GSM7002T

Dual N-Channel Enhancement Mode MOSFET

Product Description

The GSM7002T is the Dual N-Channel enhancement mode field effect transistors are produced using high cell density DMOS technology.

These products have been designed to minimize on-state resistance while provide rugged, reliable, and fast switching performance.

They can be used in most applications requiring up to 640mA DC and can deliver pulsed currents up to 950mA. These products are particularly suited for low voltage, low current applications such as small servo motor control, power MOSFET gate drivers, and other switching applications.

Features

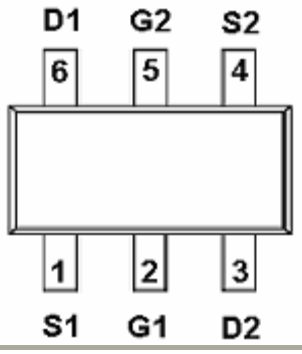
- 60V/0.50A,$R_{DS(ON)}$=2.0Ω@V_{GS}=10V
- 60V/0.20A,$R_{DS(ON)}$=4.0Ω@V_{GS}=4.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-363 package design

Applications

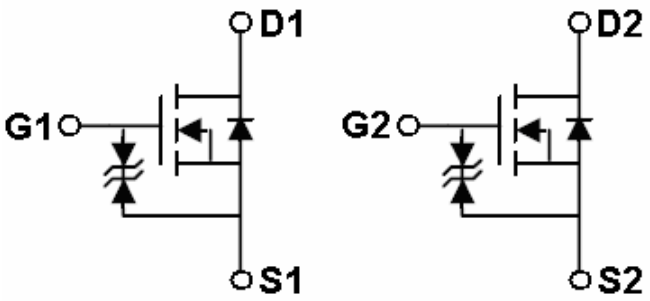
- Drivers: Relays, Solenoids, Lamps, Hammers, Display , Memories, Transistors, etc.
- High saturation current capability. Direct Logic-Level Interface: TTL/CMOS
- Battery Operated Systems
- Solid-State Relays

Packages & Pin Assignments

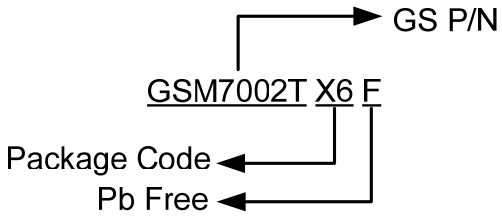
GSM7002TX6F (SOT-363/SC-70-6L)



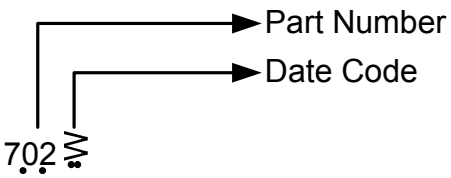
1	Source 1
2	Gate 1
3	Drain 2
4	Source 2
5	Gate 2
6	Drain 1



Ordering Information



Marking Information



Part Number	Package	Part Marking
GSM7002TX6F	SOT-363	702W

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=150ºC)	T_A=25ºC	0.64	A
I_{DM}	Pulsed Drain Current (*)		0.95	A
PD	Power Dissipation	T_A=25ºC	1.35	W
T_J	Operating Junction Temperature		-55/150	ºC
T_{STG}	Storage Temperature Range		-55/150	ºC
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		375	ºC/W

