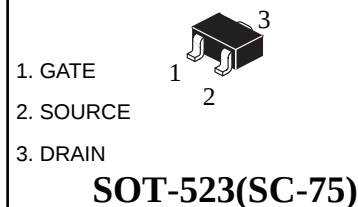


N-Channel ENHANCEMENT MODE POWER MOSFET

 Lead(Pb)-Free



FEATURES:

- * Fast Switching Speed
- * Low On-Resistance
- * Low Voltage Driver

APPLICATIONS:

- * Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- * Battery Operated Systems
- * Power Supply Converter Circuits
- * Load/Power Switching Cell Phones, Pagers

Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Characteristic	Symbol	Values	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current	I_D	115	mA
Total Power Dissipation	P_D	150	mW
Junction temperature Range	T_j	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^{\circ}\text{C}$

Device Marking

2N7002T = K72

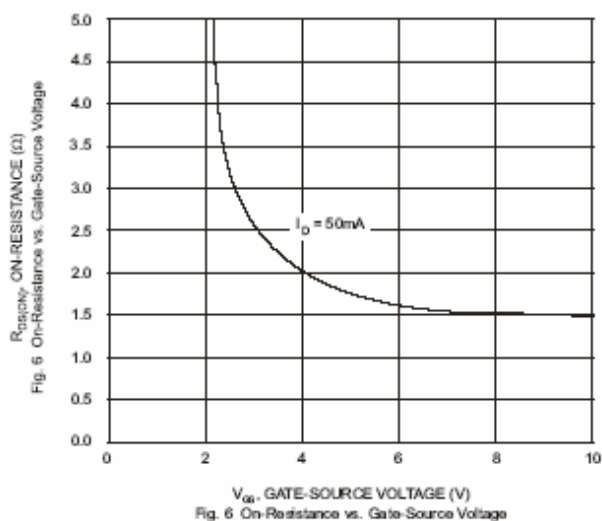
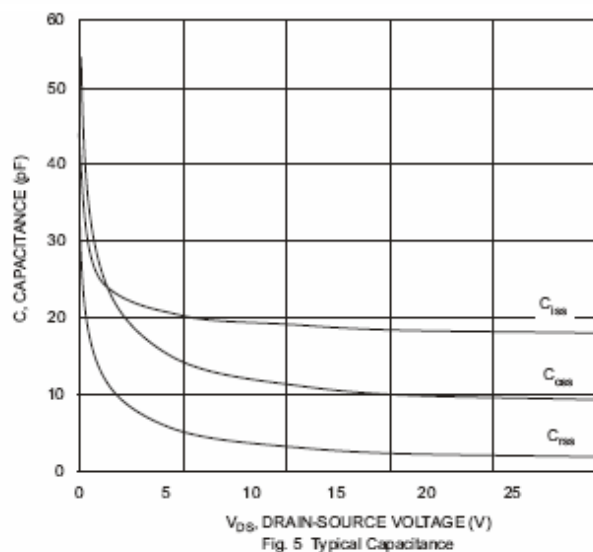
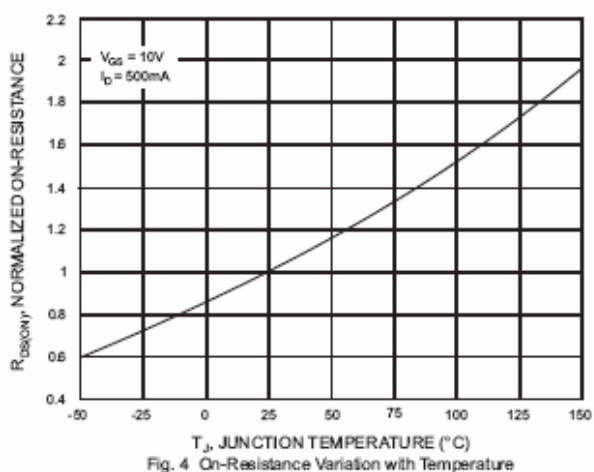
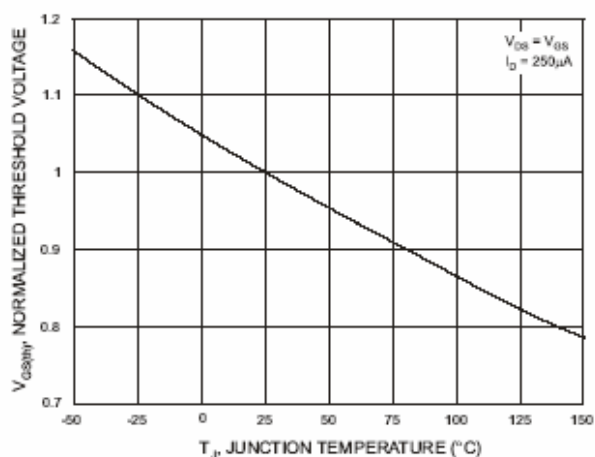
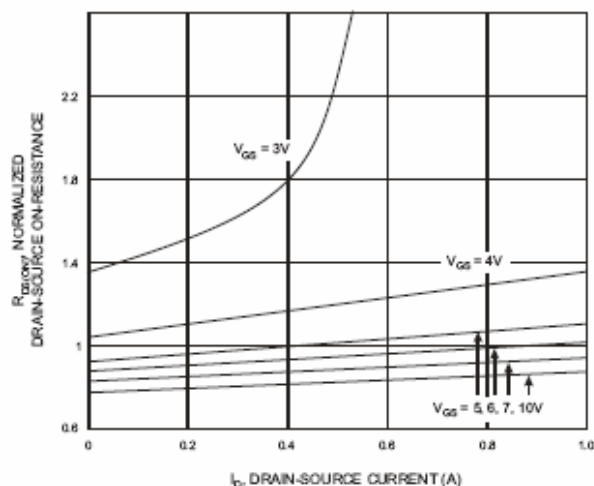
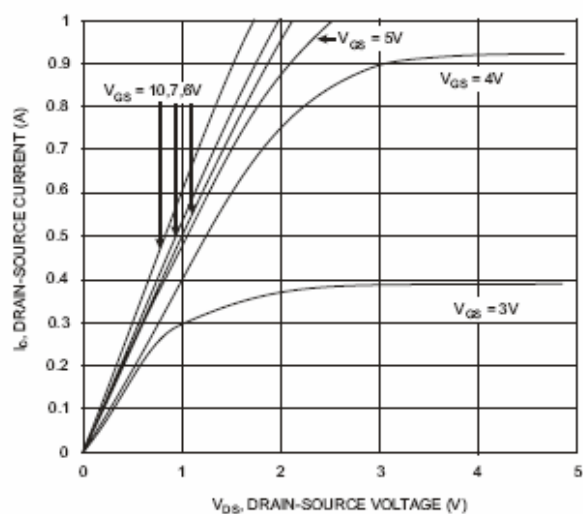
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage V _{GS} =0V, I _D =10μA	V _{(BR)DSS}	60	-	-	V
Gate-Threshold Voltage V _{DS} =V _{GS} , I _D =250μA	V _{th(GS)}	1	-	2	V
Gate-body Leakage* V _{GS} =±20V, V _{DS} =0V	I _{GSS}	-	-	±10	nA
Zero Gate Voltage Drain Current V _{GS} =0V, V _{DS} =60V	I _{DSS}	-	-	1	μA
On-state Drain Current V _{GS} =10V, V _{DS} =7.5V	I _{D(ON)}	500	1000	-	mA
Drain-Source On-Resistance V _{GS} =5V, I _D =50mA V _{GS} =10V, I _D =500mA	R _{DS(on)}	-	2.0 4.4	7.5 13.5	Ω
Forward Transconductance V _{DS} =10V, I _D =200mA	g _{fs}	80	-	-	ms
Input Capacitance V _{DS} =25V, V _{GS} =0V, f=1MHz	C _{iss}	-	22	50	pF
Output Capacitance V _{DS} =25V, V _{GS} =0V, f=1MHz	C _{oss}	-	11	25	
Reverse Transfer Capacitance V _{DS} =25V, V _{GS} =0V, f=1MHz	C _{rss}	-	2	5	

