

# N-CHANNEL MOS FIELD EFFECT POWER TRANSISTOR

## 2SK703

**DESCRIPTION** The 2SK703 is N-Channel MOS Field Effect Power Transistor designed for solenoid, motor and lamp driver.

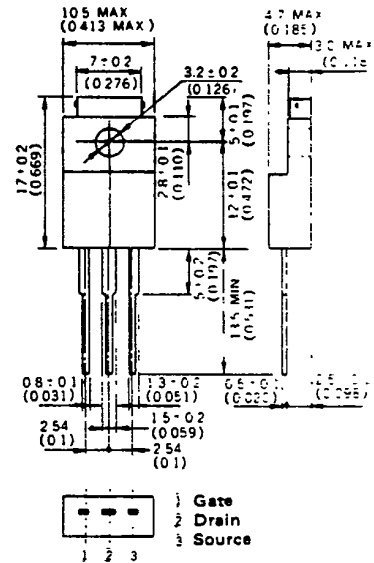
- FEATURES**
- 4 V Gate Drive – Logic level –
  - Low  $R_{DS(on)}$
  - No Second Breakdown

**ABSOLUTE MAXIMUM RATINGS**

Maximum Temperatures	
Storage Temperature . . . . .	-55 to +150 °C
Junction Temperature . . . . .	150 °C Maximum
Maximum Power Dissipations	
Total Power Dissipation . . . . .	2.0 W
Total Power Dissipation ( $T_c = 25 °C$ ) . . . . .	35 W
Maximum Voltages and Currents ( $T_a = 25 °C$ )	
$V_{DS}$ Drain to Source Voltage . . . . .	100 V
$V_{GS}$ Gate to Source Voltage . . . . .	±20 V
$I_{D(DC)}$ Drain Current (DC) . . . . .	±5 A
$I_{D(pulse)}$ Drain Current (pulse)* . . . . .	±20 A

\* $PW \leq 300 \mu s$ , Duty Cycle  $\leq 10 \%$

**PACKAGE DIMENSIONS**  
in millimeters (inches)



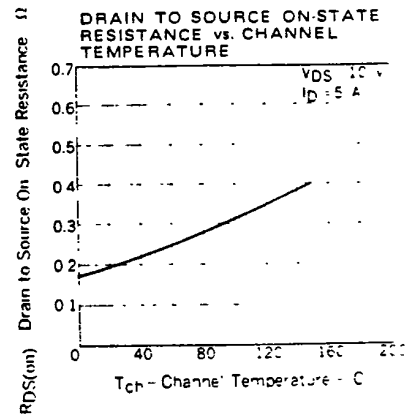
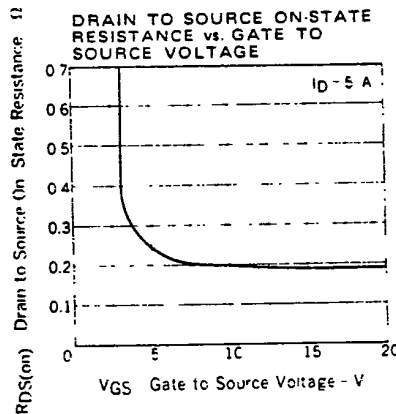
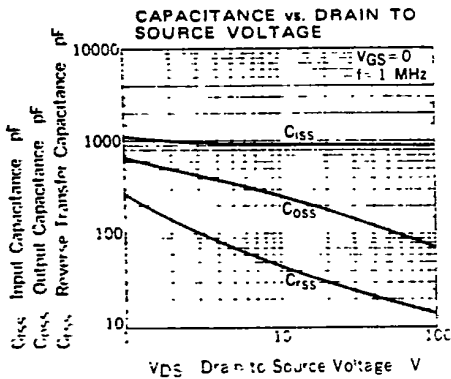
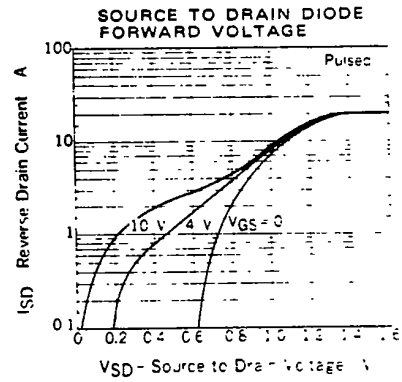
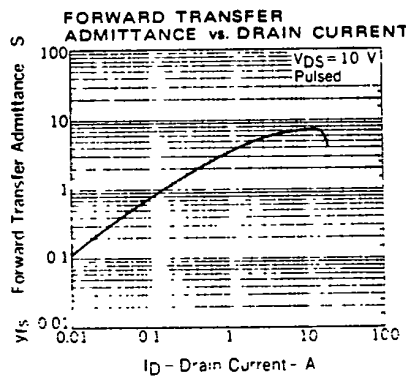
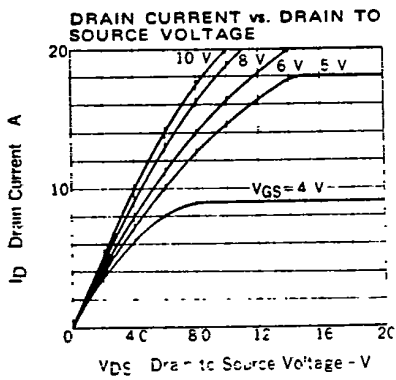
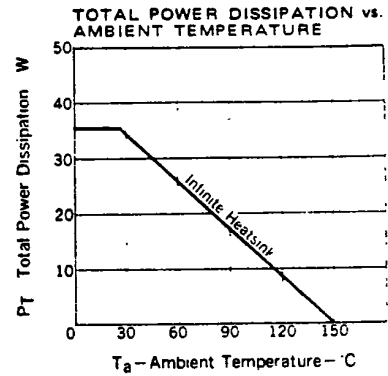
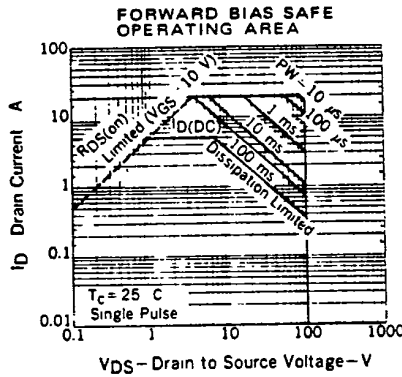
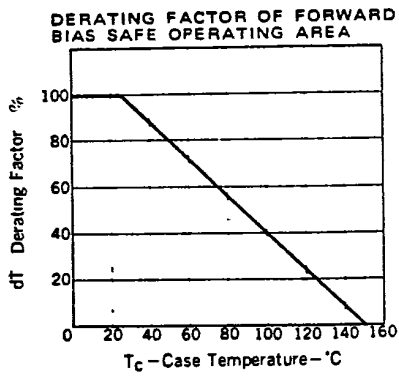
**ELECTRICAL CHARACTERISTICS ( $T_a = 25 °C$ )**

