



N-CHANNEL MOS FIELD EFFECT POWER TRANSISTOR

2SK704

DESCRIPTION The 2SK704 is N-Channel MOS Field Effect Power Transistor designed for solenoid, motor and lamp driver.

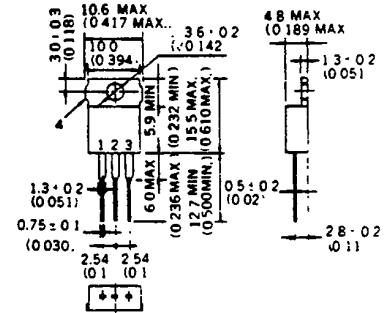
- FEATURES**
- 4 V Gate Drive – Logic level –
 - Low $R_{DS(on)}$
 - No Second Breakdown

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures	
Storage Temperature	–55 to +150 °C
Junction Temperature	150 °C Maximum
Maximum Power Dissipations	
Total Power Dissipation	1.5 W
Total Power Dissipation ($T_C = 25\text{ °C}$)	50 W
Maximum Voltages and Currents ($T_A = 25\text{ °C}$)	
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

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

PACKAGE DIMENSIONS
in millimeters (inches)



1. Gate
2. Drain
3. Source
4. Fin (Drain)

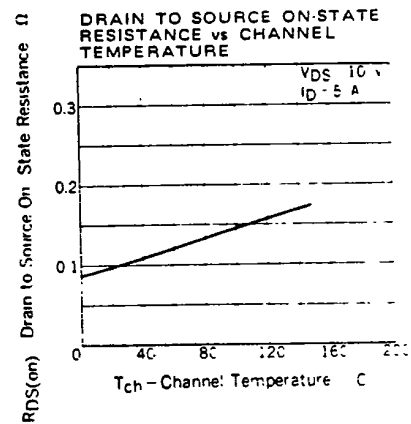
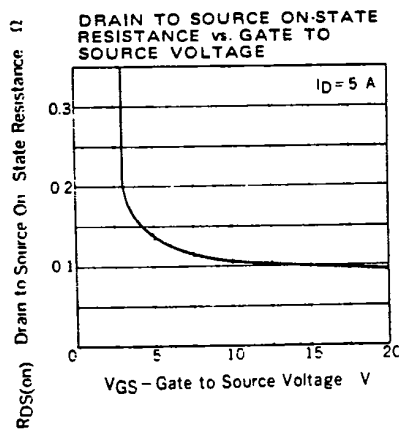
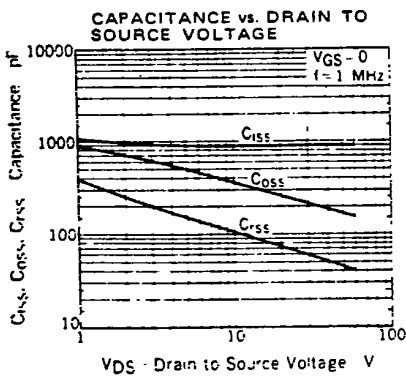
