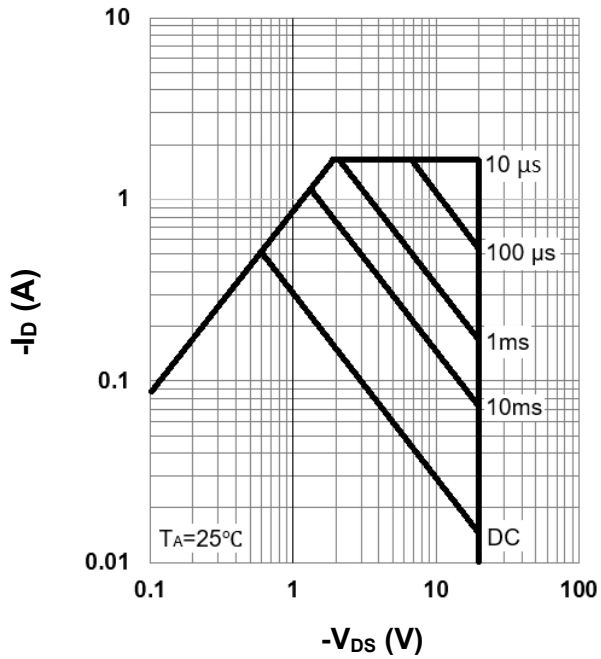


FIG.9 Maximum Safe Operation Area

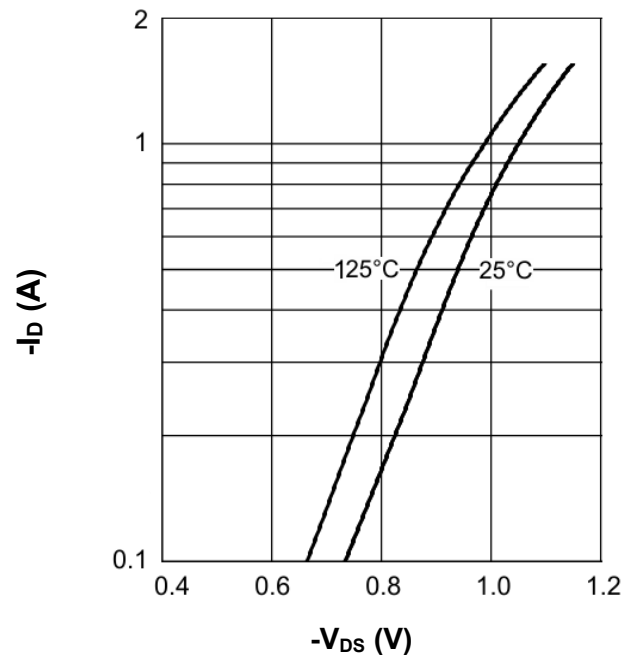


FIG.10 Diode Characteristics

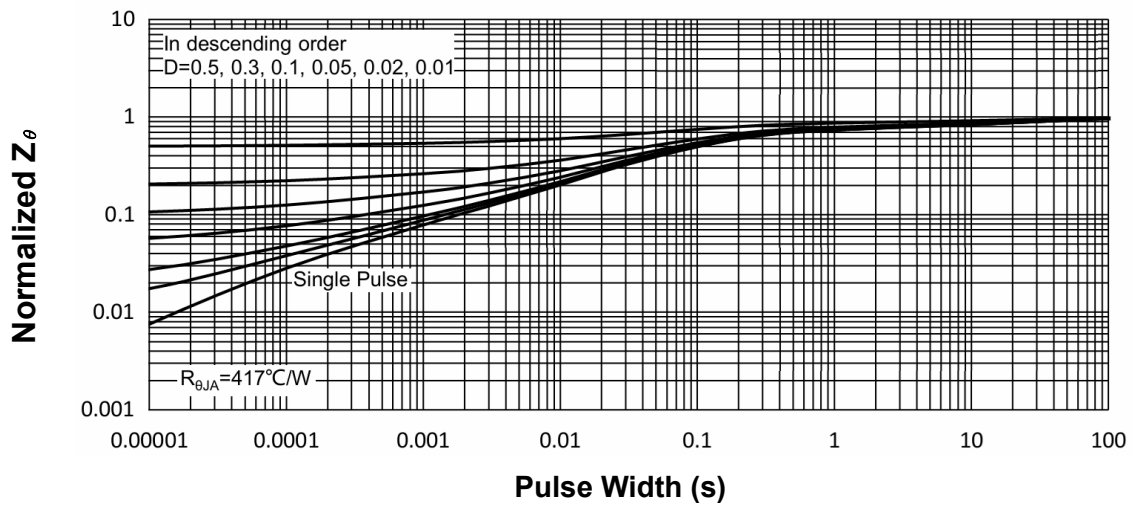
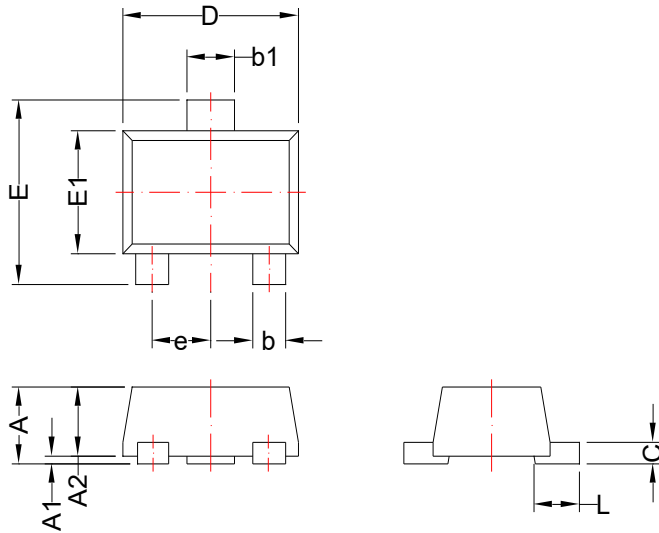


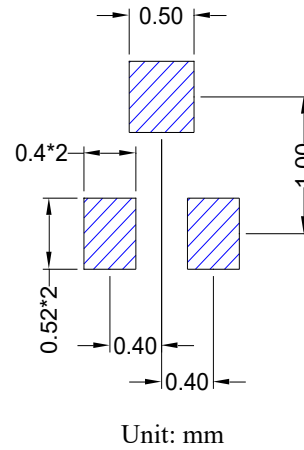
FIG.11 Normalized Transient Impedance

SOT-723

Package Dimension



Recommended Land Pattern



Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.43	0.55	0.017	0.022
A1	0.00	0.10	0.000	0.004
A2	0.43	0.55	0.017	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	0.15	0.42	0.006	0.017

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

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