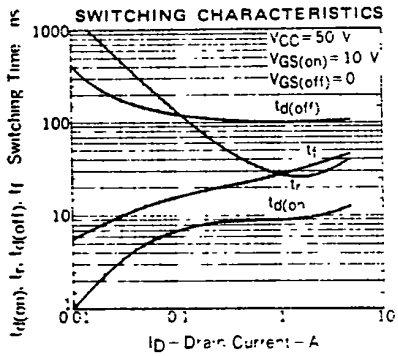
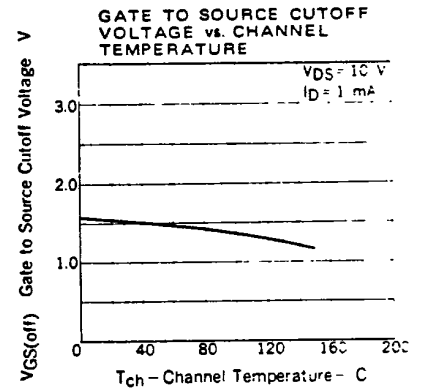
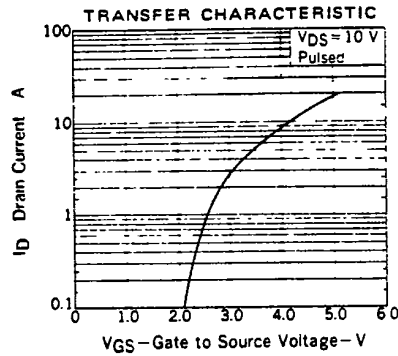
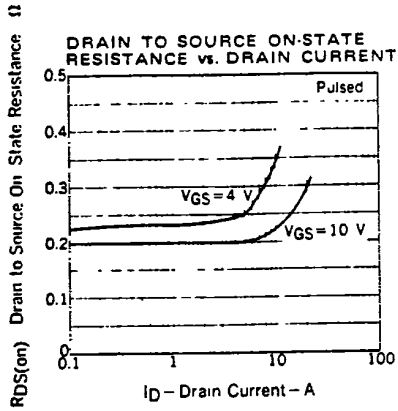
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$R_{DS(on)}$	Drain to Source On-State Resistance		0.20	0.45	$\Omega$	$V_{GS} = 10 V, I_D = 5 A$
$R_{DS(on)}$	Drain to Source On-State Resistance		0.25	0.50	$\Omega$	$V_{GS} = 4 V, I_D = 5 A$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	1.0		2.5	V	$V_{DS} = 10 V, I_D = 1 mA$
$ y_{fs} $	Forward Transfer Admittance	4.0			S	$V_{DS} = 10 V, I_D = 3 A$
$I_{DSS}$	Drain Leakage Current			10	$\mu A$	$V_{DS} = 100 V, V_{GS} = 0$
$I_{GSS}$	Gate to Source Leakage Current			±100	nA	$V_{GS} = \pm 20 V, V_{DS} = 0$
$C_{iss}$	Input Capacitance		900		pF	$V_{DS} = 10 V$
$C_{oss}$	Output Capacitance		250		pF	$V_{GS} = 0$
$C_{rss}$	Reverse Transfer Capacitance		45		pF	$f = 1 MHz$
$t_{d(on)}$	Turn-On Delay Time		10		ns	
$t_r$	Rise Time		40		ns	$I_D = 3 A, V_{CC} \approx 50 V$
$t_{d(off)}$	Turn-Off Delay Time		110		ns	$R_L = 17 \Omega$
$t_f$	Fall Time		30		ns	$R_{in} = 10 \Omega$

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

2SK703

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





**SWITCHING TIME TEST CIRCUIT**