(*) Pulse width limited by safe operating area

Electrical Characteristics

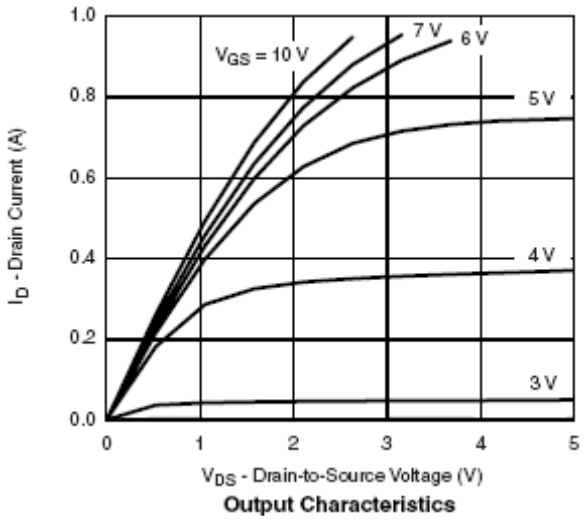
T_A=25ºC Unless otherwise noted

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	1.7	2.5	
I_{GSS}	Gate Leakage Current	V_{DS}=0V,V_{GS}=±20V			±30	uA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=60V,V_{GS}=0V T_J=25ºC			10	uA
		V_{DS}=48V,V_{GS}=0V T_J=70ºC			100	
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=10V,I_D=0.50A			2.0	Ω
		V_{GS}=4.5V,I_D=0.20A			4.0	
G_{fs}(1)	Forward Transconductance	V_{DS}=10V,I_D=0.6A		0.6		S
V_{SD}(1)	Diode Forward Voltage	V_{GS}=0V,I_S=1.2A			1.2	V
Dynamic						
Qg	Total Gate Charge	V_{DD}=50V,I_D=0.6A V_{GS}=4.5V		1.0	1.6	nC
Qgs	Gate-Source Charge			0.5		
Qgd	Gate-Drain Charge			0.5		
Ciss	Input Capacitance	V_{DS}=25V,f =1MHz V_{GS}=0V		32	50	pF
Coss	Output Capacitance			8		
Crss	Reverse Transfer Capacitance			6		
td(on)	Turn-On Time	V_{DD}=30V,I_D=0.6A, R_G=3.3Ω,V_{GS}=10V R_D=52Ω		12		ns
tr				10		
td(off)	Turn-Off Time			56		
tf				29		

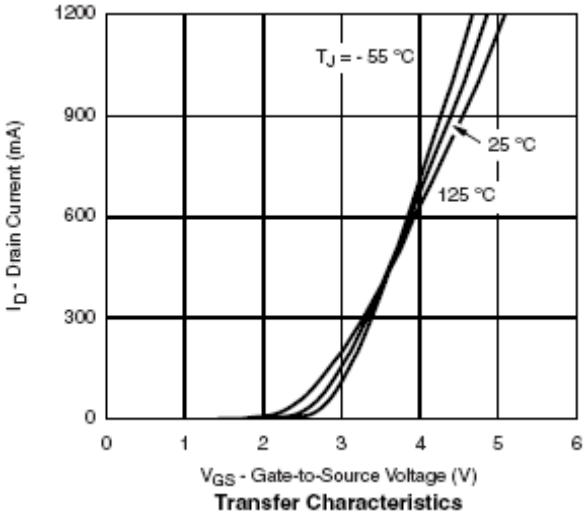
(1) Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %.

(2) Pulse width limited by safe operating area.

