

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.

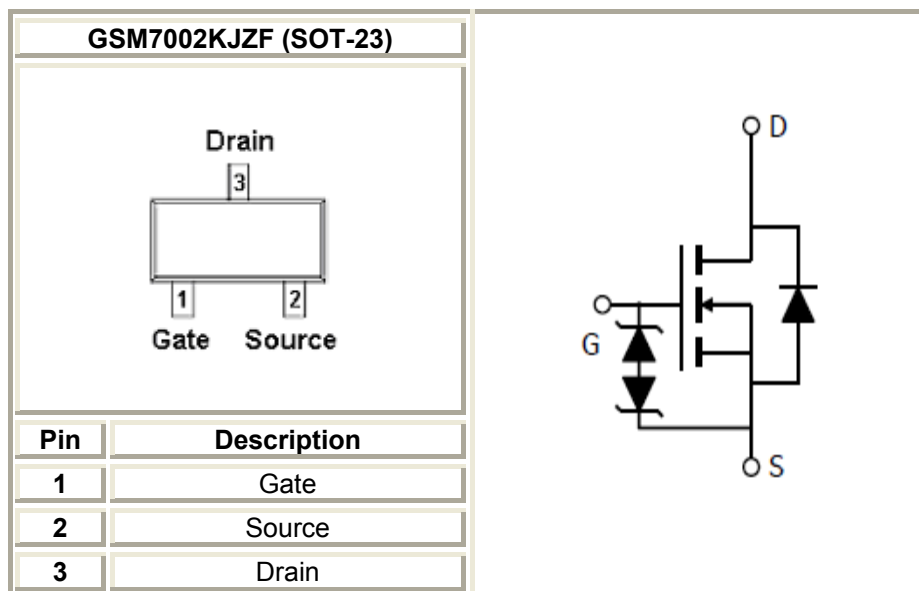
Features

- 60V/0.5A , $R_{DS(ON)}=2.4\Omega@V_{GS}=10V$
- 60V/0.3A , $R_{DS(ON)}=3.0\Omega@V_{GS}=4.5V$
- 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

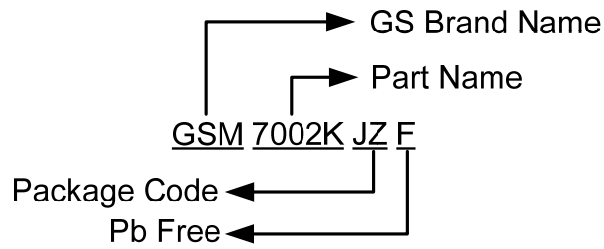
Applications

- 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

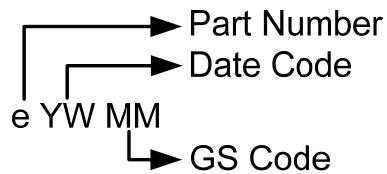
Packages & Pin Assignments



Ordering Information



Marking Information



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

Absolute Maximum Ratings

$T_A=25^\circ\text{C}$ Unless otherwise noted

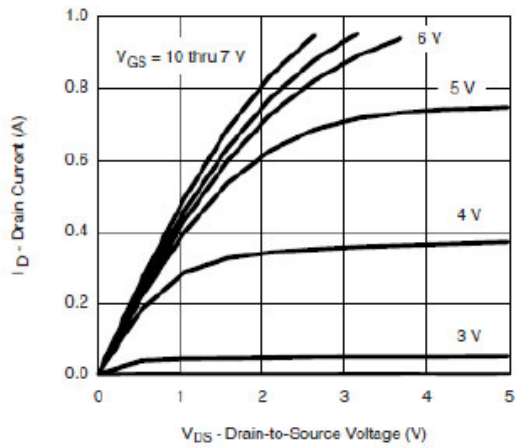
Symbol	Parameter	Typical	Unit	
V_{DSS}	Drain-Source Voltage	60	V	
V_{GSS}	Gate-Source Voltage - Continuous	± 20	V	
I_D	Continuous Drain Current ($T_J=150^\circ\text{C}$)	$T_A=25^\circ\text{C}$	0.5	A
		$T_A=70^\circ\text{C}$	0.3	
I_{DM}	Pulsed Drain Current (*)	0.65	A	
I_S	Continuous Source Current (Diode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

