

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.

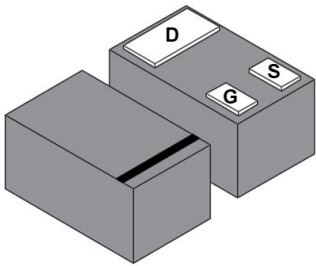
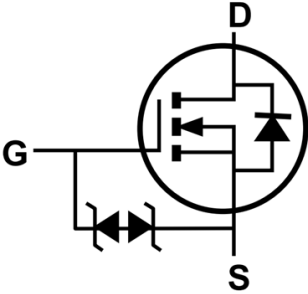
Features

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

Applications

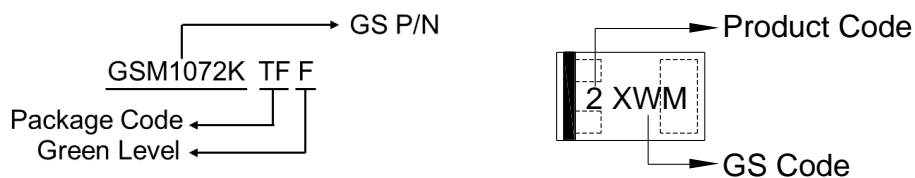
- Power Management in Notebook
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

Packages & Pin Assignments

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

Ordering & Marking Information

Part Number	Package	Part Marking	Quantity / Reel
GSM1072KTFF	DFN1006-3L	2□□□	10,000 PCS



- Package Code
TF : DFN1006-3L
- Green Level
F : RoHS and Halogen Free

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	±10	V
I _D	Continuous Drain Current	0.75	A
I _{DM}	Pulsed Drain Current	3	A
I _S	Continuous Source Current	0.3	A
P _D	Total Power Dissipation	0.35	W
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C

