

N-CHANNEL MOS FIELD EFFECT POWER TRANSISTOR

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2SK785

DESCRIPTION The 2SK785 is N-channel MOS Field Effect Power Transistor designed for switching power supplies DC-DC converters.

FEATURES

- Suitable for switching power supplies, actuator controls, and pulse circuits.
- Low $R_{DS(on)}$
- No second breakdown

ABSOLUTE MAXIMUM RATINGS

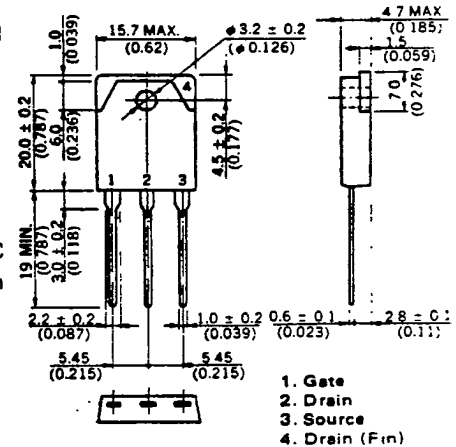
Maximum Temperatures

Storage Temperature -55 to $+150$ °CChannel Temperature 150 °C MaximumMaximum Power Dissipation ($T_C = 25$ °C)

Total Power Dissipation 150 W

Maximum Voltages and Currents ($T_a = 25$ °C) V_{DS} Drain to Source Voltage 500 V V_{GS} Gate to Source Voltage ± 20 V $I_{D(DC)}$ Drain Current (DC) ± 20 A $I_{D(pulse)}$ Drain Current (pulse)* ± 80 A* $PW \leq 300$ μs , Duty Cycle ≤ 2 %**PACKAGE DIMENSIONS**

in millimeters (inches)



