GSM7002YX7F

60V N-Channel Enhancement Mode MOSFET

Product Description

GSM7002Y, 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.

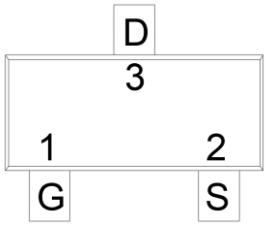
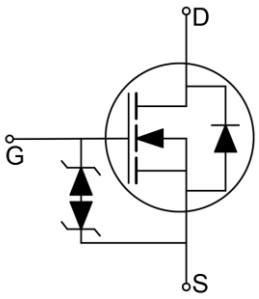
Features

- 60V/0.5A, $R_{DS(ON)}$=3.0Ω@V_{GS}=10V
- 60V/0.3A, $R_{DS(ON)}$=4.0Ω@V_{GS}=4.5V
- Fast switching
- ESD Protected up to 2KV
- RoHS Compliant and Halogen Free

Applications

- Load Switch
- Notebook
- Battery Protection
- Hand-held Instruments

Packages & Pin Assignments

GSM7002YX7F (SOT-523)	Equivalent Circuit
 Top Views	

Pin	Description
1	Gate
2	Source
3	Drain

Ordering and Marking Information

Ordering Information			
Part Number	**Package**	**Part Marking**	**Quantity / Reel**
GSM7002YX7F	SOT-523	J□□	3,000 PCS

GSM7002Y 1 2

- **Product Code:** GSM7002Y
- **Package Code:** 1 is **X7** for SOT-523
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information

J□□

- **Product Code:** J
- **GS Code:** □□

Absolute Maximum Ratings (T_A=25ºC Unless otherwise noted)

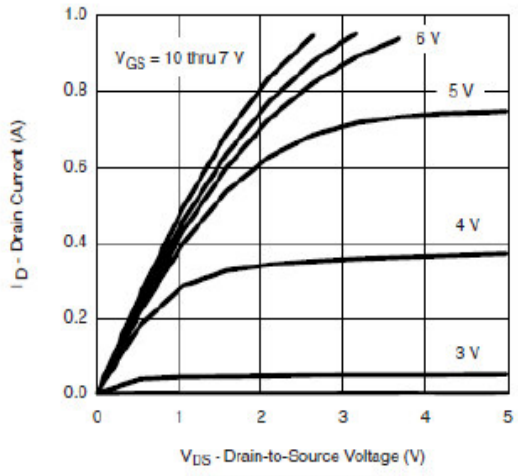
Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current-Continuous (T_A = 25°C)	240	mA
	Drain Current-Continuous (T_A = 70°C)	200	mA
I_{DM}	Pulsed Drain Current[1]	0.8	A
P_D	Power Dissipation T_A = 25ºC	300	mW
	Power Dissipation T_A = 70°C	190	mW
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	417	ºC/W
T_J	Junction Temperature Range	-55 to 150	ºC
T_{STG}	Storage Temperature Range	-55 to 150	ºC

Electrical Characteristics (T_J=25ºC unless otherwise noted)

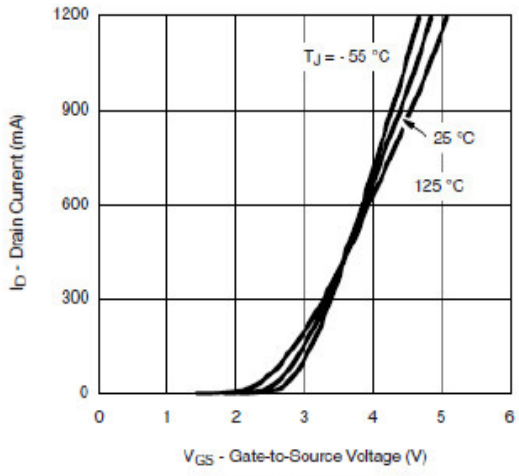
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	60	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS}, I_D =250uA	1		2	V
I_{GSS}	Gate–Source Leakage Current	V_{GS}=±20V, V_{DS}=0V,	-	-	±10	uA
I_{DSS}	Drain-Source Leakage Current	V_{DS}=60V, V_{GS}=0V, T_J=25ºC	-	-	1	uA
		V_{DS}=60V, V_{GS}=0V, T_J=85ºC	-	-	30	
$R_{DS(on)}$	Static Drain–Source On–Resistance	V_{GS}=10V, I_D=500mA	-	1.9	3	Ω
		V_{GS}=4.5V, I_D=300mA	-	2.4	4	
Dynamic characteristics						
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		
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		
$t_{d(on)}$	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	
V_{SD}	Diode Forward Voltage	I_S=0.2A, V_{GS}=0V	-	0.7	1.3	V
gfs	Forward Transconductance	V_{DS}=10V, I_D =0.2A		0.2		S
I_S	Continuous Source Current	V_G = V_D =0V, Force Current	-	-	230	mA

