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.

These devices are 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

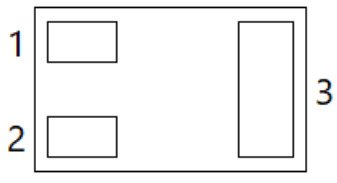
- 20V/0.5A, $R_{DS(ON)}$=300mΩ@V_{GS}=4.5V
- 20V/0.4A, $R_{DS(ON)}$=450mΩ@V_{GS}=2.5V
- 20V/0.65A, $R_{DS(ON)}$=700mΩ@V_{GS}=1.8V
- 20V/0.65A, $R_{DS(ON)}$=1200mΩ@V_{GS}=1.5V
- Low Offset (Error) Voltage
- Low-Voltage Operation
- High-Speed Circuits
- Low Battery Voltage Operation
- ESD Protected
- DFN1006-3L package design

Applications

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

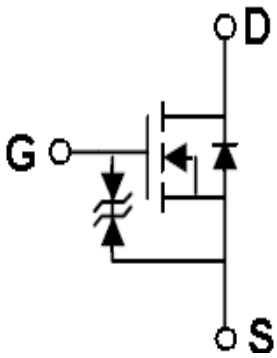
Packages & Pin Assignments

GSM1072KTFF (DFN1006-3L)

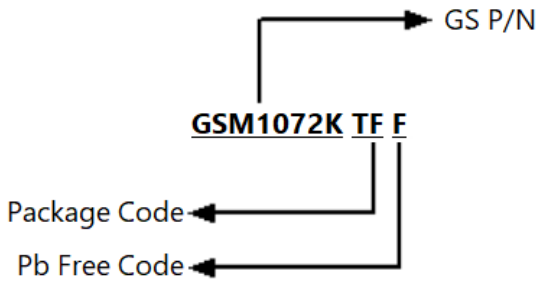


Transparent top view

Pin	Description
1	Gate
2	Source
3	Drain

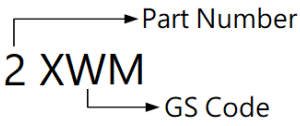


Ordering Information



Part Number	Package	Quantity Reel
GSM1072KTFF	DFN1006-3L	10000 PCS

Marking Information



Absolute Maximum Ratings

(T_A=25ºC unless otherwise noted)

Symbol	Parameter	Typical	Unit
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	±10	V
I_D	Continuous Drain Current(T_J=150℃)	0.95	A
I_{DM}	Pulsed Drain Current	4.0	A
I_S	Continuous Source Current(Diode Conduction)	0.3	A
P_D	Power Dissipation	0.15	W
T_J	Operating Junction Temperature Range	-55 to +150	ºC
T_{STG}	Storage Temperature Range	-55 to +150	ºC

Electrical Characteristics

(T_A=25ºC unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	20			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	0.3	0.8	1.0	
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±10V			30	uA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=16V, V_{GS}=0V			1	uA
		V_{DS}=16V, V_{GS}=0V T_J=55℃			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						
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 Time	V_{DD}=10V, R_L=47Ω, I_D≡0.2A V_{GEN}=4.5V,R_G=10Ω		5.1		ns
t_r				7.4		
$t_{d(off)}$	Turn-Off Time			26.7		
t_f				12.3		

