

GSM1072KX7F

20V N-Channel Enhancement Mode MOSFET

Product Description

GSM1072KX7F, 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.

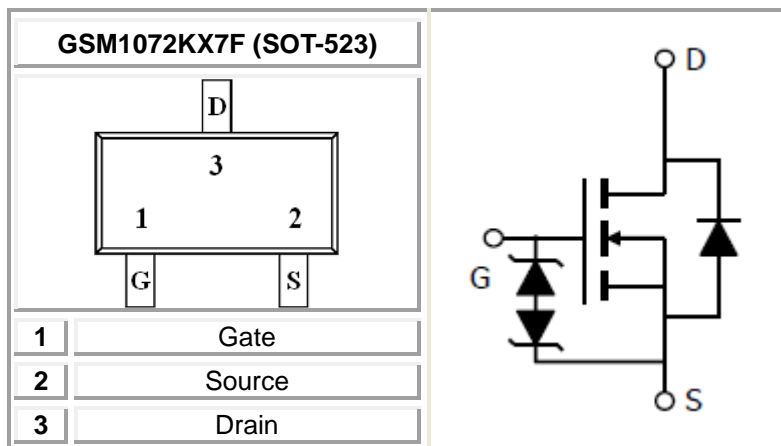
Features

- 20V/0.5A, $R_{DS(ON)}=300m\Omega@V_{GS}=4.5V$
- 20V/0.4A, $R_{DS(ON)}=450m\Omega@V_{GS}=2.5V$
- 20V/0.2A, $R_{DS(ON)}=800m\Omega@V_{GS}=1.8V$
- 20V/0.1A, $R_{DS(ON)}=1200m\Omega@V_{GS}=1.5V$
- Low Offset (Error) Voltage
- Low-Voltage Operation
- High-Speed Circuits
- Low Battery Voltage Operation
- ESD Protected
- SOT-523 package design

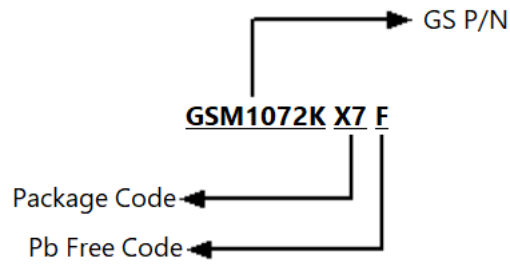
Applications

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

Packages & Pin Assignments



Ordering Information



Marking Information



Part Number	Package	Part Marking
GSM1072KX7F	SOT-523	2WM

Absolute Maximum Ratings

(T_A=25°C 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 _A =25°C	0.7
		T _A =70°C	0.5
I _{DM}	Pulsed Drain Current	1.0	A
I _S	Continuous Source Current(Diode Conduction)	0.3	A
P _D	Power Dissipation	T _A =25°C	0.27
		T _A =70°C	0.18
T _J	Operating Junction Temperature	-55/150	°C
T _{STG}	Storage Temperature Range	-55/150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient	463	°C/W

Electrical Characteristics

(T_A=25°C 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		1.0	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±10V			±10	uA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 16V, V _{GS} =0V			1	uA
		V _{DS} = 16V, V _{GS} =0V, T _J =85°C			30	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =4.5V, I _D =0.5A		210	300	mΩ
		V _{GS} =2.5V, I _D =0.4A		285	450	
		V _{GS} =1.8V, I _D =0.2A		430	800	
		V _{GS} =1.5V, I _D =0.1A		710	1200	
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =0.4A			1.2	S
V _{SD}	Diode Forward Voltage	I _S =0.5A, V _{GS} =0V			1.3	V
Dynamic						
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		
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		
td(on)	Turn-On Time	V _{DD} =10V, R _L =47Ω, I _D =0.2A V _{GEN} =4.5V, R _G =10Ω		5.1		ns
tr				7.4		
td(off)	Turn-Off Time			26.7		
tf				12.3		