Note:
1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
3. Essentially independent of operating temperature.

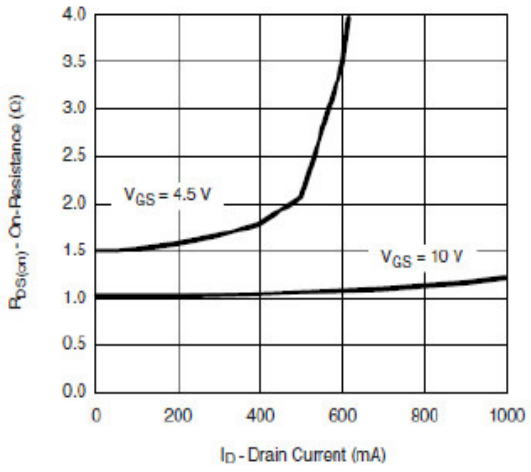
Typical Performance Characteristics



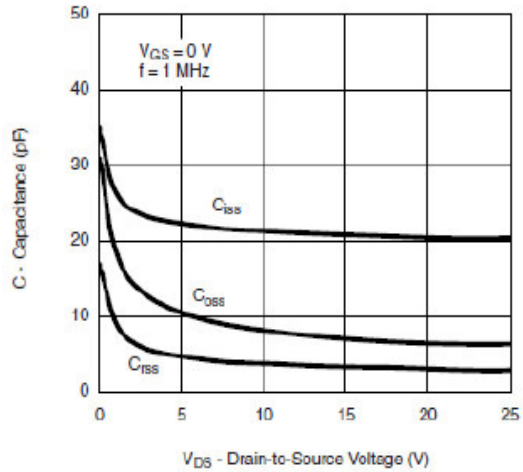
Output Characteristics



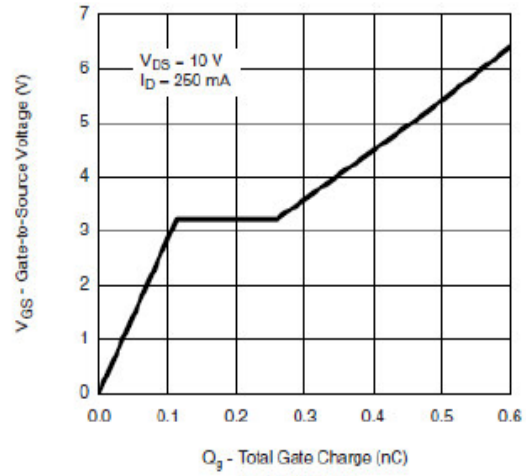
Transfer Characteristics



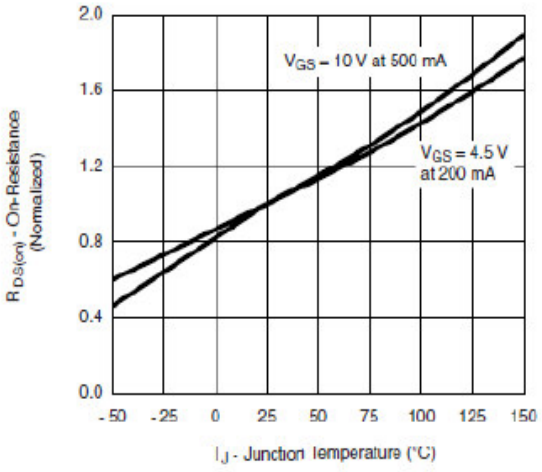