Electrical Characteristics

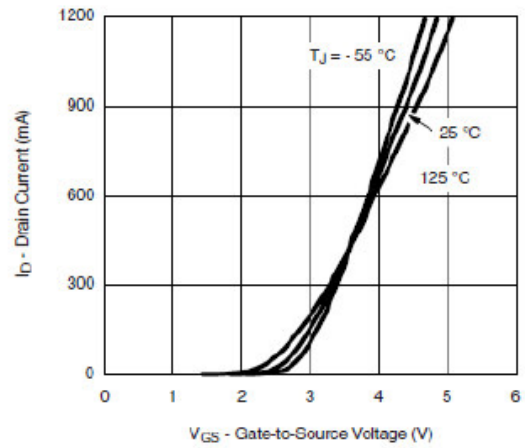
T_A=25°C unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	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 =85°C			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	

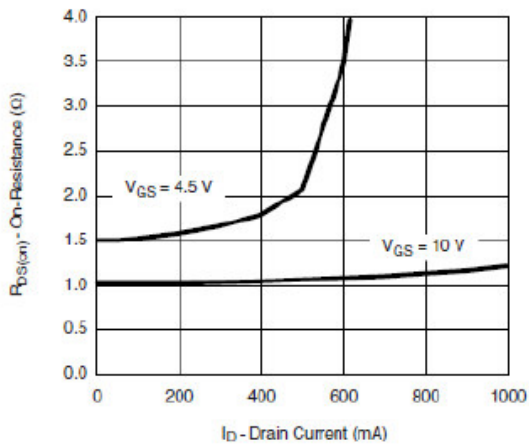
Typical Performance Characteristics



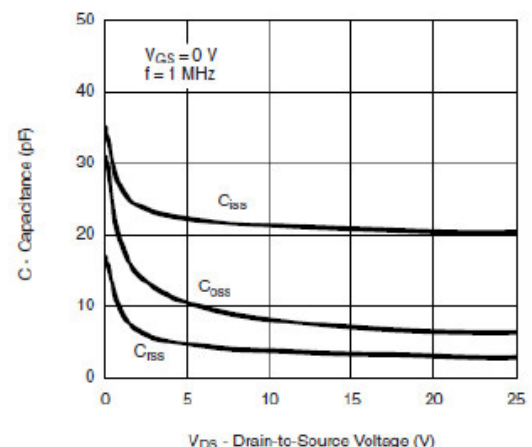
