

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.

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.

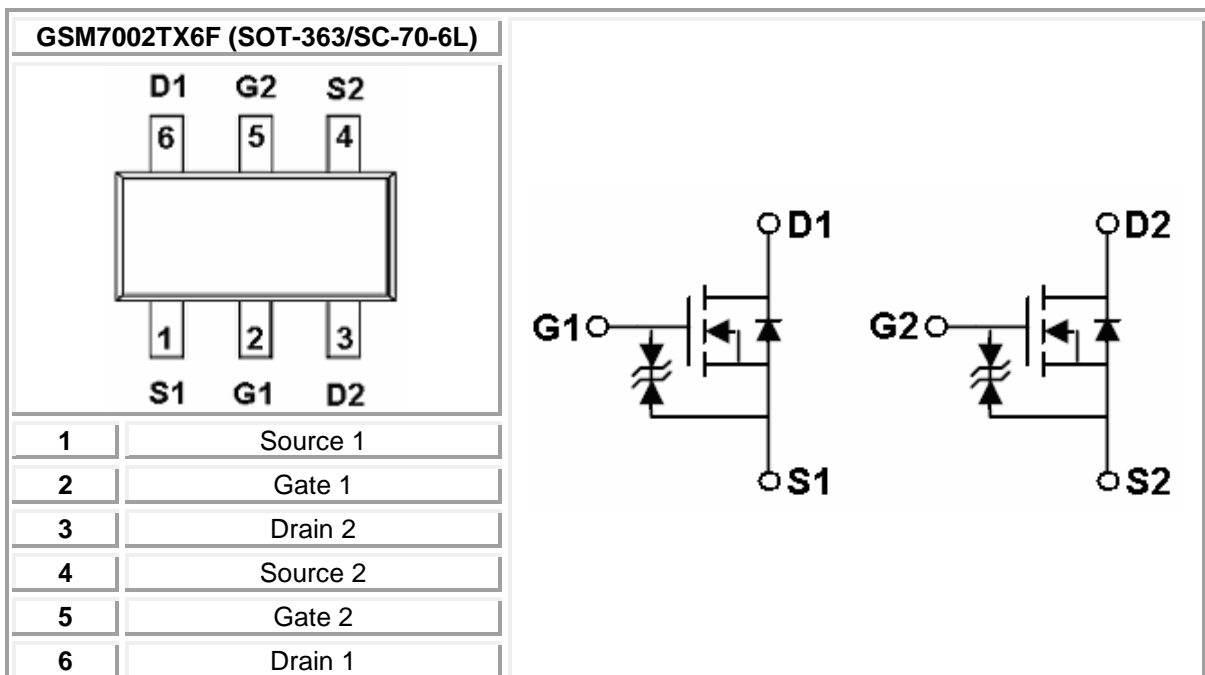
Features

- 60V/0.5A, $R_{DS(ON)}=3.0\Omega@V_{GS}=10V$
- 60V/0.2A, $R_{DS(ON)}=4.0\Omega@V_{GS}=4.5V$
- 60V/0.05A, $R_{DS(ON)}=6.5\Omega@V_{GS}=3V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-363 package design
- With ESD protection

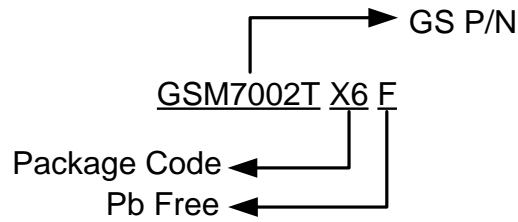
Applications

- 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

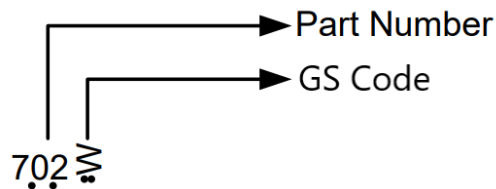
Packages & Pin Assignments



Ordering Information



Marking Information



Part Number	Package	Part Marking
GSM7002TX6F	SOT-363	702W

Absolute Maximum Ratings

T_A=25°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 _A =25°C	0.23	A
		T _A =70°C	0.18	A
I _{DM}	Pulsed Drain Current (*)	0.95	A	
P _D	Power Dissipation	T _A =25°C	0.3	W
		T _A =70°C	0.19	W
T _J	Operating Junction Temperature	-55/150	°C	
T _{STG}	Storage Temperature Range	-55/150	°C	
R _{θJA}	Thermal Resistance-Junction to Ambient	417	°C/W	