On-Resistance vs. Drain Current



Capacitance

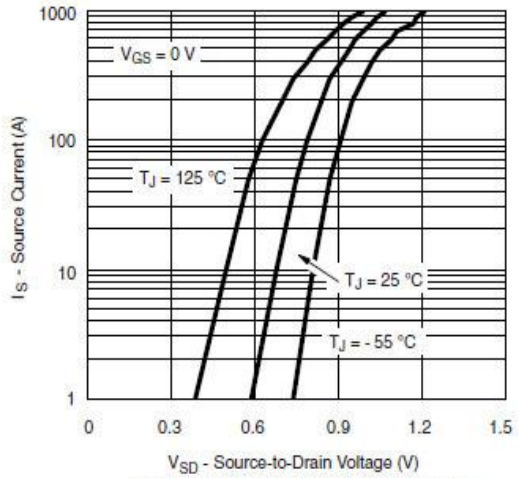


Gate Charge

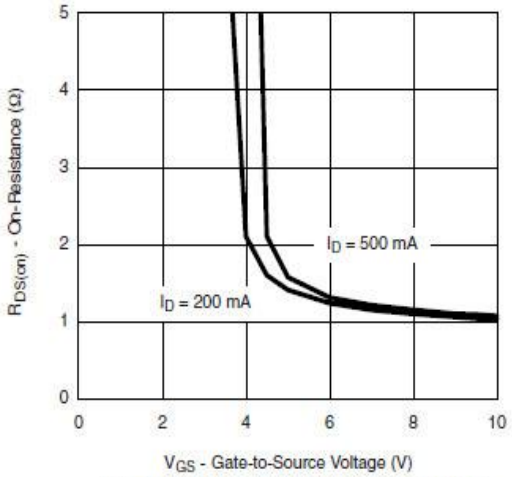


On-Resistance vs. Junction Temperature

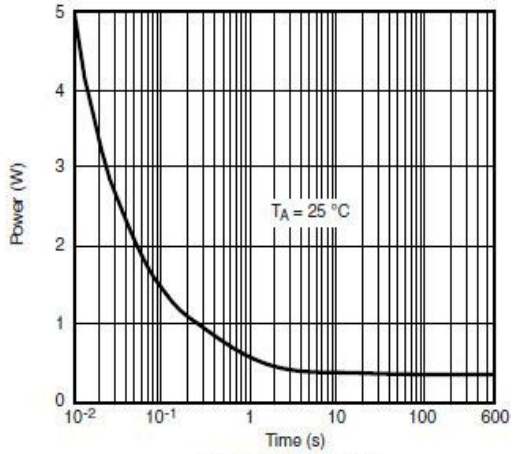
Typical Performance Characteristics (Continue)



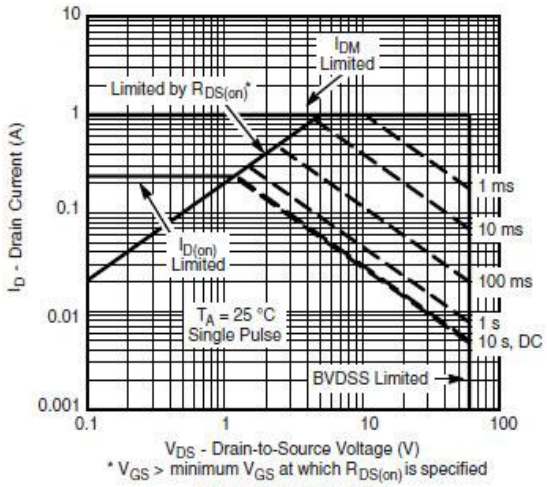
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage

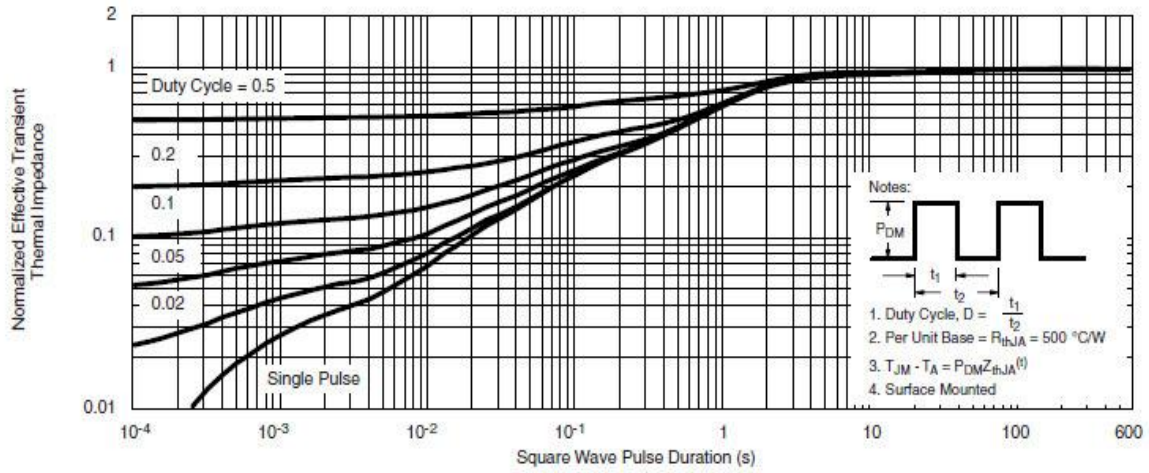


Single Pulse Power



* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

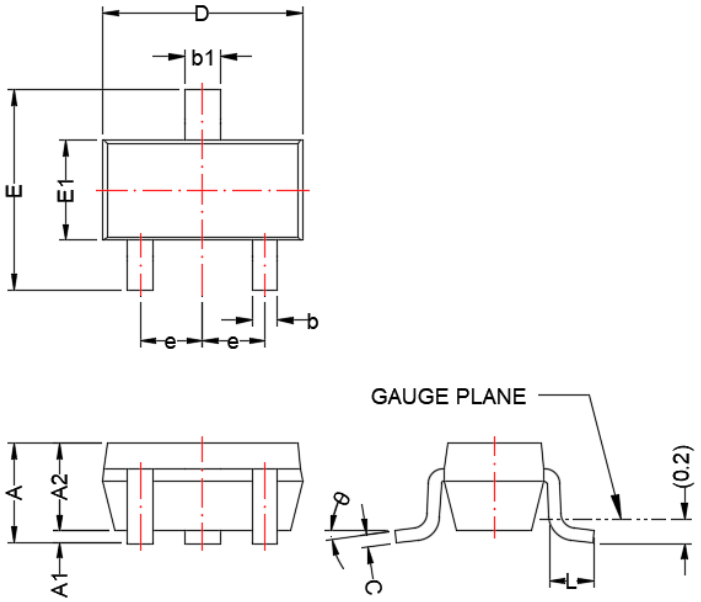
Safe Operating Area



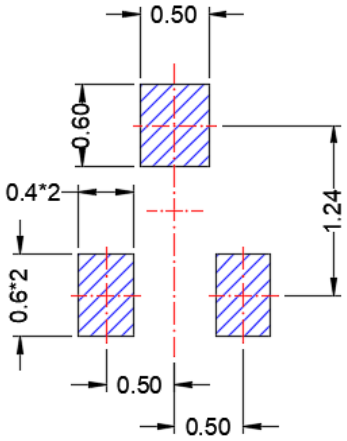
Normalized Thermal Transient Impedance, Junction-to-Ambient

SOT-523

Package Dimension



Recommended Land Pattern



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°

NOTE:

Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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