SWITCHING

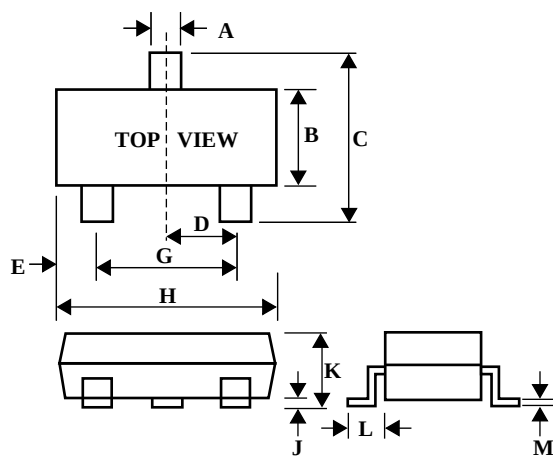
Turn-on Time V _{DD} =30V, R _L =150Ω, I _D =200mA, V _{GEN} =10V, R _{GEN} =25Ω	T _{D(on)}	-	7	20	ns
Turn-off Time V _{DD} =30V, R _L =150Ω, I _D =200mA, V _{GEN} =10V, R _{GEN} =25Ω	T _{D(off)}	-	11	20	

Typical Characteristics



SOT-523 Outline Dimensions

Unit:mm



SOT-523		
Dim	Min	Max
A	0.30	0.50
B	0.70	0.90
C	1.45	1.75
D	-	0.50
E	0.15	0.40
G	0.80	1.00
H	1.40	1.80
J	0.00	0.10
K	0.70	1.00
L	0.37	0.48
M	0.10	0.25