GSM7002K

60V N-Channel Enhancement Mode MOSFET

Product Description

GSM7002K, 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 other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

Features

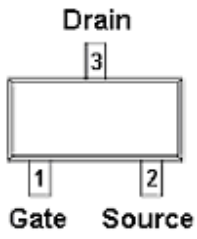
- 60V/0.5A , $R_{DS(ON)}$=2.4Ω@V_{GS}=10V
- 60V/0.3A , $R_{DS(ON)}$=3.0Ω@V_{GS}=4.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- ESD Protection (2KV) Diode design-in
- SOT-23 package design

Applications

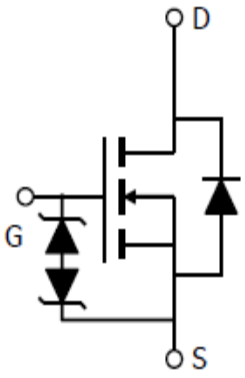
- Drivers : Relays, Solenoids, Lamps, Hammers, Display, Memories, Transistors, etc.
- High saturation current capability. Direct Logic-Level Interface: TTL/CMOS
- Battery Operated Systems
- Solid-State Relays

Packages & Pin Assignments

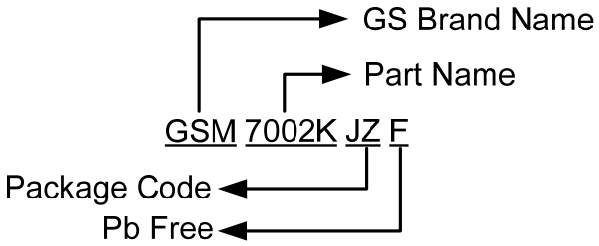
GSM7002KJZF (SOT-23)



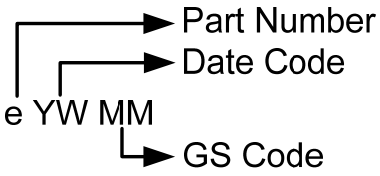
Pin	Description
1	Gate
2	Source
3	Drain



Ordering Information



Marking Information



Part Number	Package	Part Marking	Quantity
GSM7002KJZF	SOT-23	eYWMM	3000 PCS

Absolute Maximum Ratings

T_A=25ºC Unless otherwise noted

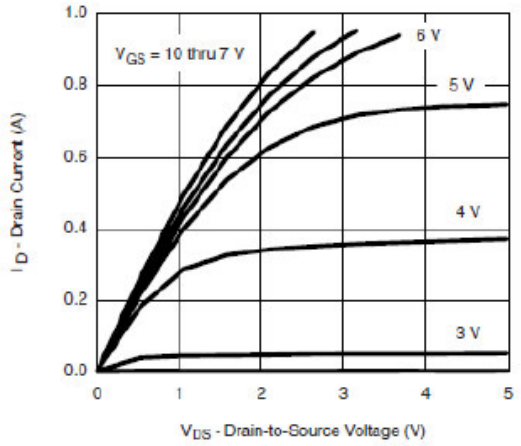
Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		60	V
V_{GSS}	Gate-Source Voltage - Continuous		±20	V
I_D	Continuous Drain Current(T_J=150℃)	T_A=25℃	0.5	A
		T_A=70℃	0.3	
I_{DM}	Pulsed Drain Current (*)		0.65	A
I_S	Continuous Source Current(Diode Conduction)		0.45	A
P_D	Power Dissipation	T_A=25℃	1.25	W
		T_A=70℃	0.8	
T_J	Operating Junction Temperature		150	ºC
T_{STG}	Storage Temperature Range		-55/150	ºC
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		120	ºC/W