Typical Performance Characteristics

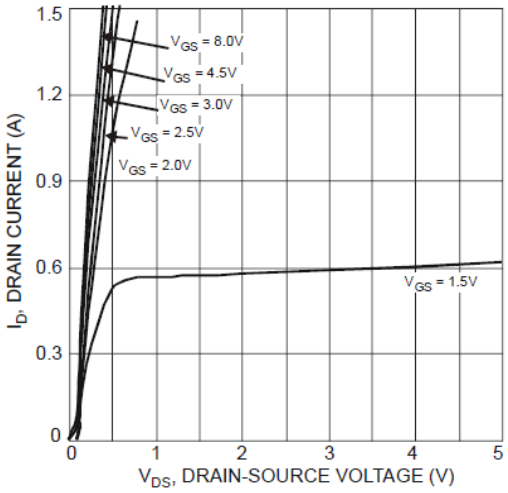


Fig. 1 Typical Output Characteristics

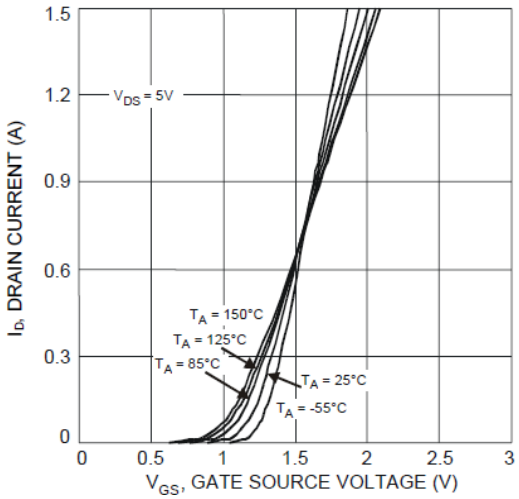


Fig. 2 Typical Transfer Characteristics

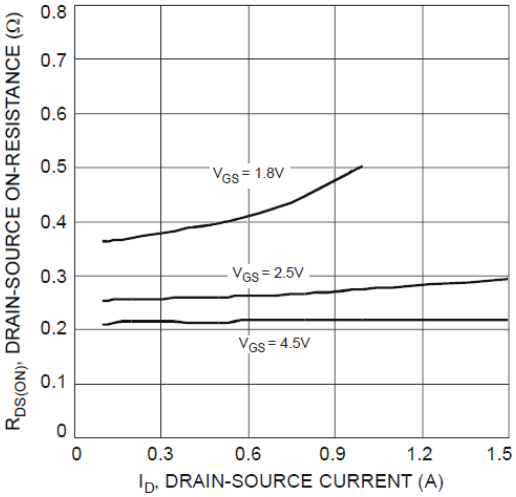


Fig. 3 Typical On-Resistance vs. I_D and V_{GS}

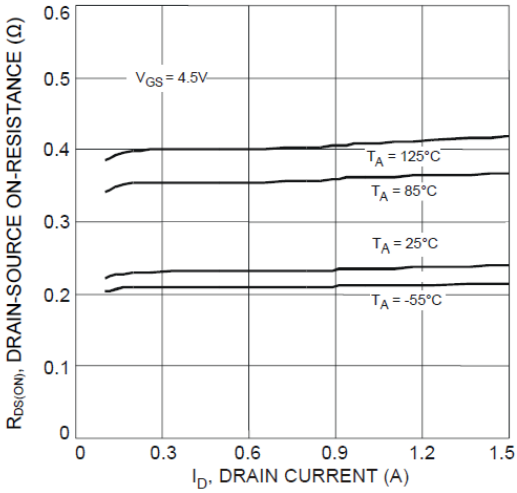


Fig. 4 Typical Drain-Source On-Resistance vs. I_D and T_J

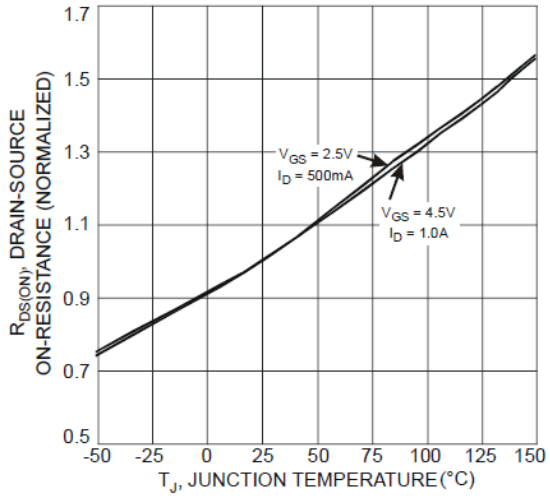


Fig. 5 On-Resistance Variation with T_J

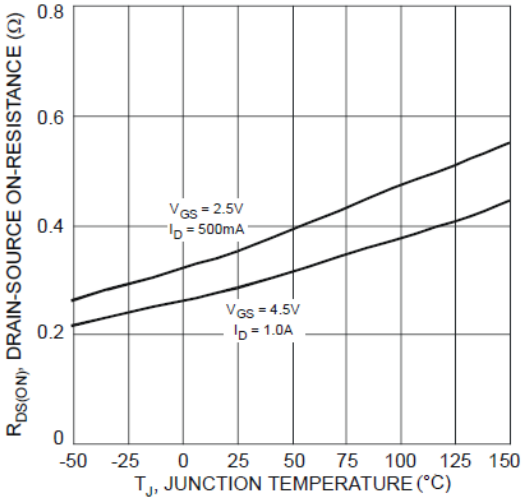


Fig. 6 On-Resistance Variation with T_J

Typical Performance Characteristics (Continue)

