N-CHANNEL MOS FIELD EFFECT POWER TRANSISTOR

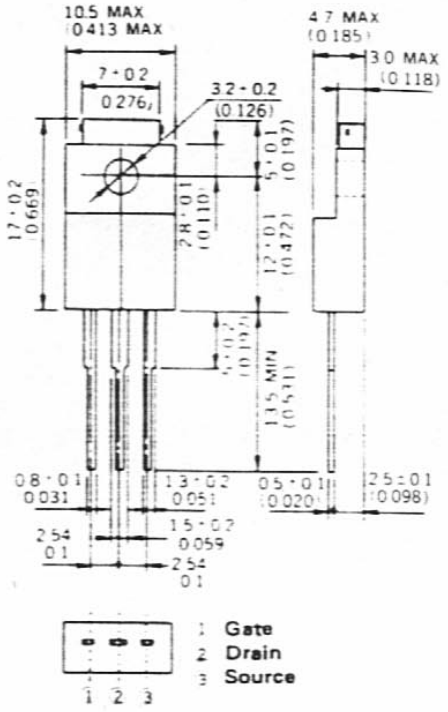
2SK705

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

PACKAGE DIMENSIONS
in millimeters (inches)



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 °C) . . . 2.0 W
- Total Power Dissipation (T_c = 25 °C) . . . 35 W

Maximum Voltages and Currents (T_a = 25 °C)

- V_{DSS} Drain to Source Voltage . . . . . 60 V
- V_{GSS} 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 %

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

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