Output Characteristics



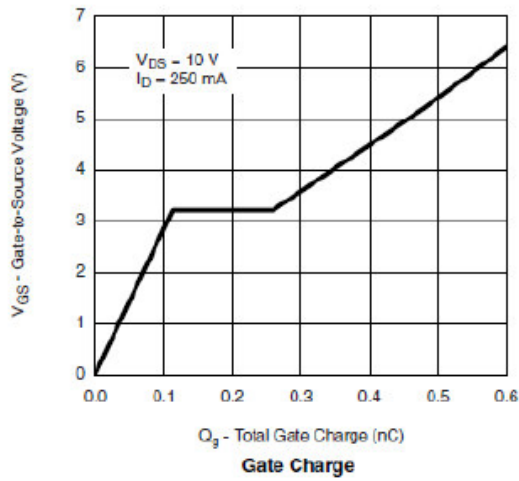
Transfer Characteristics



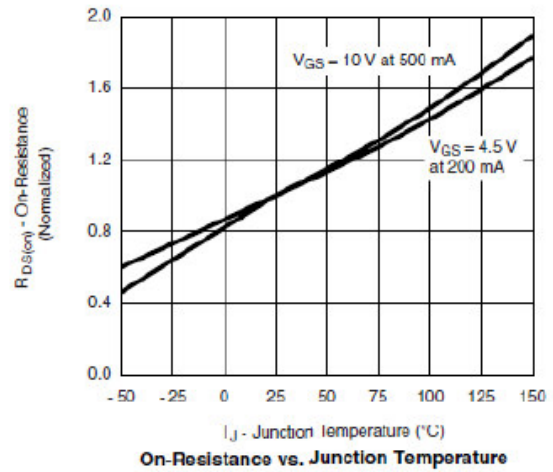
On-Resistance vs. Drain Current



Capacitance

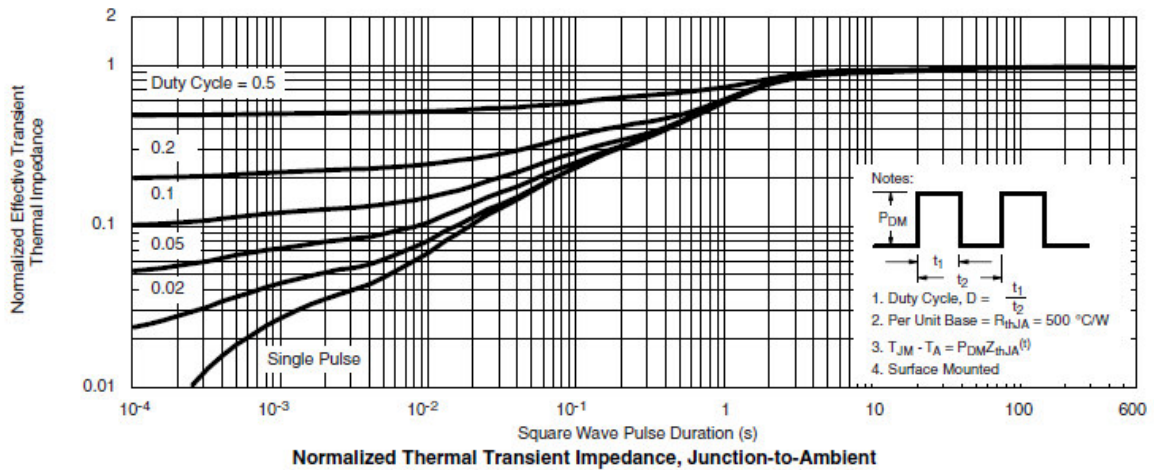
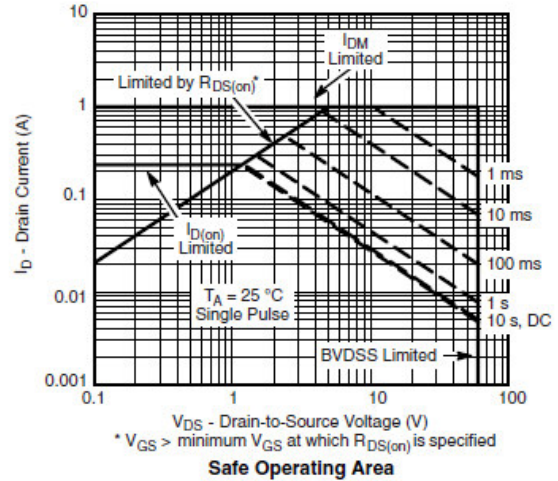
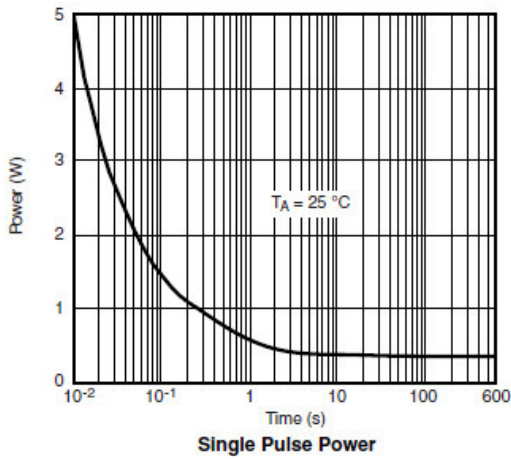
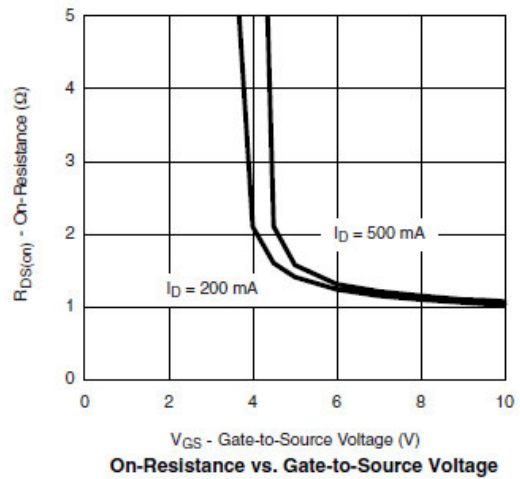
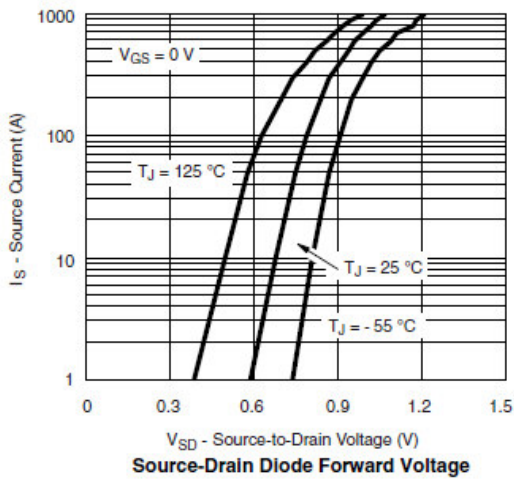