Typical Performance Characteristics

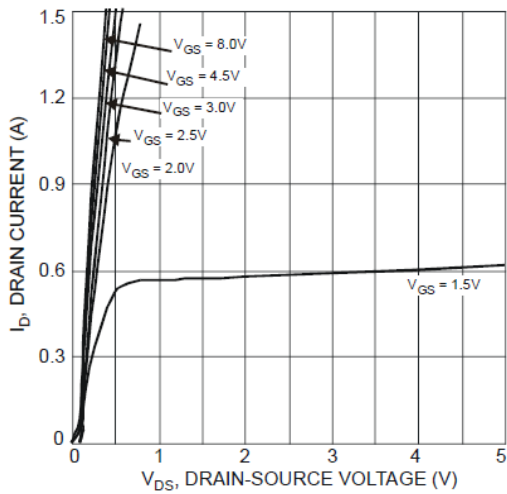


Fig. 1 Typical Output Characteristics

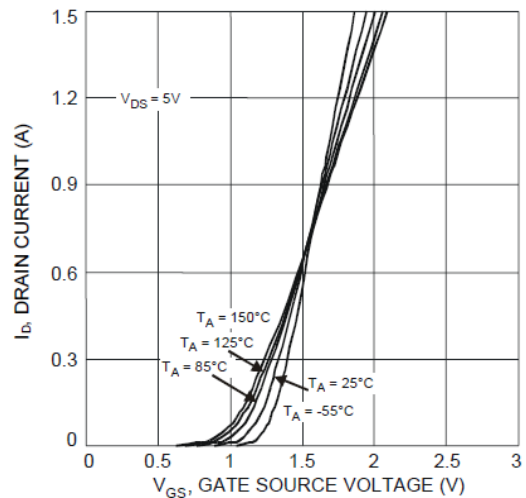


Fig. 2 Typical Transfer Characteristics

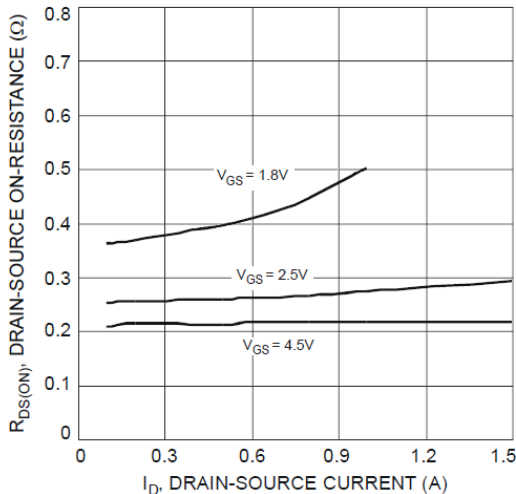


Fig. 3 Typical On-Resistance vs. I_D and V_{GS}

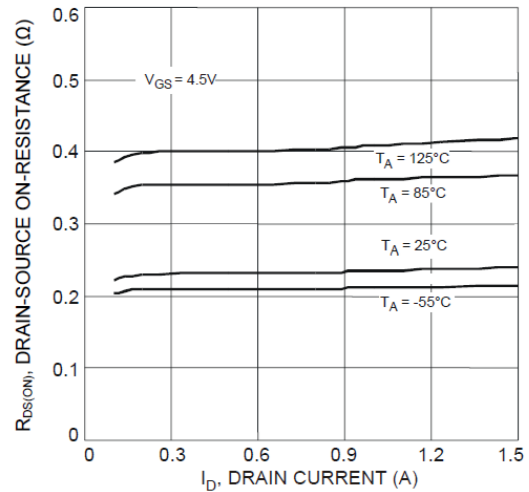


Fig. 4 Typical Drain-Source On-Resistance vs. I_D and T_J

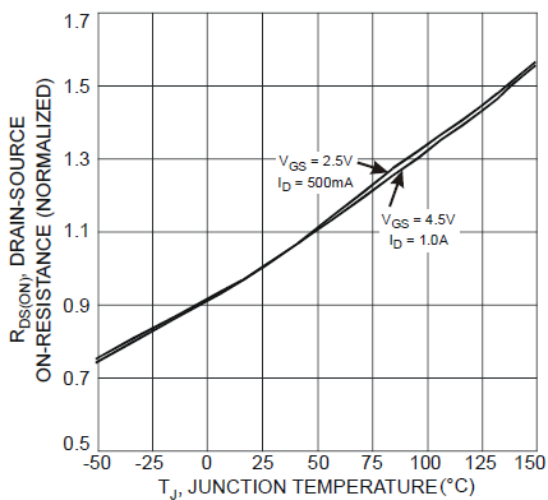


Fig. 5 On-Resistance Variation with T_J

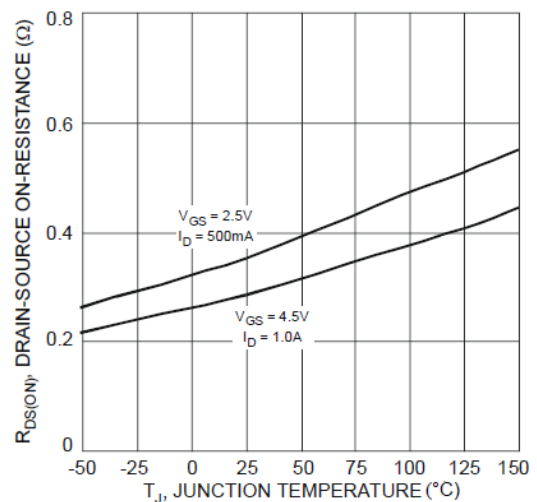


Fig. 6 On-Resistance Variation with T_J

Typical Performance Characteristics (Continue)

