

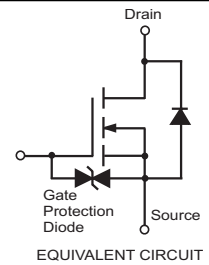
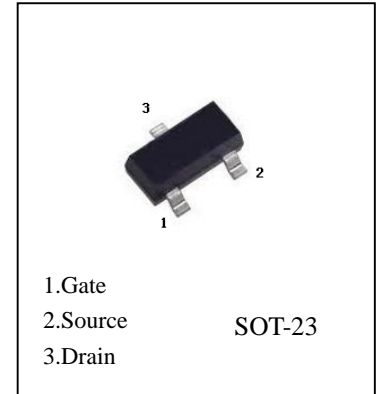
**FEATURE**

- High density cell design for low  $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- ESD Protected Up To 2kV

**MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	20	V
Continuous Drain Current	$I_D$	0.3	A
Power Dissipation	$P_D$	0.225	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	556	$^{\circ}\text{C/W}$
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-50 ~+150	

**2N7002K**  
N-Channel MOSFET



$T_a=25^{\circ}\text{C}$  unless otherwise specified

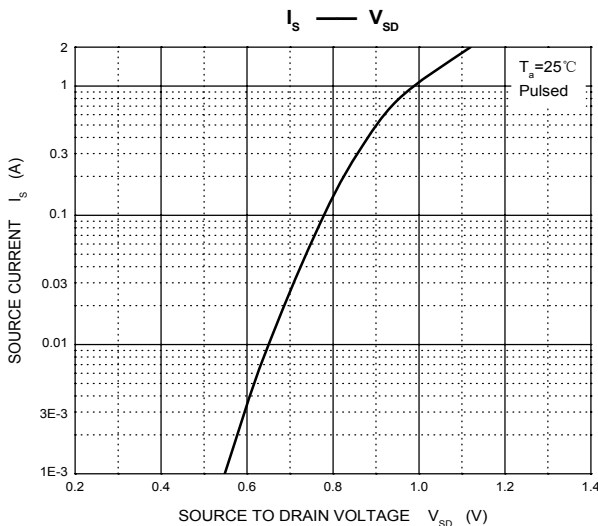
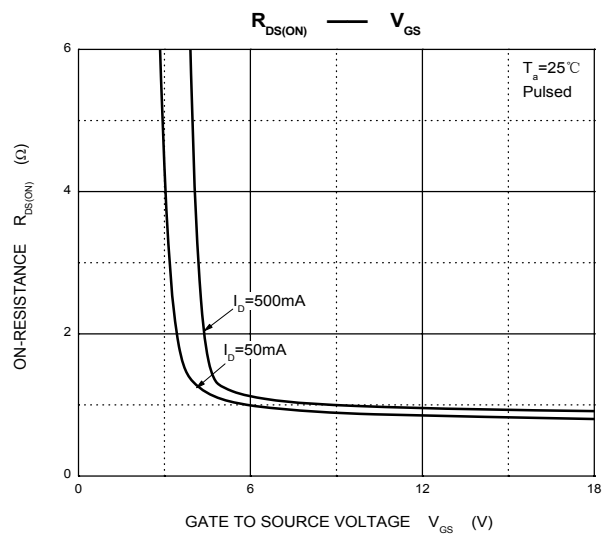
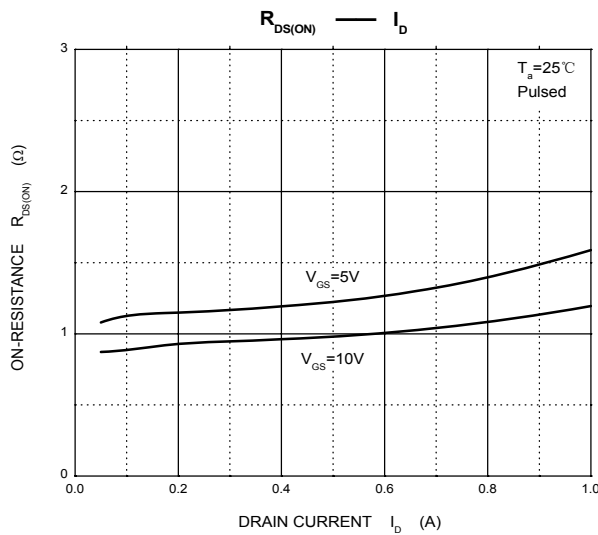
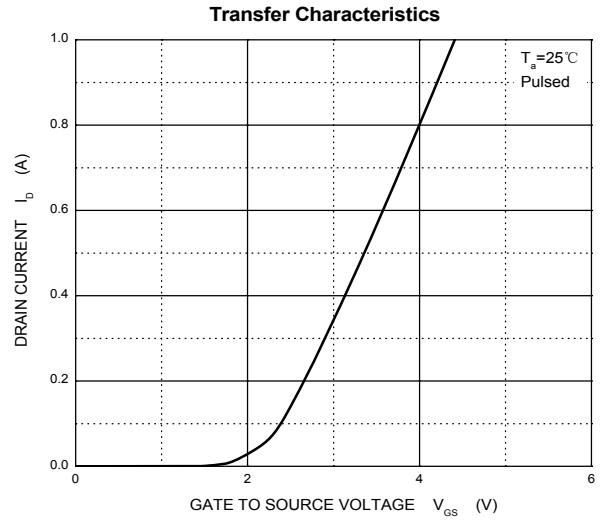
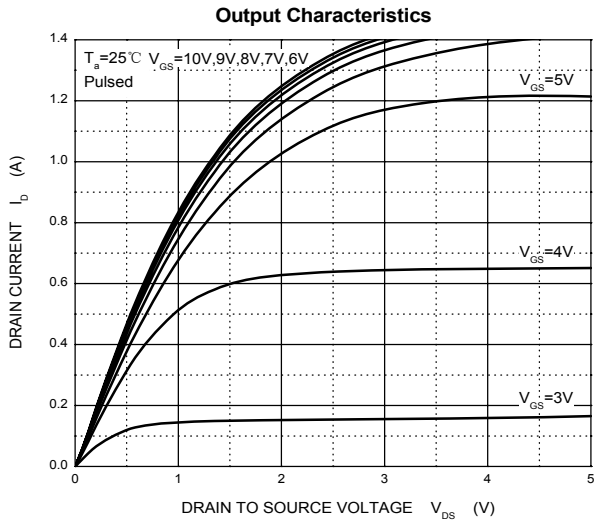
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>Drain-Source Breakdown Voltage</b>	$V_{(BR)DSS}$	$V_{GS}=0\text{ V}, I_D=250\ \mu\text{A}$	60			V
<b>Gate-Threshold Voltage</b>	$V_{th(GS)}$	$V_{DS}=V_{GS}, I_D=250\ \mu\text{A}$	1	1.6	2.5	
<b>Gate-body Leakage</b>	$I_{GSS}$	$V_{DS}=0\text{ V}, V_{GS}=\pm 20\text{ V}$			$\pm 80$	nA