Gate Charge



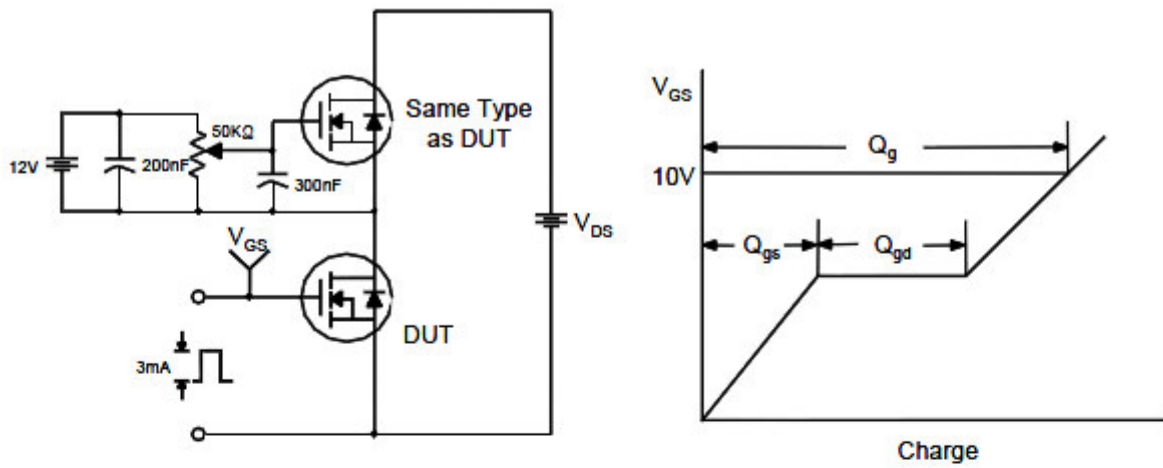
On-Resistance vs. Junction Temperature

Typical Performance Characteristics (Continue)

