

# GSM1072KTFF

## 20V N-Channel Enhancement Mode MOSFET

### Product Description

GSM1072KTFF, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent  $R_{DS(ON)}$ , low gate charge.

The 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.

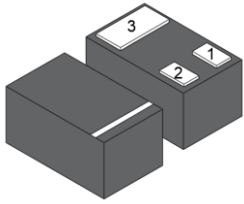
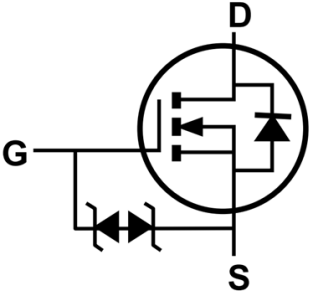
### Features

- $R_{DS(ON)} = 350m\Omega$  @  $V_{GS} = 4.5V$
- $R_{DS(ON)} = 450m\Omega$  @  $V_{GS} = 2.5V$
- $R_{DS(ON)} = 700m\Omega$  @  $V_{GS} = 1.8V$
- $R_{DS(ON)} = 1200m\Omega$  @  $V_{GS} = 1.5V$
- ESD Protected
- DFN1006-3L Package
- RoHS Compliant and Halogen Free

### Applications

- Power Management in Notebook
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

### Packages & Pin Assignments

GSM1072KTFF (DFN1006-3L)		Equivalent Circuit
		
Pin	Description	
1	Gate	
2	Source	
3	Drain	

## Ordering & Marking Information

Ordering Information			
Part Number	Package	Part Marking	Quantity / Reel
GSM1072KTFF	DFN1006-3L	2□□□	10,000 PCS
<b>GSM1072K</b> <span style="border: 1px solid black; padding: 0 2px;">1</span> <span style="border: 1px solid black; padding: 0 2px;">1</span> <span style="border: 1px solid black; padding: 0 2px;">2</span>			
<div> <div>- <b>Product Code:</b> GSM1072K</div> <div>- <b>Package Code:</b> <span style="border: 1px solid black; padding: 0 2px;">1</span><span style="border: 1px solid black; padding: 0 2px;">1</span> is <b>TF</b> for DFN1006-3L</div> <div>- <b>Green Level:</b> <span style="border: 1px solid black; padding: 0 2px;">2</span> is <b>F</b> for RoHS Compliant and Halogen Free</div> </div>			
Marking Information			
<div> <div> <div style="border: 1px solid black; padding: 2px;">2□□□</div> </div> <div> <div>- <b>Product Code:</b> 2</div> <div>- <b>GS Code:</b> □□□</div> </div> </div>			

## Absolute Maximum Ratings (T<sub>A</sub>=25°C, unless otherwise specified)

Symbol	Parameter	Value	Unit
V <sub>DSS</sub>	Drain-Source Voltage	20	V
V <sub>GSS</sub>	Gate-Source Voltage	±10	V
I <sub>D</sub>	Continuous Drain Current <sup>(1)</sup>	0.75	A
I <sub>DM</sub>	Pulsed Drain Current <sup>(1)</sup>	3	A
P <sub>D</sub>	Power Dissipation <sup>(1)</sup>	0.35	W
T <sub>J</sub>	Operating Junction Temperature Range	-55 to +150	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to +150	°C

### NOTE:

1. Mounted on a 1 inch<sup>2</sup> with 2oz.square pad of copper.

## Electrical Characteristics (T<sub>A</sub>=25°C, unless otherwise specified)

Static characteristics						
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	20	-	-	V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.3	-	1	V
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±10V	-	-	±10	μA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V	-	-	1	μA
		V <sub>DS</sub> =20V, V <sub>GS</sub> =0V T <sub>J</sub> =85°C	-	-	30	
R <sub>DS(ON)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.5A	-	210	350	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =0.4A	-	300	450	
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =0.2A	-	420	700	
		V <sub>GS</sub> =1.5V, I <sub>D</sub> =0.1A	-	600	1200	
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =10V, I <sub>D</sub> =0.4A	-	1.0	-	S
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =0.15A, V <sub>GS</sub> =0V	-	0.8	1.2	V
Dynamic characteristics						
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.25A	-	0.73	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	0.93	-	
Q <sub>gd</sub>	Gate-Drain Charge		-	0.12	-	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =16V, V <sub>GS</sub> =0V f=1MHz	-	60.7	-	pF
C <sub>oss</sub>	Output Capacitance		-	9.7	-	
C <sub>rss</sub>	Reverse Transfer Capacitance		-	5.4	-	
t <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DD</sub> =10V, R <sub>L</sub> =47Ω, I <sub>D</sub> =0.2A, V <sub>GS</sub> =4.5V, R <sub>G</sub> =10Ω	-	5.1	-	ns
t <sub>r</sub>	Turn-On Rise Time		-	7.4	-	
t <sub>d(off)</sub>	Turn-Off Delay Time		-	26.7	-	
t <sub>f</sub>	Turn-Off Fall Time		-	12.3	-	