Electrical Characteristics

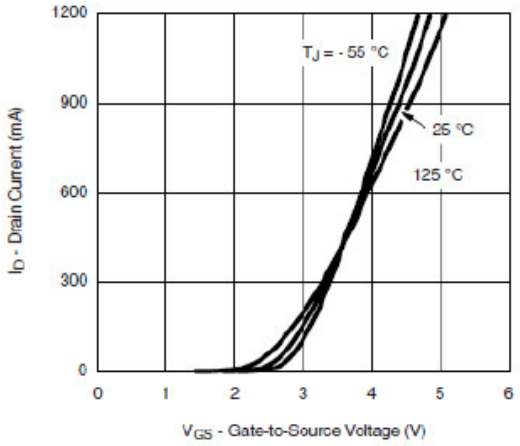
T_A=25ºC unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	60			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	1.0		2.0	
I_{GSS}	Gate Leakage Current	V_{DS}=0V,V_{GS}=±20V			3	uA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=60V,V_{GS}=0V			1	uA
		V_{DS}=60V,V_{GS}=0V,T_J=85ºC			10	
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=10V,I_D=0.5A		1.2	2.4	Ω
		V_{GS}=4.5V,I_D=0.3A		1.6	3.0	
g_{FS}	Forward Transconductance	V_{DS}=10V,I_D=0.2A		0.2		S
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=0.2A		0.75	1.4	V
Dynamic						
Q_g	Total Gate Charge	V_{DD}=10V,I_D=0.25A, V_{GS}=4.5V		500		pC
Q_{gs}	Gate-Source Charge			100		
Q_{gd}	Gate-Drain Charge			150		
C_{iss}	Input Capacitance	V_{DS}= 25V, f =1MHz,V_{GS}=0V		30		pF
C_{oss}	Output Capacitance			8		
C_{rss}	Reverse Transfer Capacitance			5		
$t_{d(on)}$	Turn-On Time	V_{DD}=30V,I_D=0.2A, R_G=10Ω,V_{GEN}=4.5V, R_L=150Ω		10	20	ns
t_r				35	50	
$t_{d(off)}$	Turn-Off Time			20	30	
t_f				40	60	

