

DESCRIPTION	The 2SK591 is N-Channel MOS Field Effect Power Transistor designed for solenoid, motor and lamp driver.
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- FEATURES**
- 4 V Gate Drive — Logic level —
 - Low $R_{DS(on)}$
 - No Secondary Breakdown

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature -55 to + 150 °C

Channel Temperature 150 °C Maximum

Maximum Power Dissipations

Total Power Dissipation ($T_a = 25^\circ\text{C}$) . . . 2.0 W

Total Power Dissipation ($T_C = 25^\circ\text{C}$) . . . 35 W

Maximum Voltages and Currents ($T_a = 25^\circ\text{C}$)

V_{DSS}	Drain to Source Voltage	60	V
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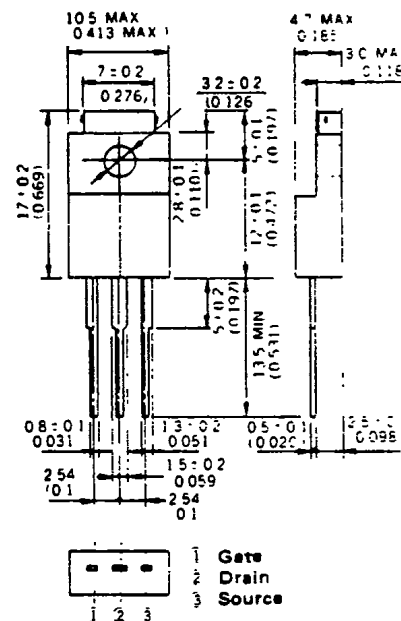
V_{GSS}	Gate to Source Voltage	±20	V
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$I_{D(DC)}$	Drain Current (DC)	± 15	A
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$I_{D(\text{pulse})}$	Drain Current (pulse)*	± 60	A
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*PW $\leq 300 \mu s$, Duty Cycle $\leq 10 \%$

PACKAGE DIMENSIONS
in millimeters (inches)

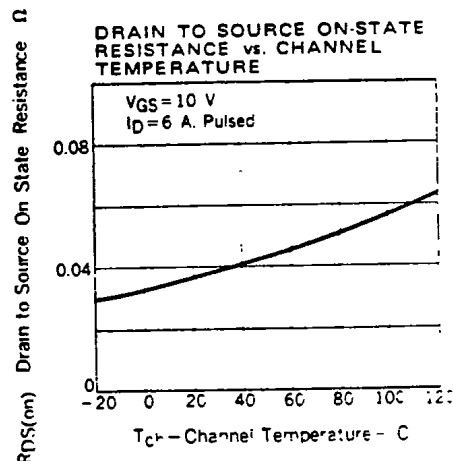
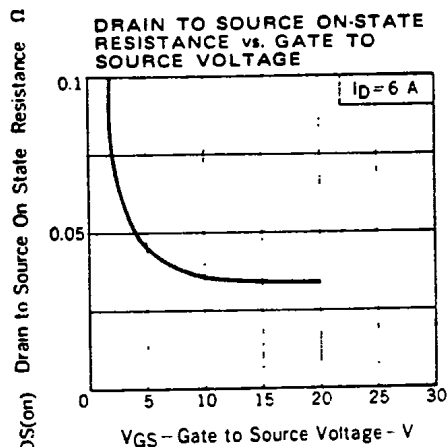
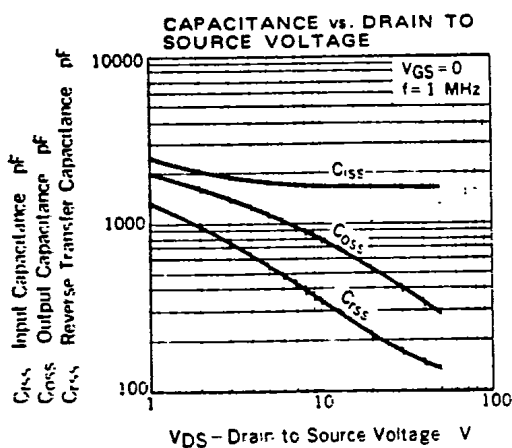
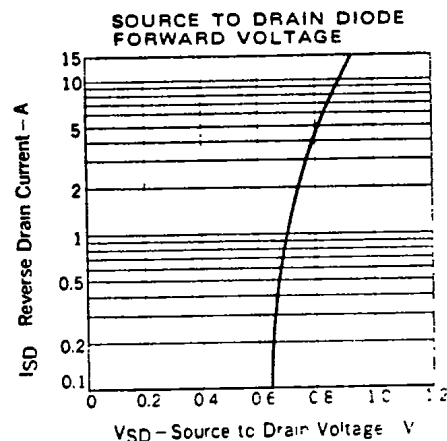
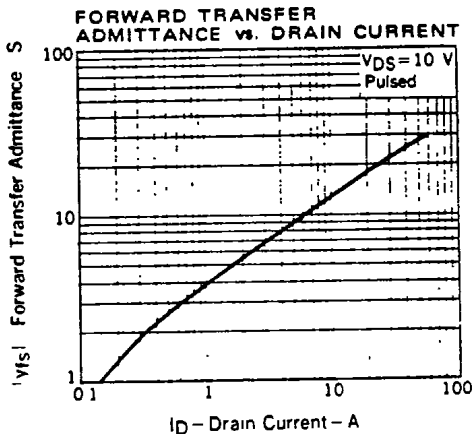
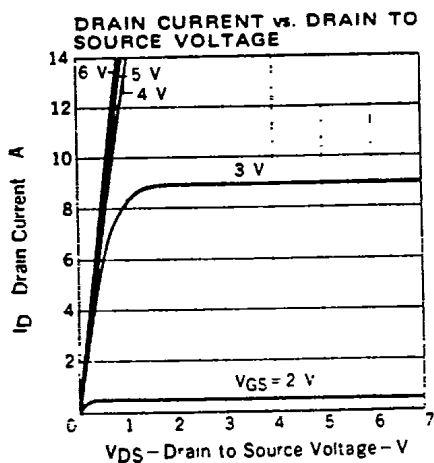
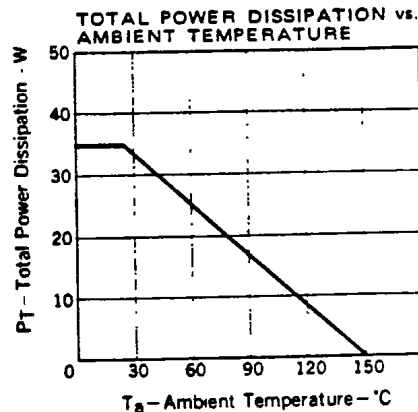
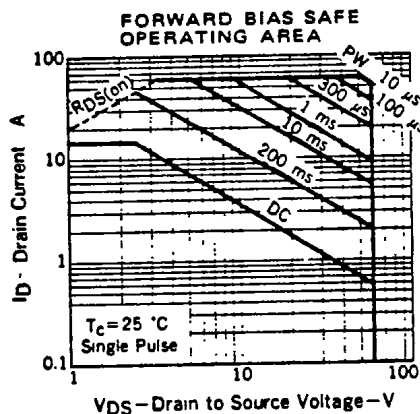
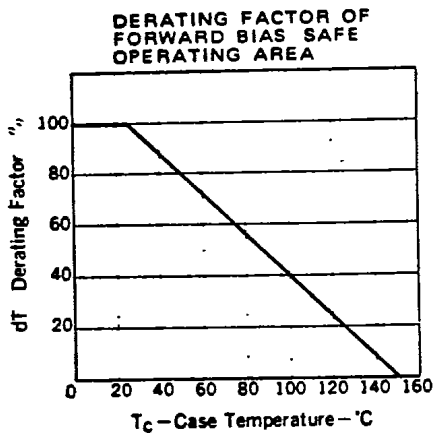