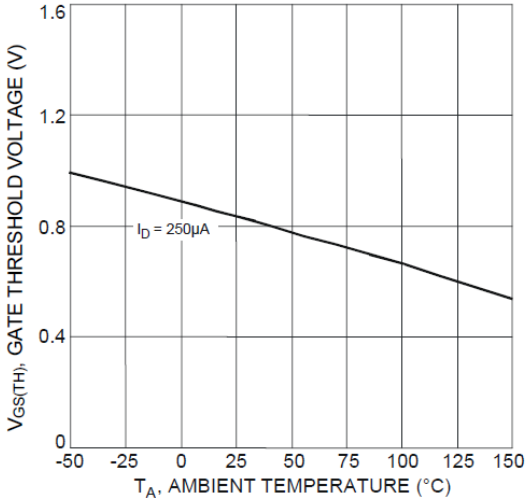


Fig. 7 Gate Threshold Variation vs. T_A

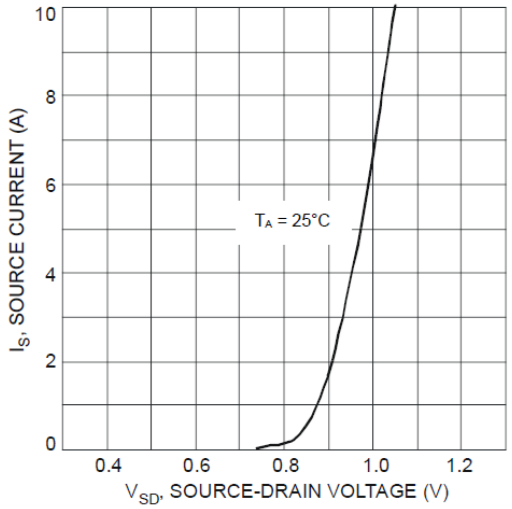


Fig. 8 Diode Forward Voltage vs. Current

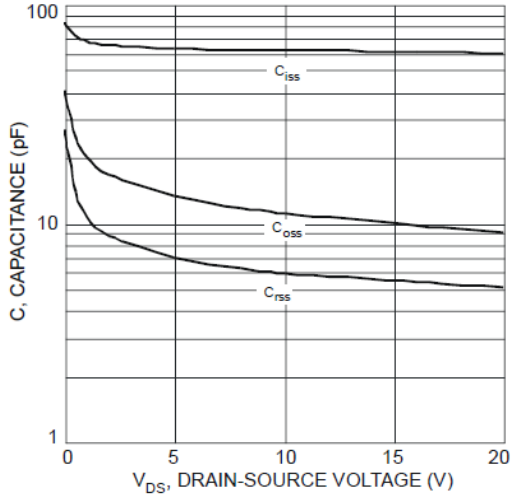


Fig. 9 Typical Capacitance

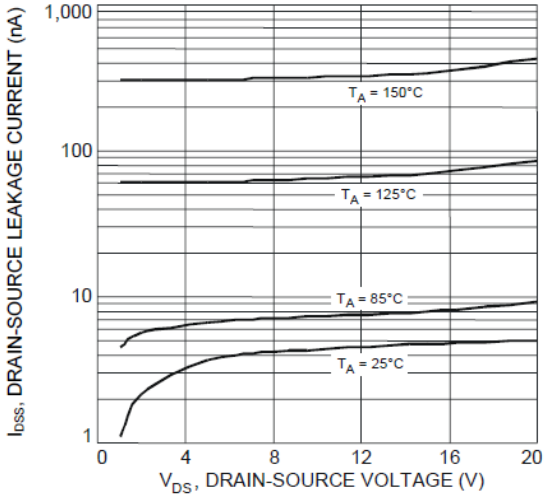


Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

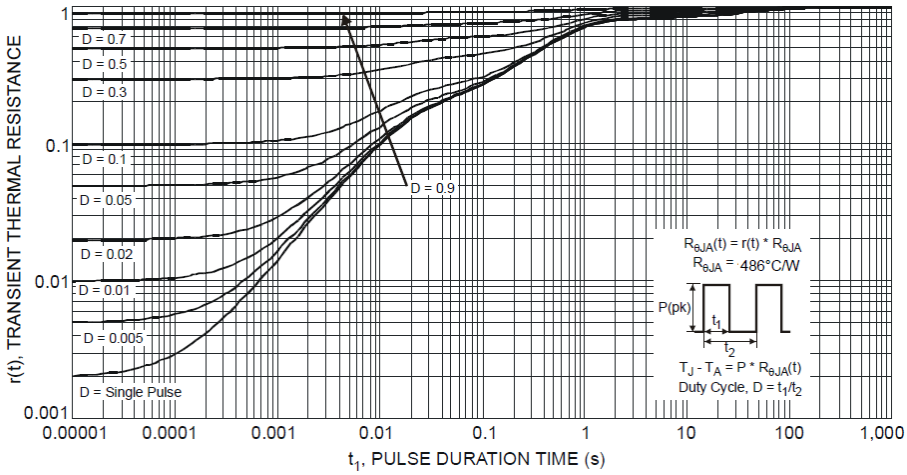
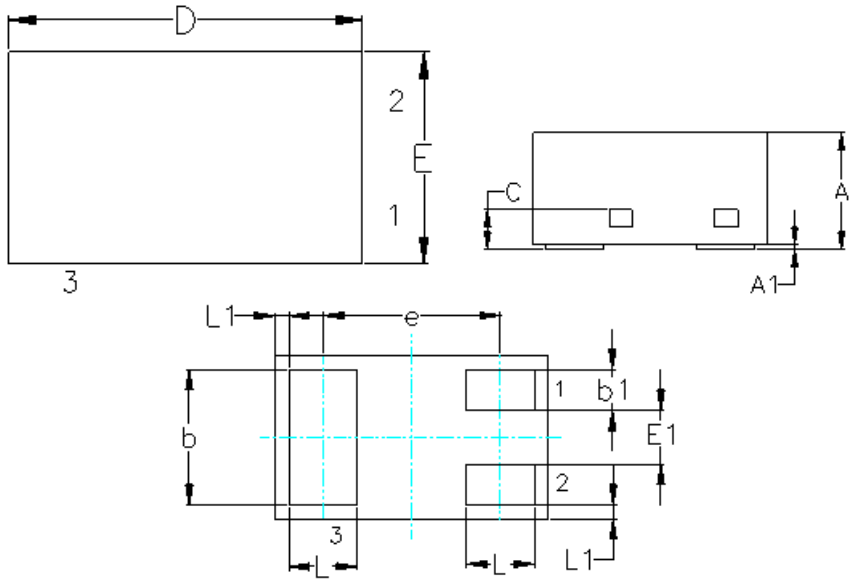


Fig. 11 Transient Thermal Response

Package Dimension

DFN1006-3L



Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.450	0.550	0.018	0.022
A1	0.000	0.050	0.000	0.002
b	0.450	0.550	0.018	0.022
b1	0.100	0.200	0.004	0.008
C	0.120	0.180	0.005	0.007
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
E1	0.150	0.250	0.006	0.010
e	0.650 BSC		0.026 BSC	
L	0.200	0.300	0.008	0.012
L1	0.050 REF		0.002 REF	

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CONTACT US

GS Headquarter	
	4F.,No.43-1,Lane11,Sec.6,Minquan E.Rd Neihu District Taipei City 114, 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