

# N-CHANNEL MOS FIELD EFFECT POWER TRANSISTOR

## 2SK701

**DESCRIPTION** The 2SK701 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 . . . . .  $1.3$  W

Total Power Dissipation ( $T_C = 25$  °C) . . . . .  $15$  W

#### Maximum Voltages and Currents ( $T_a = 25$ °C)

$V_{DSS}$  Drain to Source Voltage . . . . .  $60$  V

$V_{GSS}$  Gate to Source Voltage . . . . .  $\pm 20$  V

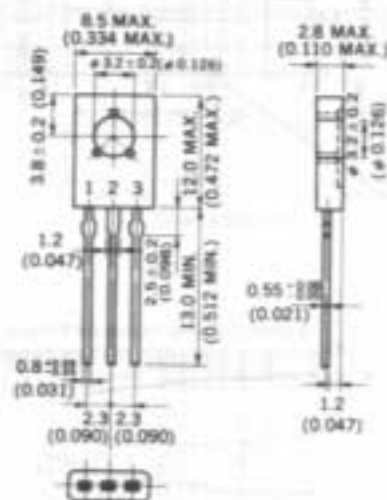
$I_{D(DC)}$  Drain Current (DC) . . . . .  $\pm 2$  A

$I_{D(pulse)}$  Drain Current (pulse)\* . . . . .  $\pm 6$  A

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

### PACKAGE DIMENSIONS

in millimeters (inches)



1. Source
2. Drain connected to mounting plane
3. Gate

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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$R_{DS(on)}$	Drain to Source On-State Resistance		0.4	0.6	$\Omega$	$V_{GS} = 10$ V, $I_D = 1$ A
$R_{DS(on)}$	Drain to Source On-State Resistance		0.6	0.85	$\Omega$	$V_{GS} = 4$ V, $I_D = 1$ A
$V_{GS(off)}$	Gate to Source Cutoff Voltage	1.0		2.5	V	$V_{DS} = 10$ V, $I_D = 1$ mA
$ W_{21} $	Forward Transfer Admittance	0.5			S	$V_{DS} = 10$ V, $I_D = 1$ A
$I_{DSS}$	Drain Leakage Current			10	$\mu$ A	$V_{DS} = 60$ V, $V_{GS} = 0$
$I_{GSS}$	Gate to Source Leakage Current			$\pm 100$	nA	$V_{GS} = \pm 20$ V, $V_{DS} = 0$
$C_{iss}$	Input Capacitance		200		pF	$V_{DS} = 10$ V
$C_{oss}$	Output Capacitance		70		pF	$V_{GS} = 0$
$C_{rss}$	Reverse Transfer Capacitance		15		pF	$f = 1$ MHz
$t_{d(on)}$	Turn-On Delay Time		45		ns	$I_D = 1$ A, $V_{CC} = 50$ V $R_L = 50$ $\Omega$ $R_{DS} = 10$ $\Omega$
$t_r$	Rise Time		40		ns	
$t_{d(off)}$	Turn-Off Delay Time		450		ns	
$t_f$	Fall Time		110		ns	