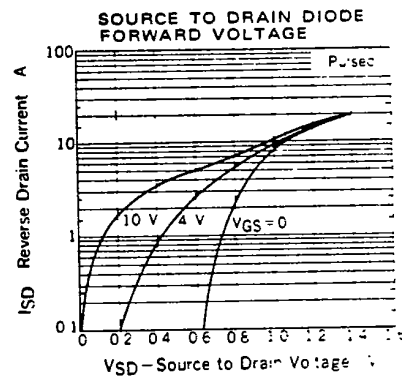
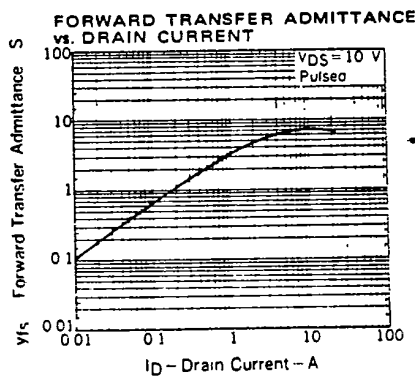
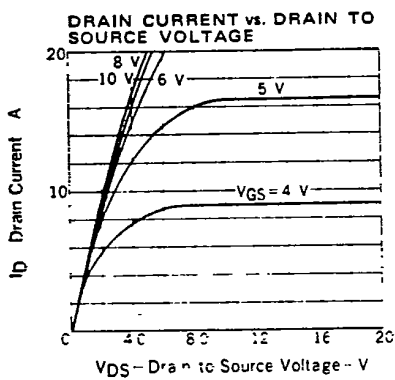
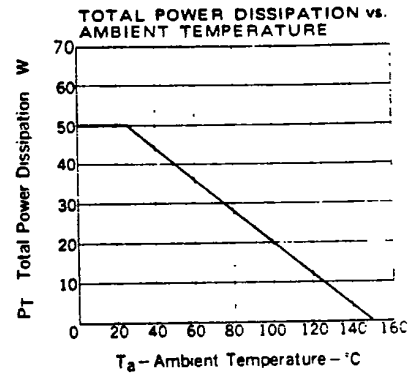
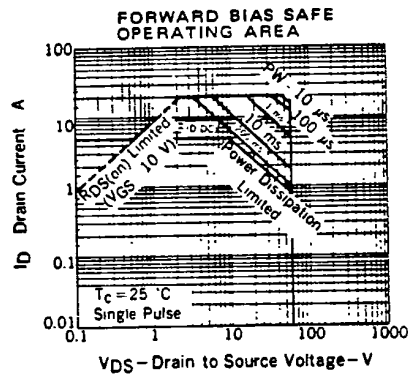
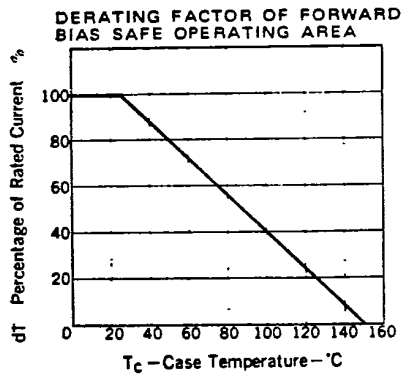
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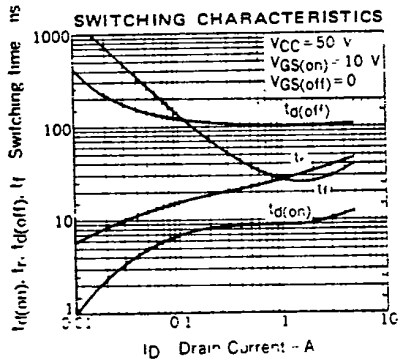
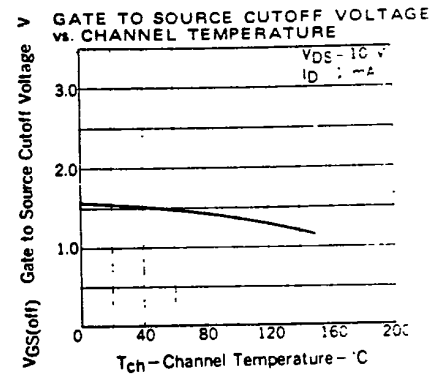
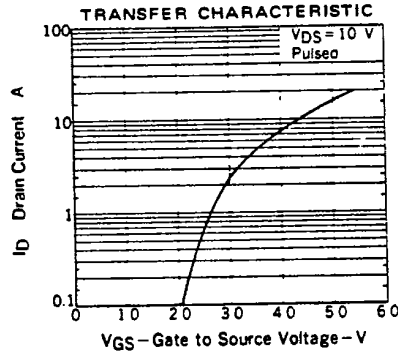
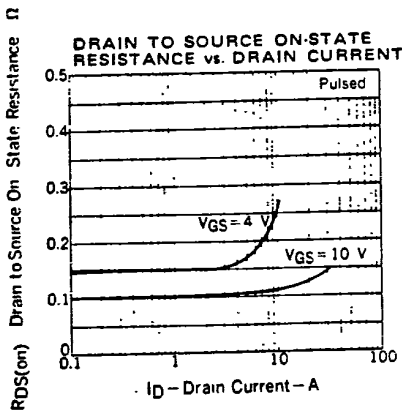
ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ °C}$)

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	4.0			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	$I_D = 3\text{ A}, V_{CC} \approx 10\text{ V}$ $R_L = 17\ \Omega$ $R_{in} = 10\ \Omega$
t_r	Rise Time		40		ns	
$t_d(off)$	Turn-Off Delay Time		110		ns	
t_f	Fall Time		30		ns	

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

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





SWITCHING TIME TEST CIRCUIT