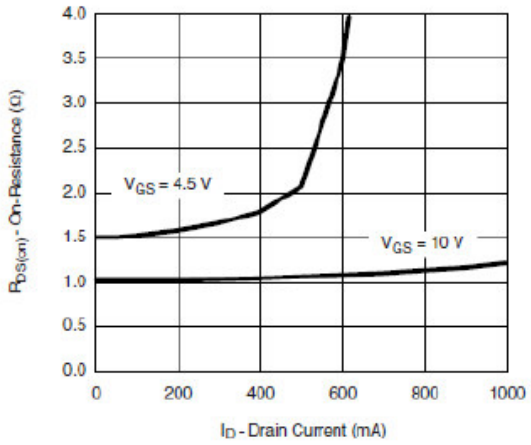
Typical Performance Characteristics



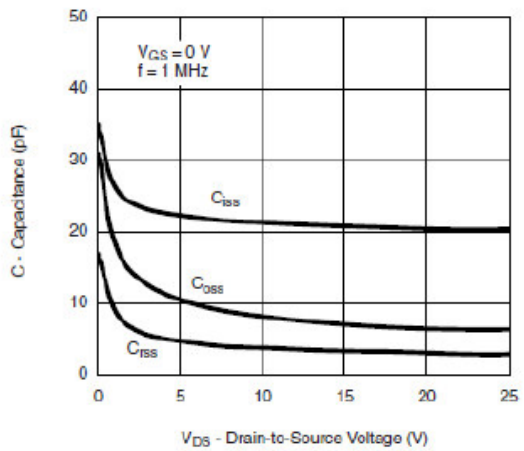
Output Characteristics



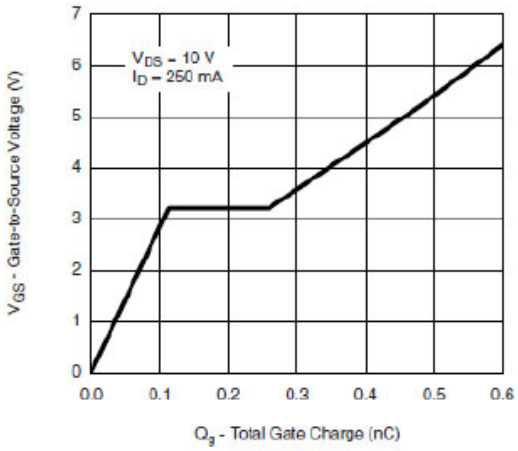
Transfer Characteristics



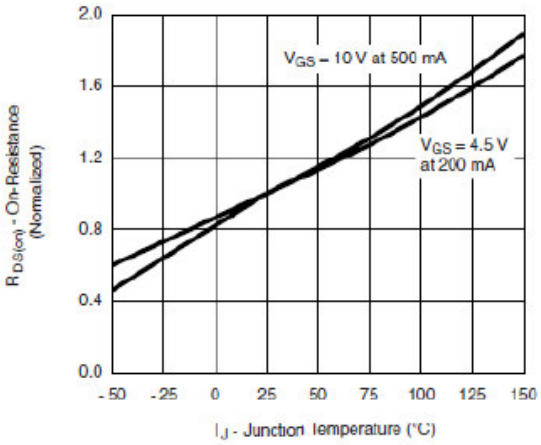
On-Resistance vs. Drain Current



Capacitance

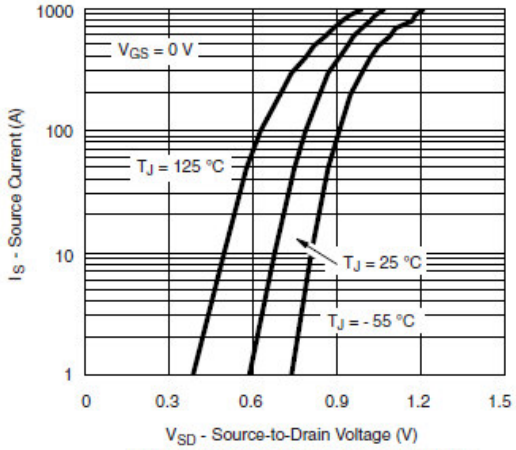


Gate Charge

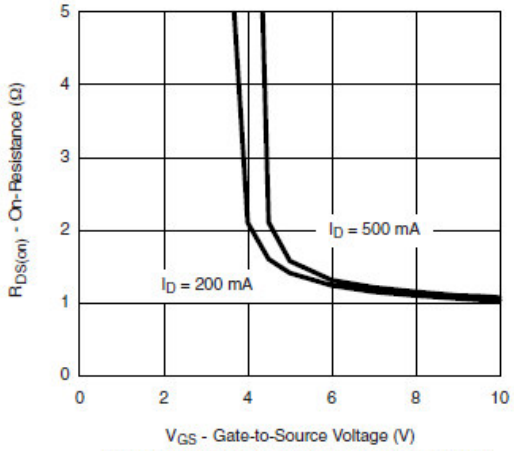


On-Resistance vs. Junction Temperature

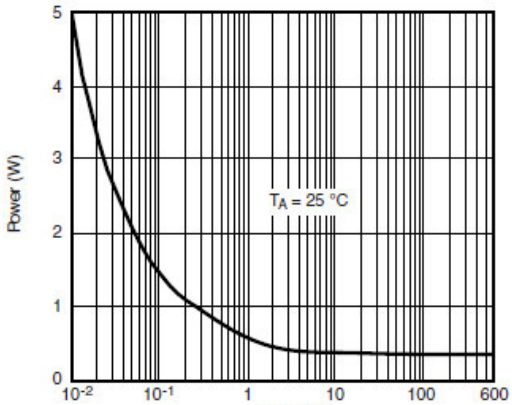
Typical Performance Characteristics (Continue)