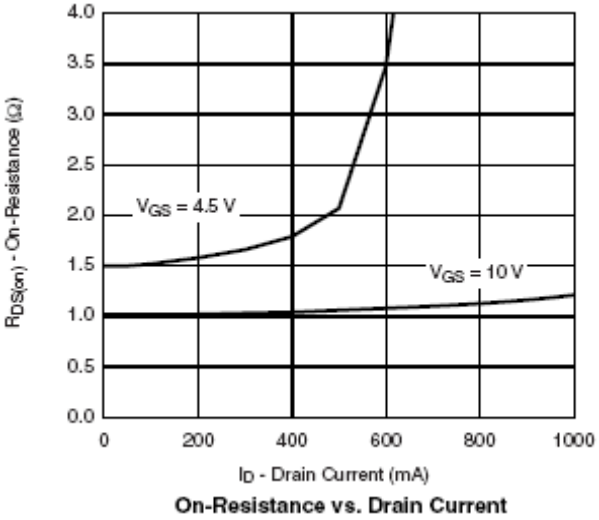
Typical Performance Characteristics



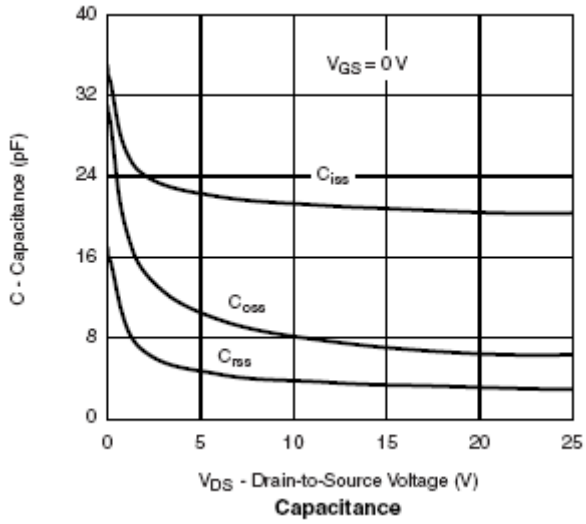
Output Characteristics



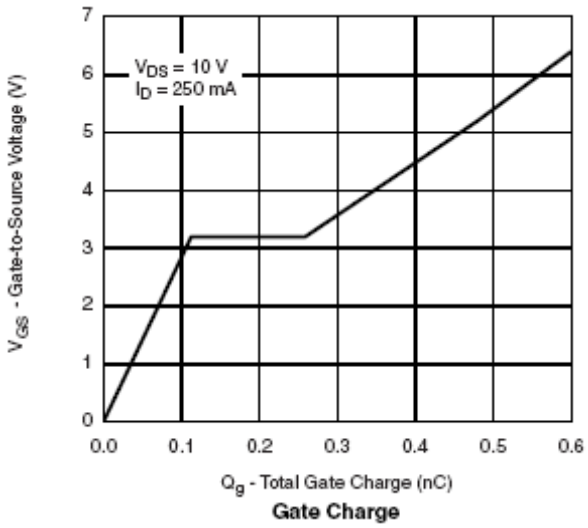
Transfer Characteristics



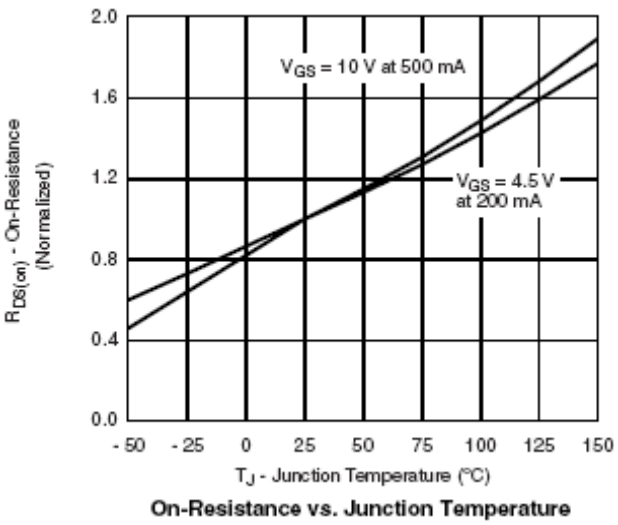