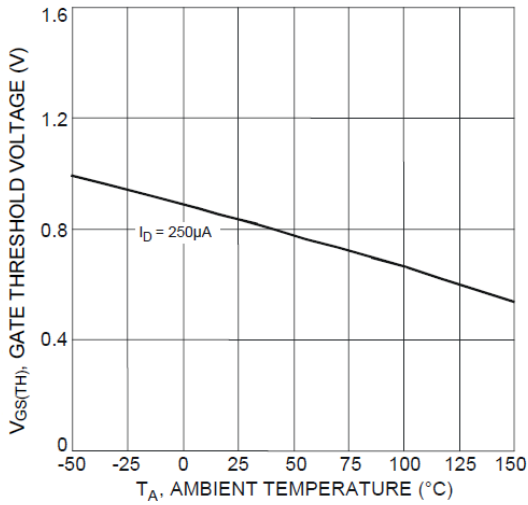


Fig. 7 Gate Threshold Variation vs. T_A

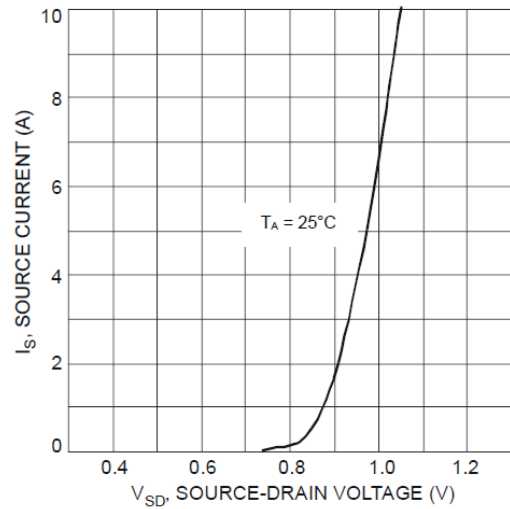


Fig. 8 Diode Forward Voltage vs. Current

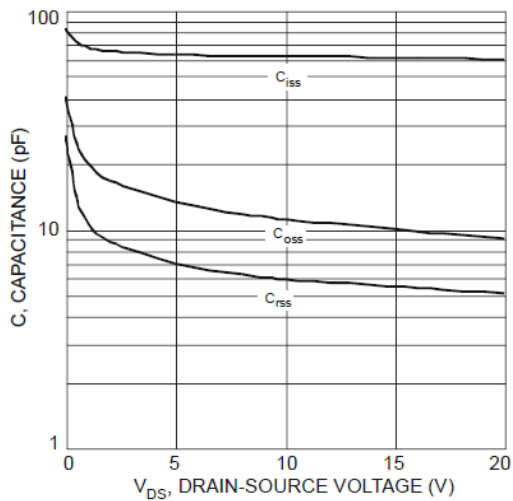


Fig. 9 Typical Capacitance

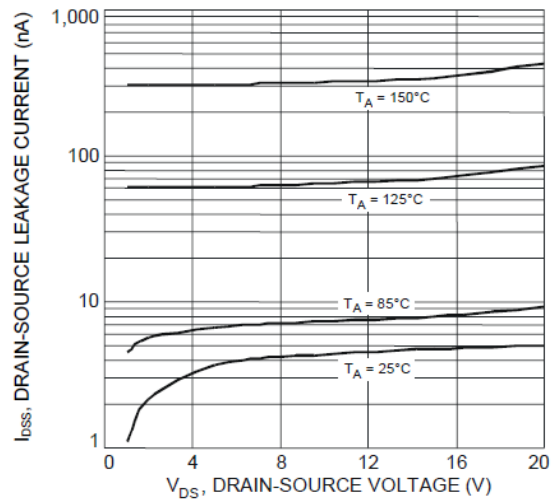


Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

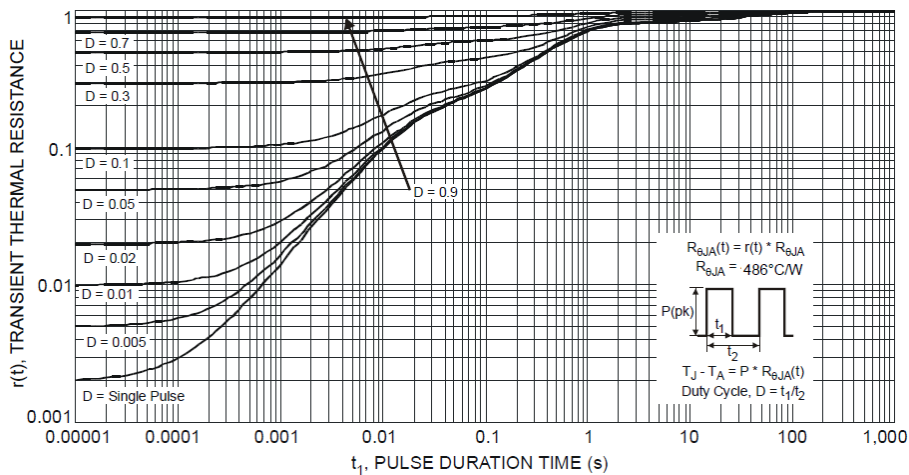
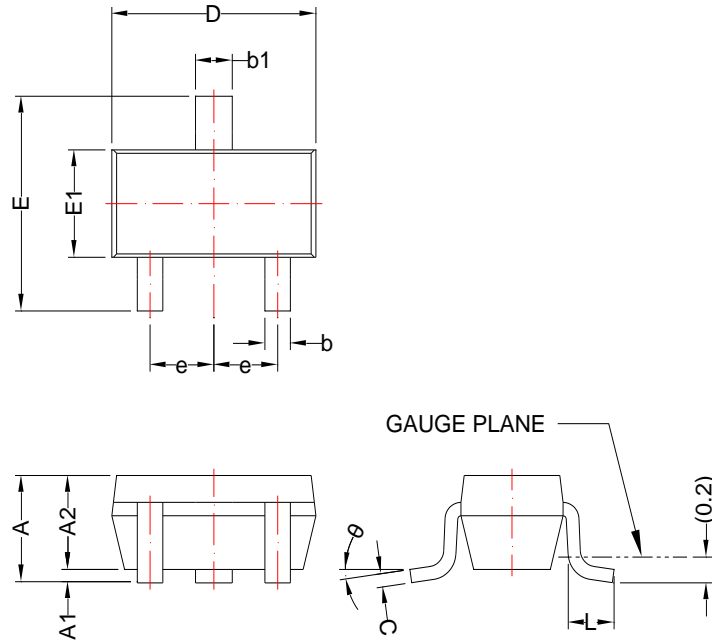


Fig. 11 Transient Thermal Response

Package Dimension

SOT-523









Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.60	0.95	0.024	0.037
A1	0.00	0.10	0.000	0.004
A2	0.60	0.85	0.024	0.033
b	0.15	0.30	0.006	0.012
b1	0.25	0.40	0.010	0.016
c	0.08	0.25	0.003	0.010
D	1.40	1.80	0.055	0.071
E	1.40	1.80	0.055	0.071
E1	0.70	0.90	0.028	0.035
e	0.50 BSC		0.020 BSC	
L	0.26	0.46	0.010	0.018
θ	0°	8°	0°	8°

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