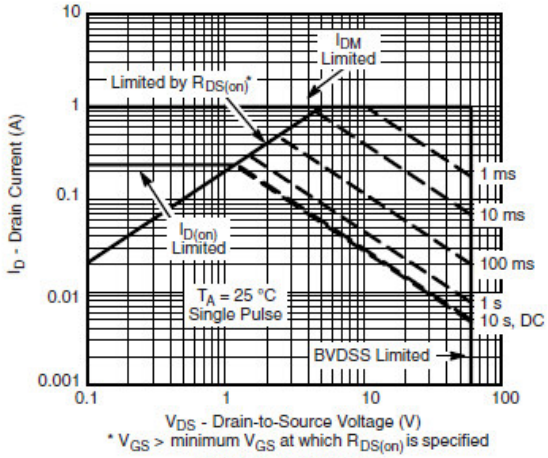
Source-Drain Diode Forward Voltage



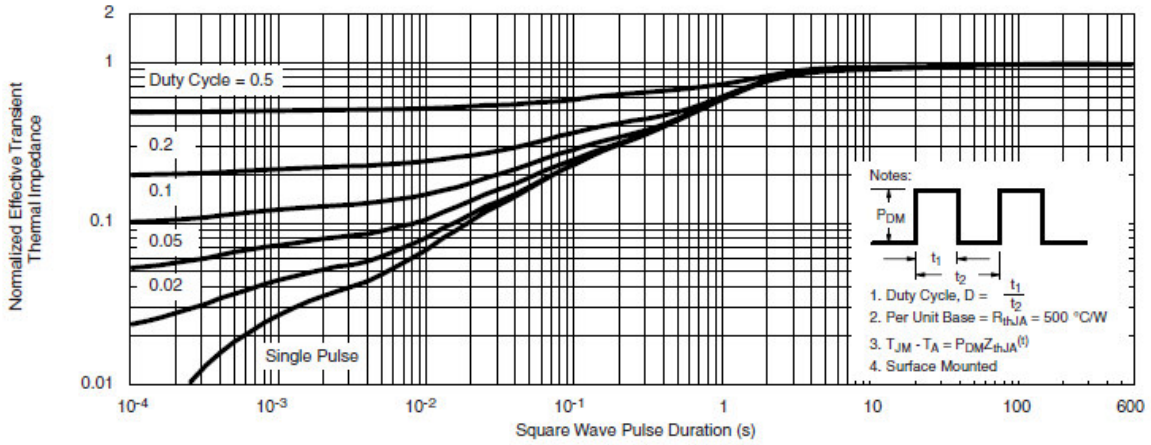
On-Resistance vs. Gate-to-Source Voltage