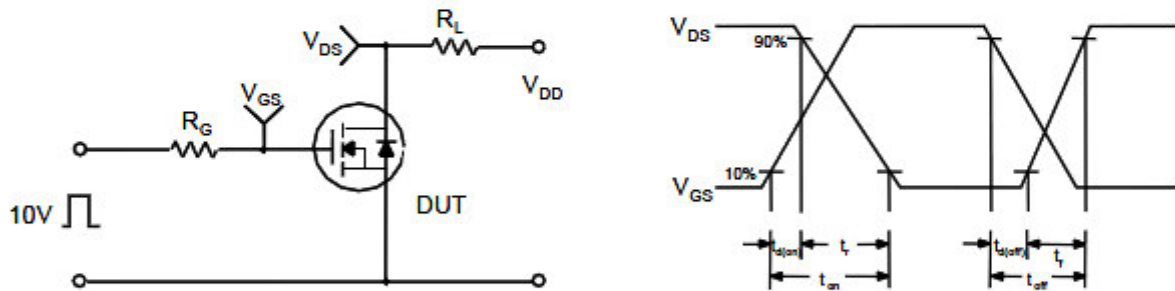


Typical Characteristics

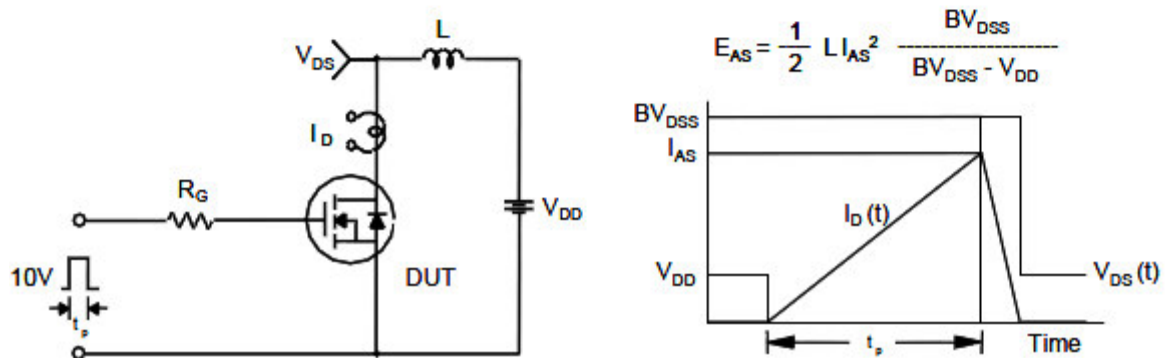
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

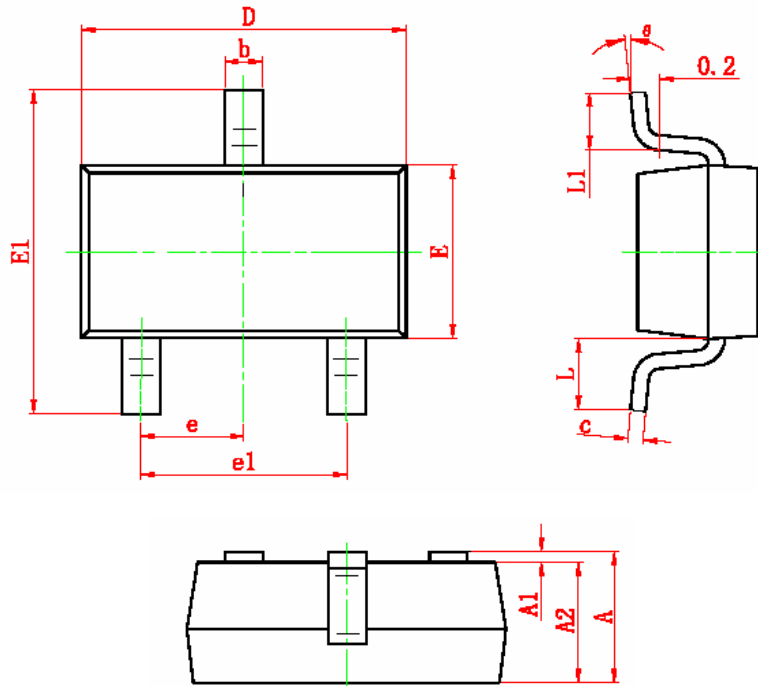


Unclamped Inductive Switching Test Circuit & Waveforms



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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