## Typical Performance Characteristics

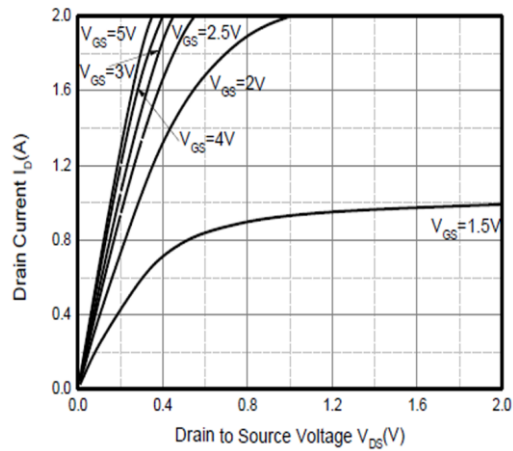


Fig. 1 Typical Output Characteristics

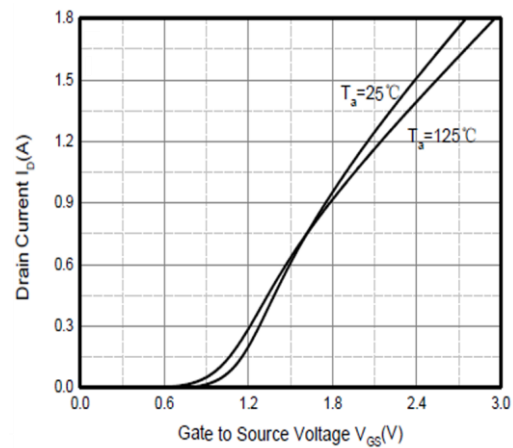


Fig. 2 Typical Transfer Characteristics

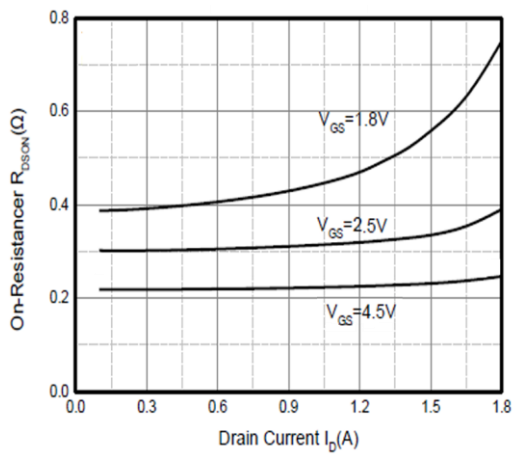


Fig. 3 Typical On-Resistance vs.  $I_D$

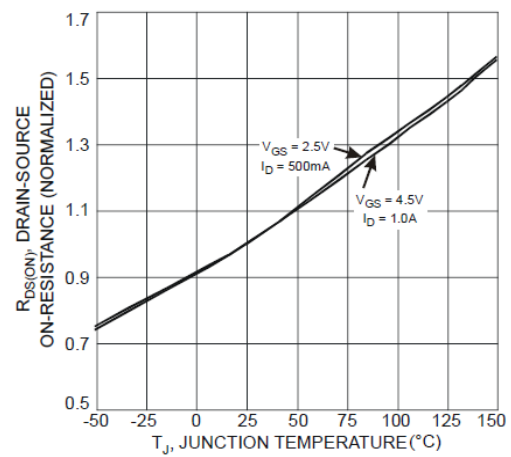


Fig. 4 On-Resistance Variation with  $T_J$

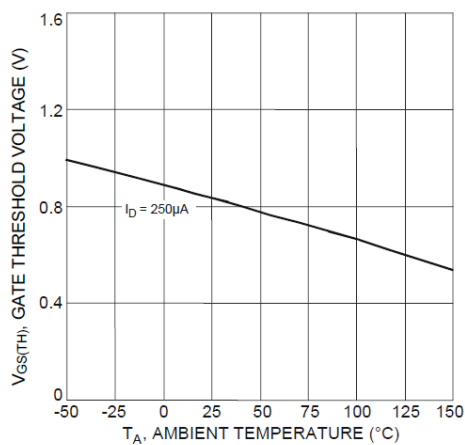


Fig. 5 Gate Threshold Variation vs.  $T_A$

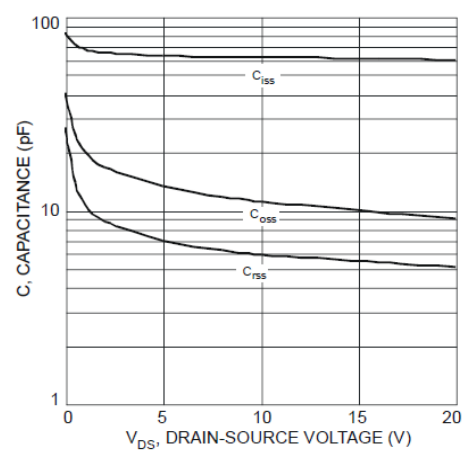
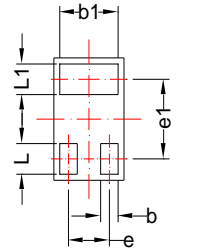
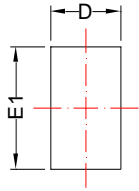


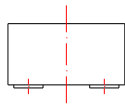
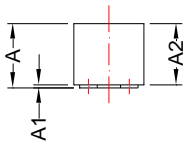
Fig. 6 Typical Capacitance

# DFN1006-3L

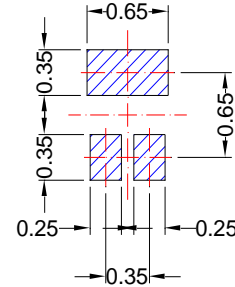
## Package Dimension



BACKSIDE VIEW



## Recommended Land Pattern



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 & Tie Bar extrusions.

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