Single Pulse Power



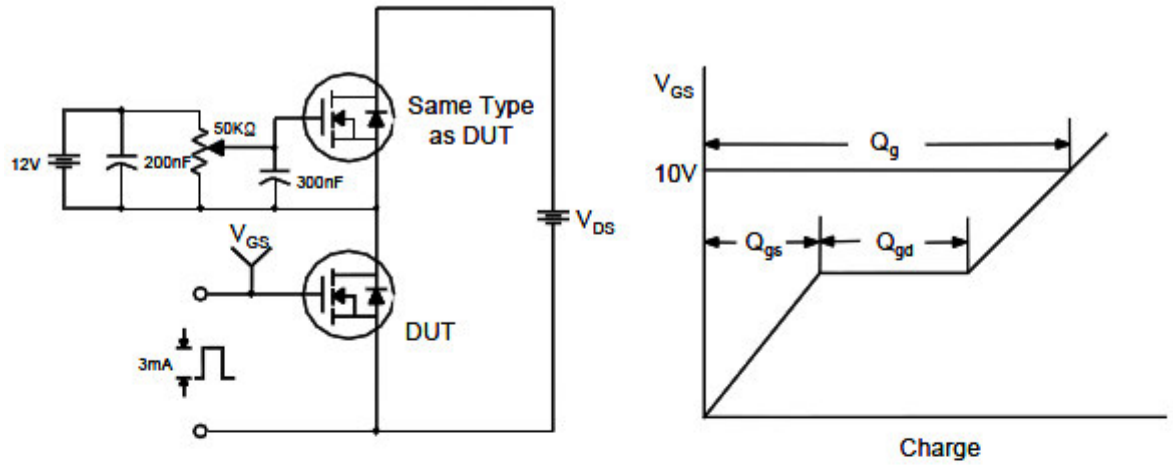
Safe Operating Area



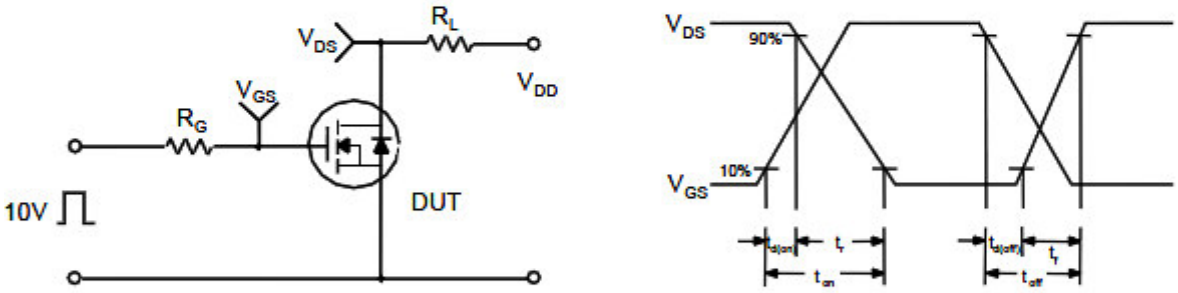
Normalized Thermal Transient Impedance, Junction-to-Ambient

Typical Characteristics

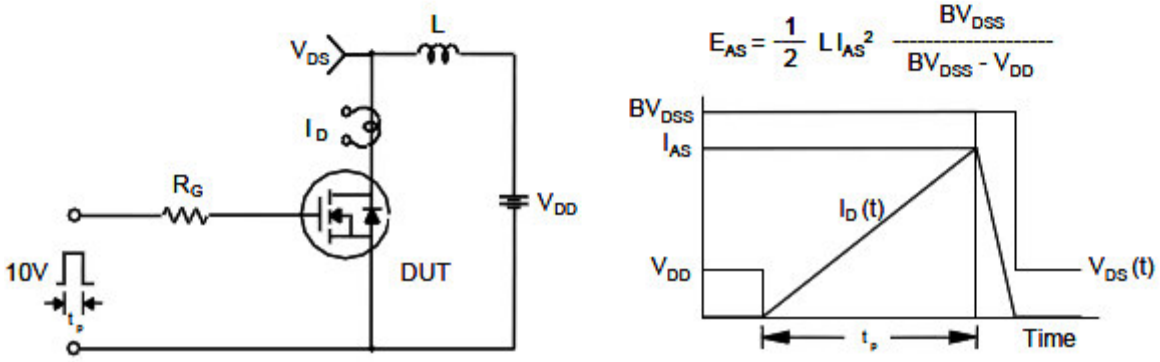
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

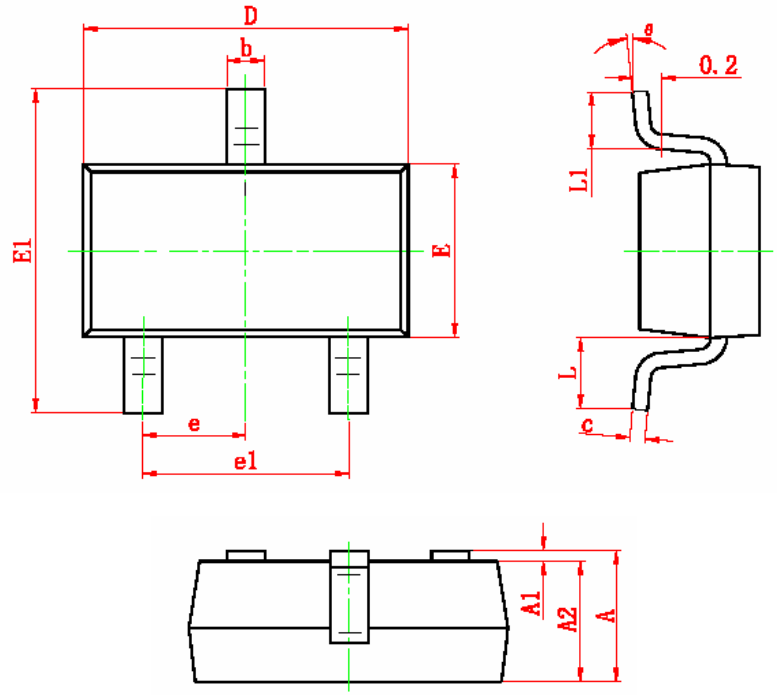


Unclamped Inductive Switching Test Circuit & Waveforms



Package Dimension

SOT-23 PLASTIC PACKAGE



Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.900	1.200	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.100	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

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