

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.

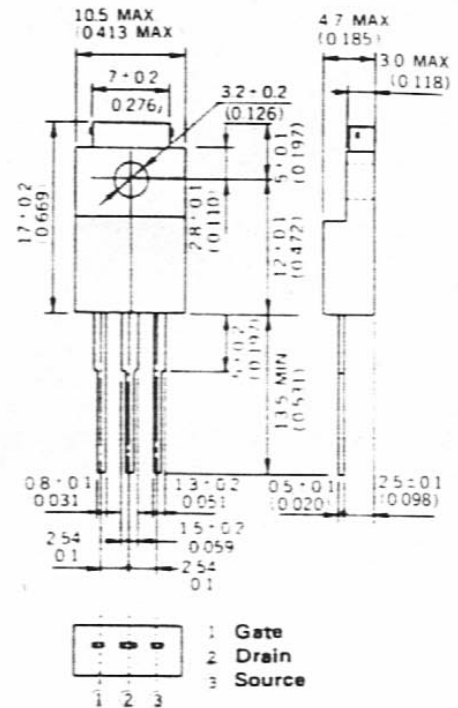
- FEATURES**
- 4 V Gate Drive – Logic level –
 - Low $R_{DS(on)}$
 - No Secondary Breakdown

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures	
Storage Temperature	-55 to +150 °C
Channel Temperature	150 °C Maximum
Maximum Power Dissipations	
Total Power Dissipation ($T_a = 25\text{ °C}$)	2.0 W
Total Power Dissipation ($T_c = 25\text{ °C}$)	35 W
Maximum Voltages and Currents ($T_a = 25\text{ °C}$)	
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	Ω	$V_{GS} = 10\text{ V}, I_D = 5\text{ A}$
$R_{DS(on)}$	Drain to Source On-State Resistance		0.17	0.30	Ω	$V_{GS} = 4\text{ V}, I_D = 5\text{ A}$
$V_{GS(off)}$	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	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		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	