(*) Pulse width limited by safe operating area

Electrical Characteristics

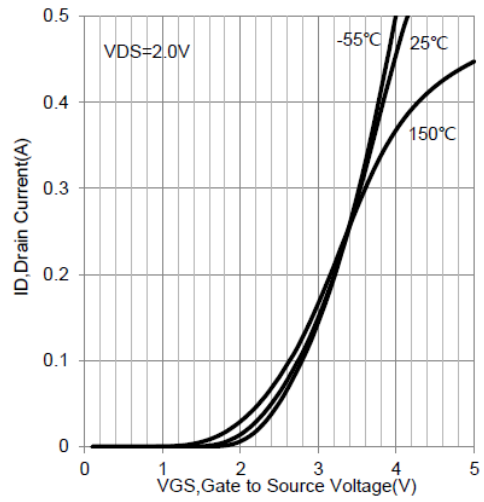
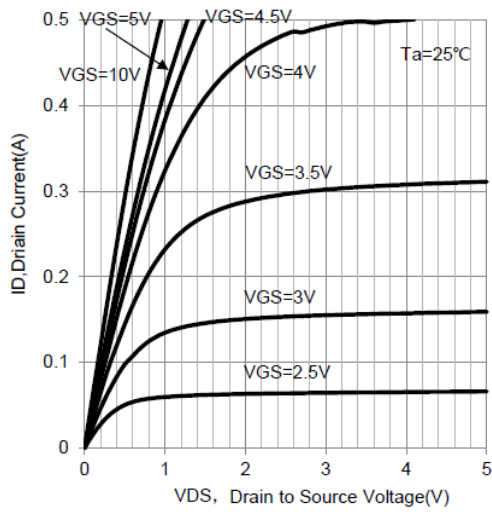
T_A=25°C Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0		2.5	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±10	μA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V T _J =25°C			1	μA
		V _{DS} =48V, V _{GS} =0V T _J =70°C			30	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =0.5A			3.0	Ω
		V _{GS} =4.5V, I _D =0.2A			4.0	
		V _{GS} =3V, I _D =0.05A			6.5	
G _{fs}	Forward Transconductance ¹	V _{DS} =10V, I _D =0.5A	0.1			S
V _{SD}	Diode Forward Voltage ¹	V _{GS} =0V, I _S =0.5A		0.85		V
Dynamic						
Q _g	Total Gate Charge	V _{DD} =10V, I _D =0.5A V _{GS} =4.5V		1.0		nC
Q _{gs}	Gate-Source Charge			0.5		
Q _{gd}	Gate-Drain Charge			0.5		
C _{iss}	Input Capacitance	V _{DS} =25V, f = 1MHz V _{GS} =0V			35	pF
C _{oss}	Output Capacitance				10	
C _{rss}	Reverse Transfer Capacitance				5	
td(on)	Turn-On Time	V _{DD} =30V, I _D =0.5A, R _G =25Ω, V _{GS} =10V R _L =60Ω		6.7		ns
tr				6.5		
td(off)	Turn-Off Time			26		
tf				16		

Note:

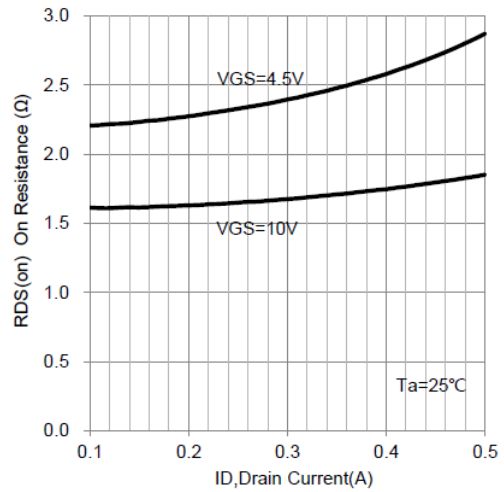
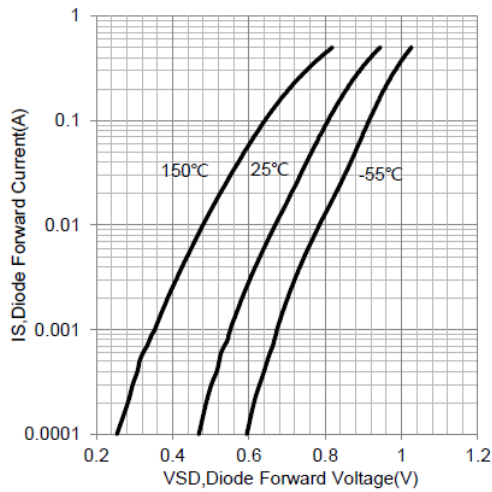
1. Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %.
2. Pulse width limited by safe operating area.