<b>Zero Gate Voltage Drain Current</b>	$I_{DSS}$	$V_{DS}=60\text{ V}, V_{GS}=0\text{ V}$			80	nA
<b>On-state Drain Current</b>	$I_{D(ON)}$	$V_{GS}=10\text{ V}, V_{DS}=7\text{ V}$	500			mA
<b>Drain-Source On-Resistance</b>	$R_{DS(on)}$	$V_{GS}=10\text{ V}, I_D=500\text{mA}$		0.9	5	$\Omega$
		$V_{GS}=5\text{ V}, I_D=50\text{mA}$		1.1	7	
<b>Forward Trans conductance</b>	$g_{fs}$	$V_{DS}=10\text{ V}, I_D=200\text{mA}$	80			ms
<b>Drain-source on-voltage</b>	$V_{DS(on)}$	$V_{GS}=10\text{V}, I_D=500\text{mA}$			3.75	V
		$V_{GS}=5\text{V}, I_D=50\text{mA}$			0.375	V
<b>Diode Forward Voltage</b>	$V_{SD}$	$I_S=115\text{mA}, V_{GS}=0\text{ V}$	0.55		1.2	V
<b>Input Capacitance *</b>	$C_{iss}$	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$			50	pF
<b>Output Capacitance *</b>	$C_{oss}$				25	
<b>Reverse Transfer Capacitance *</b>	$C_{rss}$				5	

**SWITCHING TIME**

<b>Turn-on Time *</b>	$t_{d(on)}$	$V_{DD}=25\text{ V}, R_L=50\Omega,$ $I_D=500\text{mA}, V_{GEN}=10\text{ V}$			20	ns
<b>Turn-off Time *</b>	$t_{d(off)}$	$R_G=25\Omega$			40	

\*These parameters have no way to verify.

**2N7002K**



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