

# N-CHANNEL MOS FIELD EFFECT POWER TRANSISTOR

## 2SK705

**DESCRIPTION** The 2SK705 is N-Channel MOS Field Effect Power Transistor designed for solenoid, motor and lamp driver.

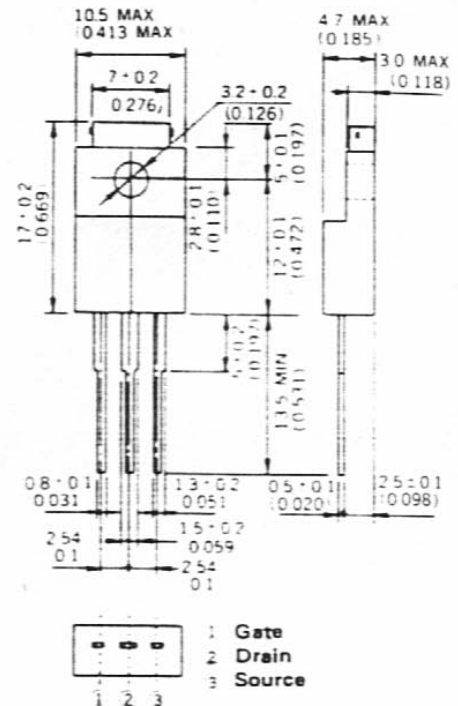
- FEATURES**
- 4 V Gate Drive – Logic level –
  - Low  $R_{DS(on)}$
  - No Secondary Breakdown

### ABSOLUTE MAXIMUM RATINGS

<b>Maximum Temperatures</b>	
Storage Temperature	-55 to +150 °C
Channel Temperature	150 °C Maximum
<b>Maximum Power Dissipations</b>	
Total Power Dissipation ( $T_a = 25\text{ °C}$ )	2.0 W
Total Power Dissipation ( $T_c = 25\text{ °C}$ )	35 W
<b>Maximum Voltages and Currents (<math>T_a = 25\text{ °C}</math>)</b>	
$V_{DS}$ Drain to Source Voltage	60 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 ≤ 300 μs, Duty Cycles ≤ 2 %	

### PACKAGE DIMENSIONS

in millimeters (inches)



### ELECTRICAL CHARACTERISTICS ( $T_a = 25\text{ °C}$ )

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$R_{DS(on)}$	Drain to Source On-State Resistance		0.11	0.25	$\Omega$	$V_{GS} = 10\text{ V}, I_D = 5\text{ A}$
$R_{DS(on)}$	Drain to Source On-State Resistance		0.17	0.30	$\Omega$	$V_{GS} = 4\text{ V}, I_D = 5\text{ A}$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	1.0		2.5	V	$V_{DS} = 10\text{ V}, I_D = 1\text{ mA}$
$ y_{fs} $	Forward Transfer Admittance	5.0			S	$V_{DS} = 10\text{ V}, I_D = 3\text{ A}$
$I_{DSS}$	Drain Leakage Current			10	$\mu\text{A}$	$V_{DS} = 60\text{ V}, V_{GS} = 0$
$I_{GSS}$	Gate to Source Leakage Current			±100	nA	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0$
$C_{iss}$	Input Capacitance		900		pF	$V_{DS} = 10\text{ V}$
$C_{oss}$	Output Capacitance		350		pF	$V_{GS} = 0$
$C_{rss}$	Reverse Transfer Capacitance		100		pF	$f = 1\text{ MHz}$
$t_{d(on)}$	Turn-On Delay Time		10		ns	$I_D = 3\text{ A}, V_{CC} \approx 50\text{ V}$ $R_L = 17\ \Omega, V_{GS(on)} = 10\text{ V}$ $R_{in} = 10\ \Omega$
$t_r$	Rise Time		40		ns	
$t_{d(off)}$	Turn-Off Delay Time		110		ns	
$t_f$	Fall Time		30		ns	