Electrical Characteristics

T_A=25°C, unless otherwise specified

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

Typical Performance Characteristics

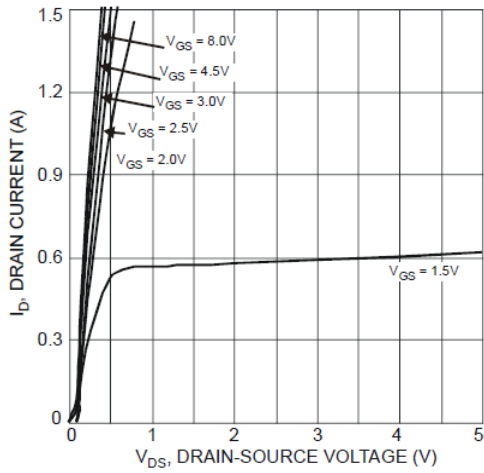


Fig. 1 Typical Output Characteristics

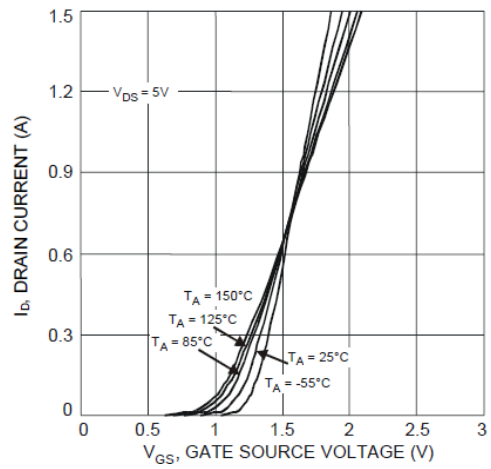


Fig. 2 Typical Transfer Characteristics

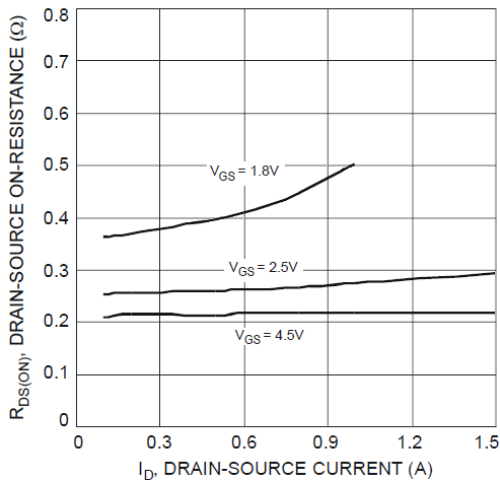


Fig. 3 Typical On-Resistance vs. I_D and V_{GS}

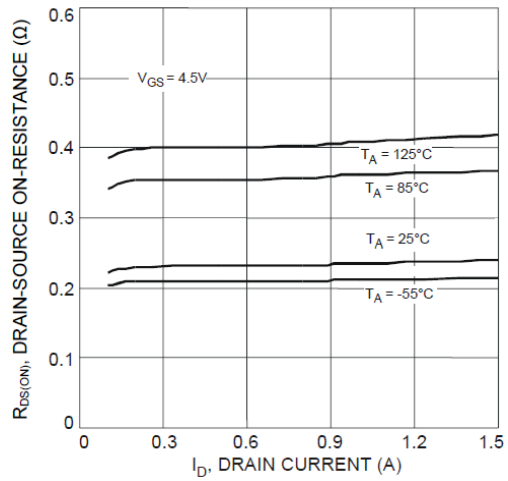


Fig. 4 Typical On-Resistance vs. I_D and T_J

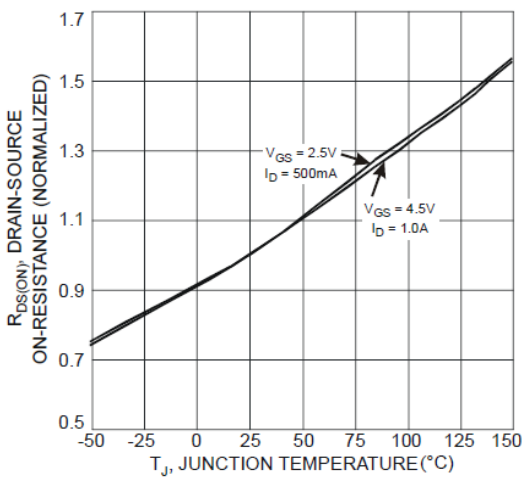


Fig. 5 On-Resistance Variation with T_J

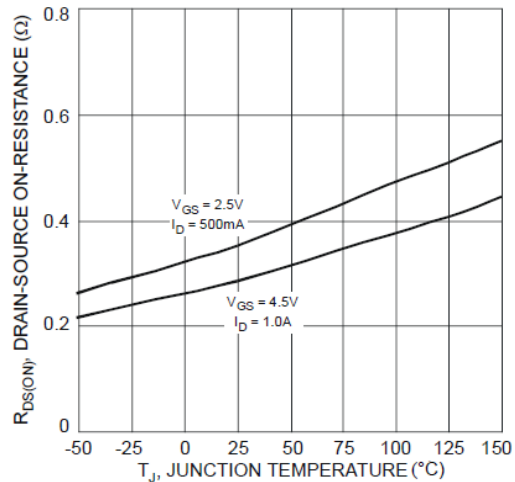


Fig. 6 On-Resistance Variation with T_J

Typical Performance Characteristics

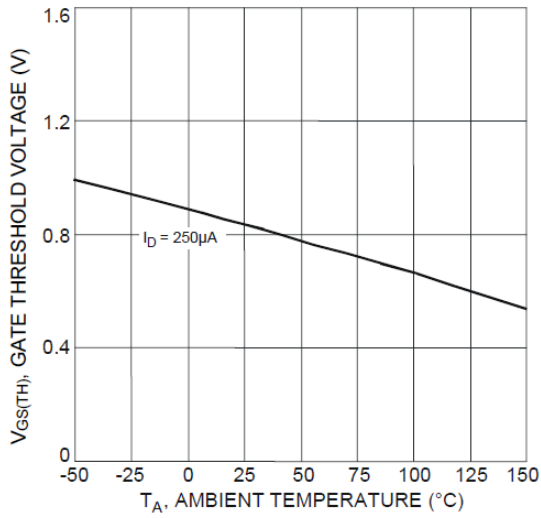


Fig. 7 Gate Threshold Variation vs. T_A