On-Resistance vs. Drain Current



Capacitance

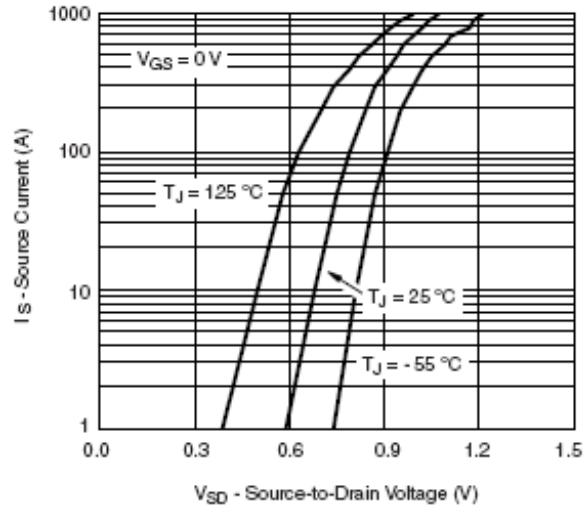


Gate Charge

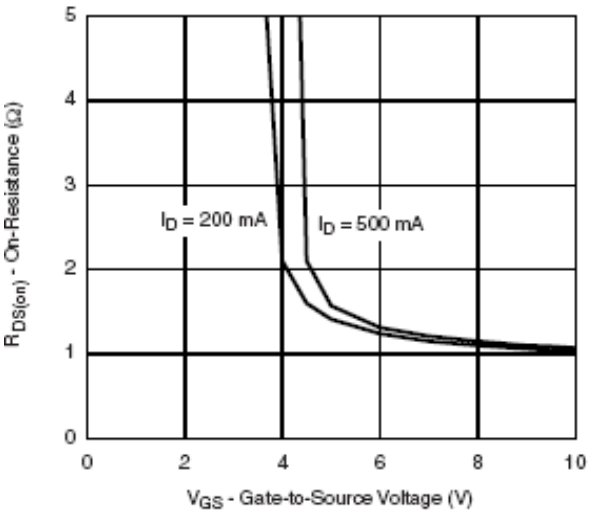


On-Resistance vs. Junction Temperature

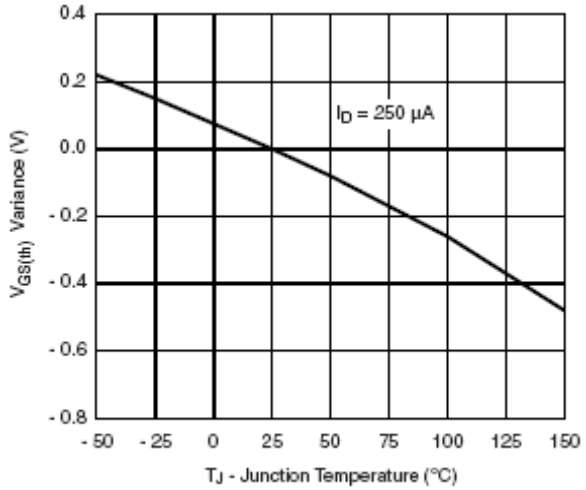
Typical Performance Characteristics(Continue)