Typical Performance Characteristics



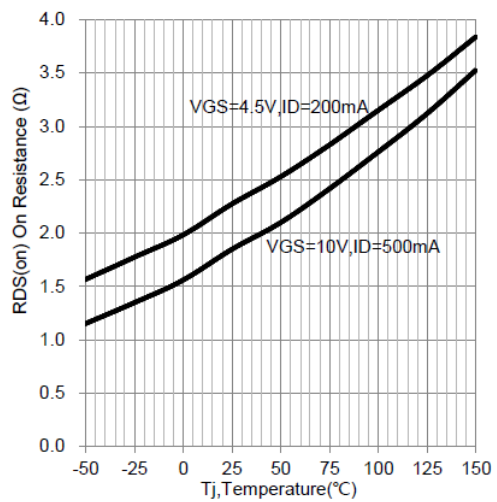
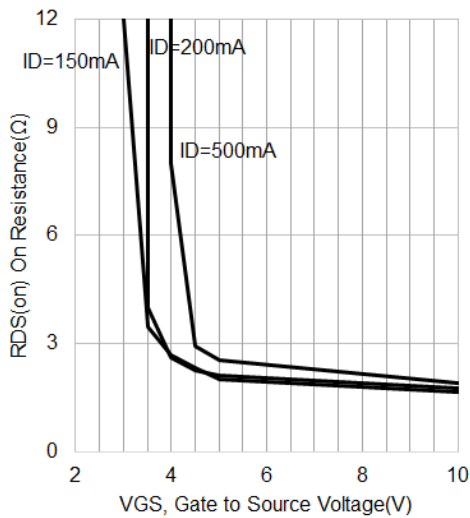
Output Characteristics

Transfer Characteristics



Diode Forward Current vs. Voltage

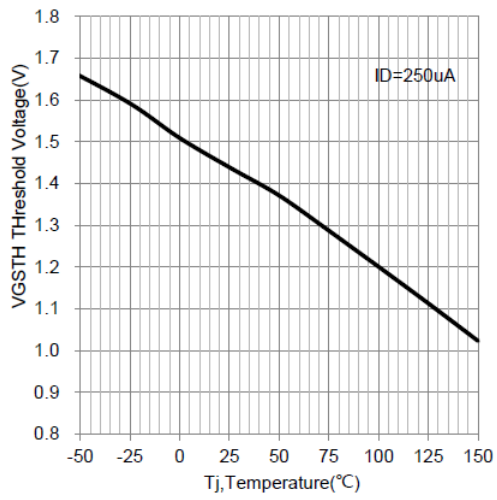
$R_{DS(on)}$ vs. Continuous Drain Current



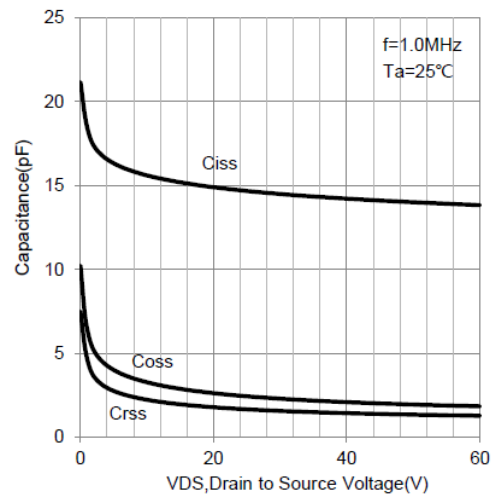
$R_{DS(on)}$ vs. V_{GS}

$R_{DS(on)}$ vs. T_J

Typical Performance Characteristics(Continue)



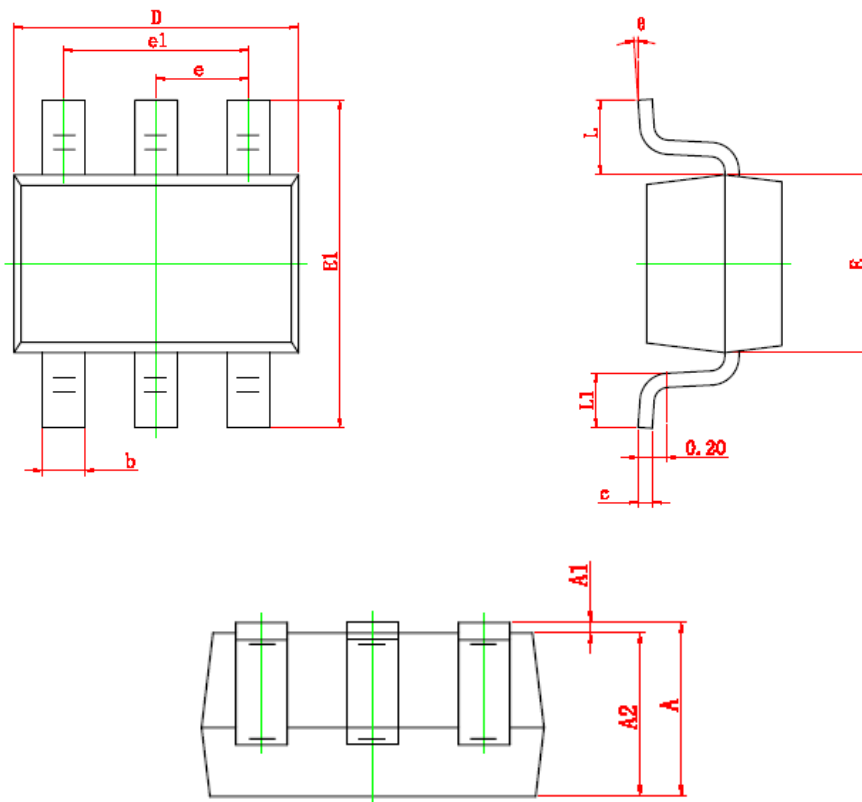
Threshold Voltage vs. T_J



Capacitance

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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