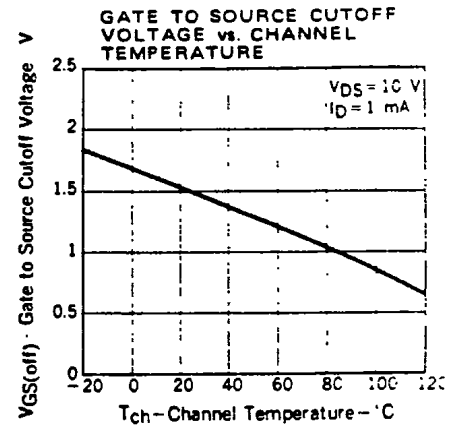
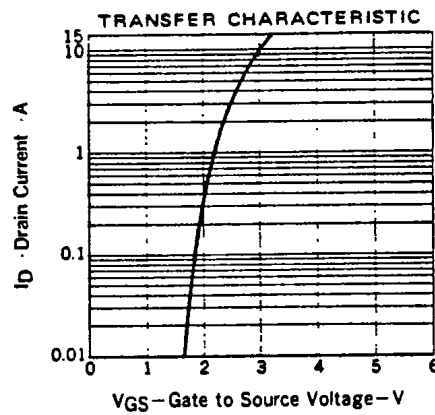
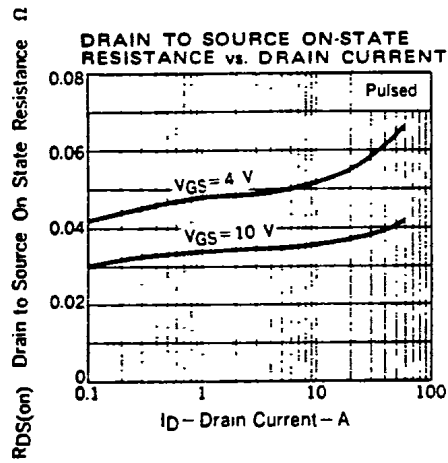
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$R_{DS(on)}$	Drain to Source On-State Resistance			0.055	Ω	$V_{GS} = 10\text{ V}, I_D = 6\text{ A}$
$R_{DS(on)}$	Drain to Source On-State Resistance			0.070	Ω	$V_{GS} = 4\text{ V}, I_D = 6\text{ A}$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	1		2.5	V	$V_{DS} = 10\text{ V}, I_D = 1\text{ mA}$
$ Y_{fs} $	Forward Transfer Admittance	5			S	$V_{DS} = 10\text{ V}, I_D = 6\text{ A}$
I_{DSS}	Drain Leakage Current			10	μA	$V_{DS} = 60\text{ V}, V_{GS} = 0$
I_{GSS}	Gate to Source Leakage Current			± 100	nA	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0$
C_{iss}	Input Capacitance		1800		pF	$V_{DS} = 10\text{ V}$
C_{oss}	Output Capacitance		800		pF	$V_{GS} = 0$
C_{rss}	Reverse Transfer Capacitance		350		pF	$f = 1\text{ MHz}$
$t_{d(on)}$	Turn On Delay Time		20		ns	
t_r	Rise Time		85		ns	$I_D = 6\text{ A}, V_{CC} \approx 30\text{ V}$
$t_{d(off)}$	Turn Off Delay Time		240		ns	$R_L = 5\ \Omega, V_{GS(on)} = 10\text{ V}$
t_f	Fall Time		230		ns	$R_{in} = 10\ \Omega$

NEC cannot assume any responsibility for any circuits shown or represent that they are free from patent infringement.

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)





SWITCHING TIME TEST CIRCUIT