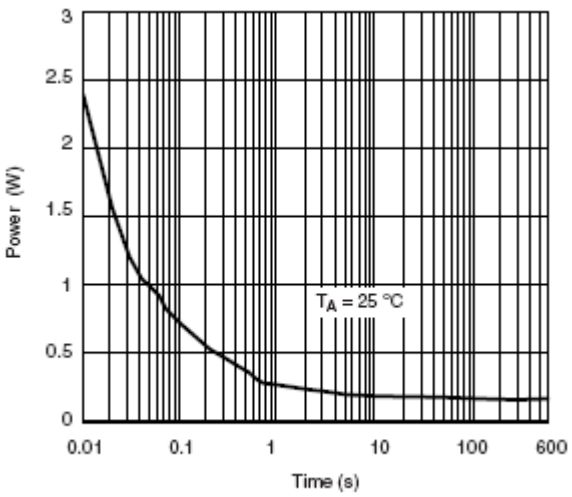
Source-Drain Diode Forward Voltage



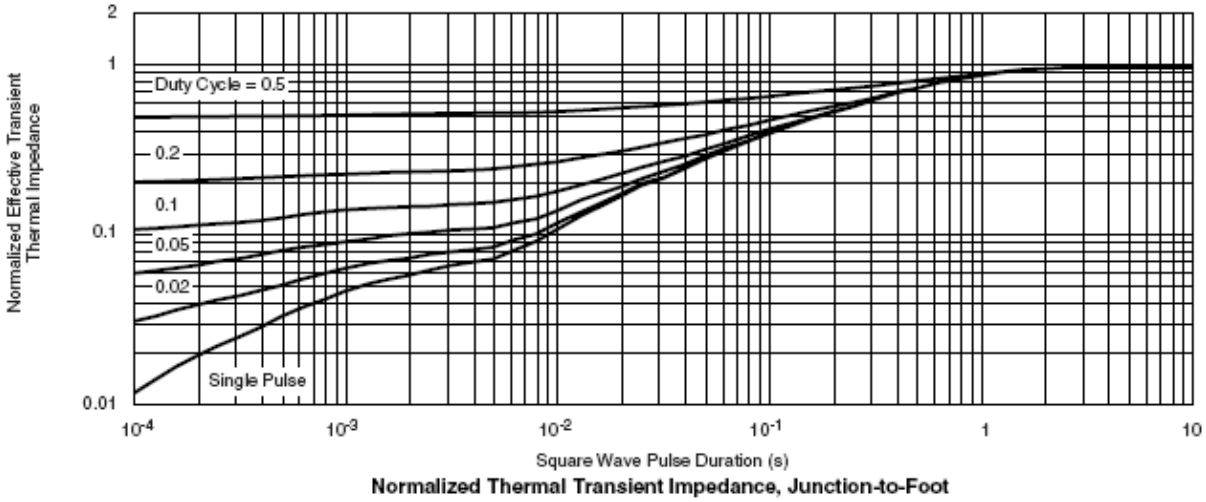
On-Resistance vs. Gate-Source Voltage



Threshold Voltage Variance Over Temperature



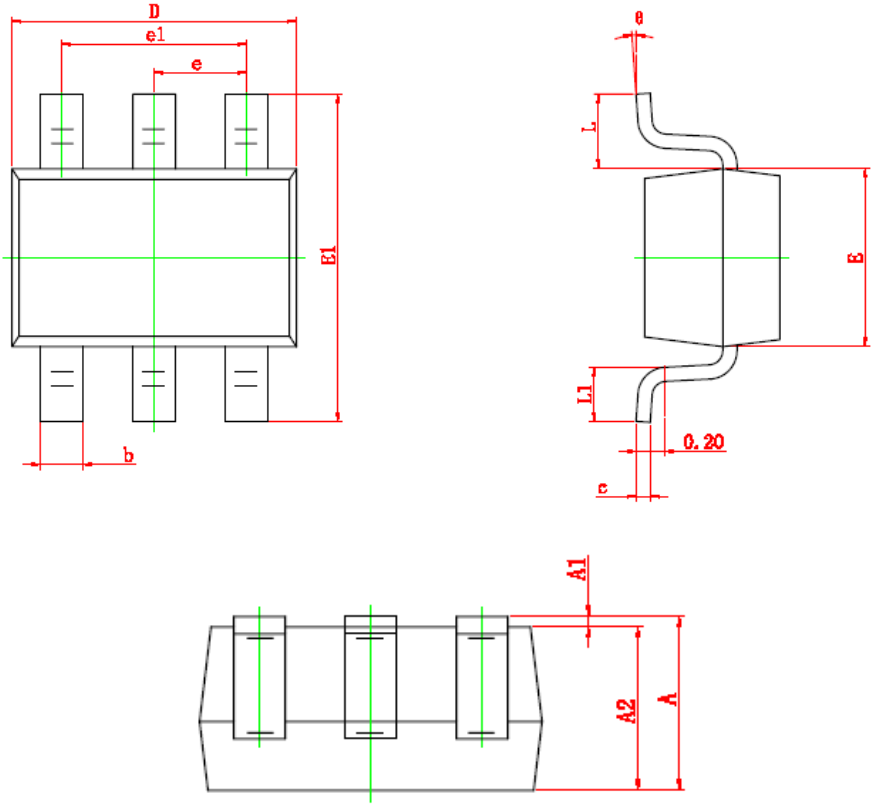
Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

Package Dimension

SOT-363



Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 (TYP)		0.026 (TYP)	
e1	1.200	1.400	0.047	0.055
L	0.525 (REF)		0.021 (REF)	
L1	0.260	0.460	0.010	0.018
θ	0°	8 °	0°	8 °

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