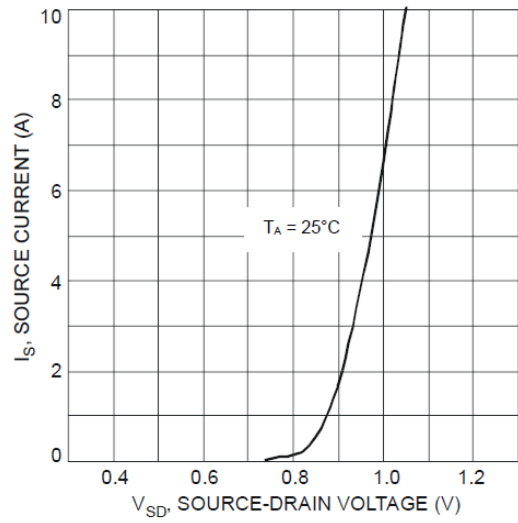


Fig. 8 Diode Forward Voltage vs. Current

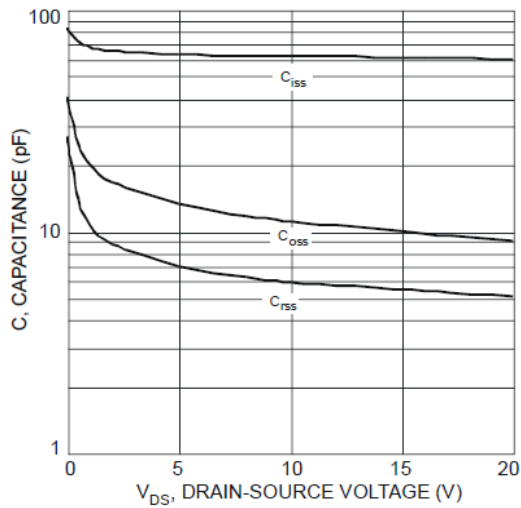


Fig. 9 Typical Capacitance

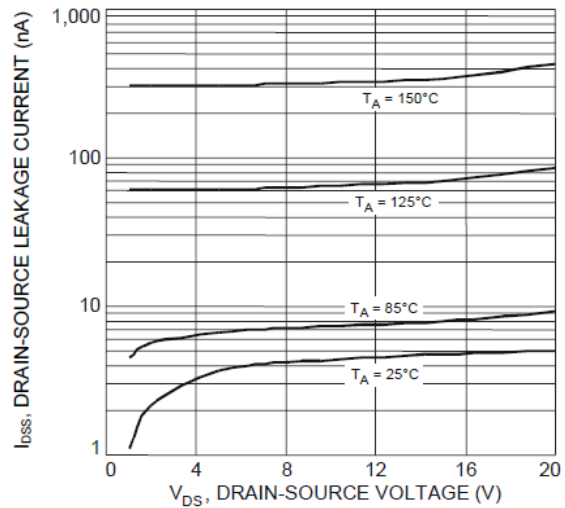


Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

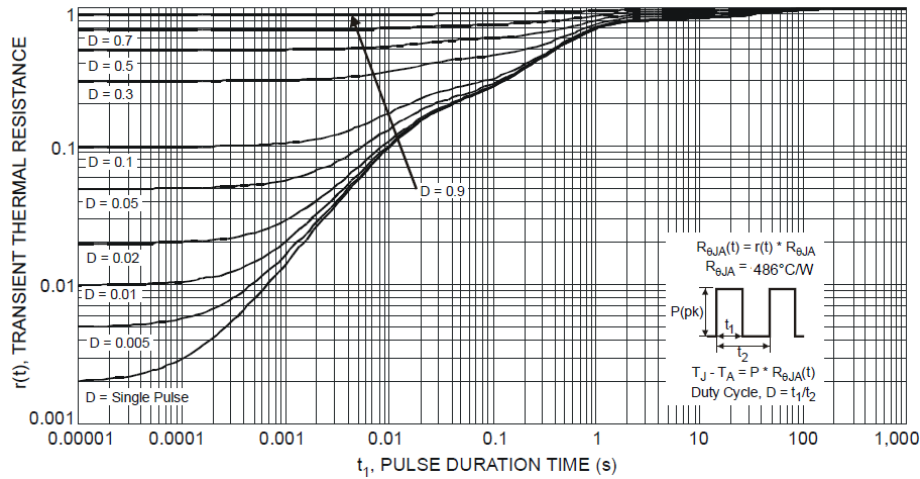
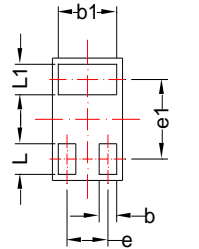
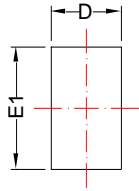


Fig. 11 Transient Thermal Response

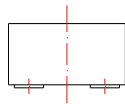
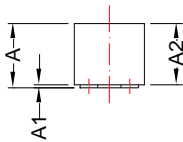
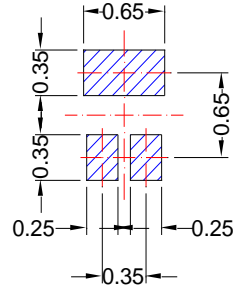
DFN1006-3L

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:



DIMENSION D AND E1 DO NOT INCLUDE MOLD FLASH, TIE BAR BURRS, GATE BURRS, AND INTERLEAD FLASH, NOT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY.

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