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

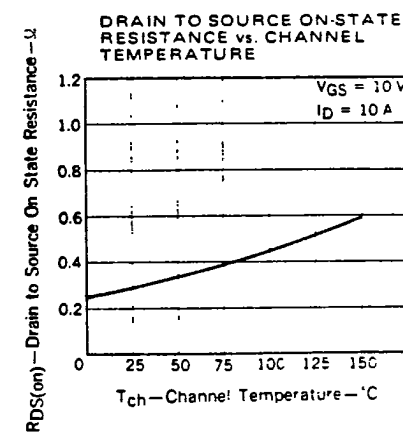
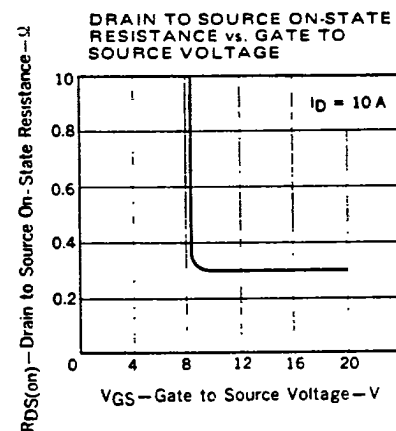
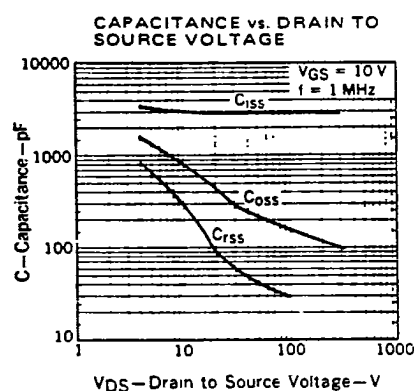
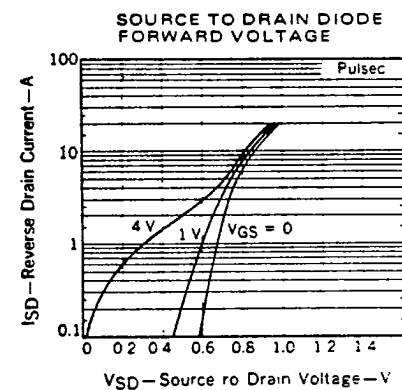
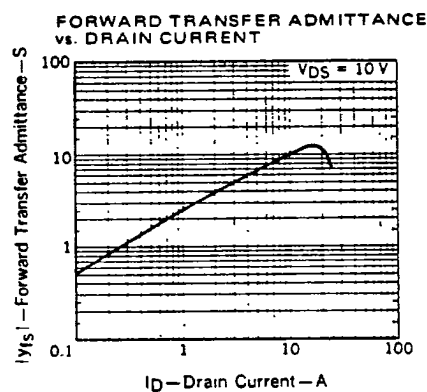
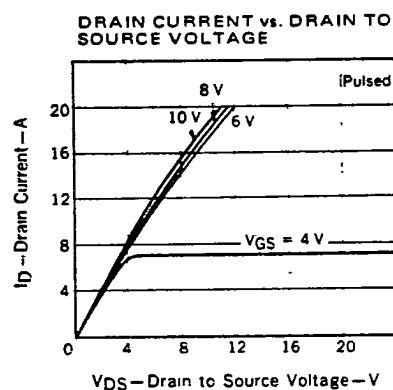
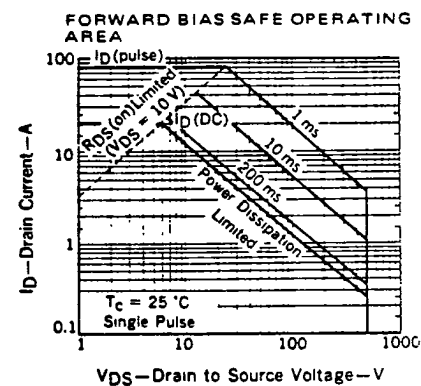
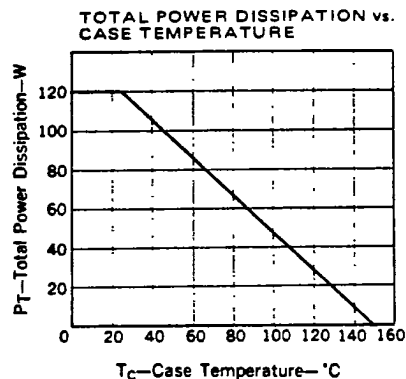
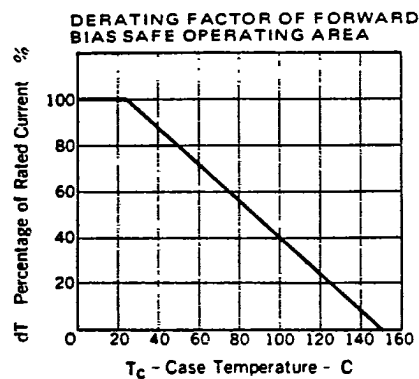
ELECTRICAL CHARACTERISTICS ($T_a = 25$ °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
I_{DSS}	Drain Leakage Current			100	μA	$V_{DS} = 500$ V, $V_{GS} = 0$
I_{GSS}	Gate to Source Leakage Current			± 100	nA	$V_{GS} = \pm 20$ V, $V_{DS} = 0$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	1.5		3.5	V	$V_{DS} = 10$ V, $I_D = 1$ mA
y_{fs}	Forward Transfer Admittance	9.0			S	$V_{DS} = 10$ V, $I_D = 10$ A
$R_{DS(on)}$	Drain to Source On-State Resistance		0.3	0.4	Ω	$V_{GS} = 10$ V, $I_D = 10$ A
C_{iss}	Input Capacitance		3000		pF	$V_{DS} = 10$ V, $V_{GS} = 0$, $f = 1$ MHz
C_{oss}	Output Capacitance		900		pF	
C_{rss}	Reverse Transfer Capacitance		350		pF	
$t_{d(on)}$	Turn-On Delay Time		45		ns	$I_D = 10$ A, $V_{CC} \approx 150$ V $V_{GS(on)} = 10$ V $R_L = 15$ Ω $R_{in} = 10$ Ω
t_r	Rise Time		60		ns	
$t_{d(off)}$	Turn-Off Delay Time		100		ns	
t_f	Fall Time		80		ns	

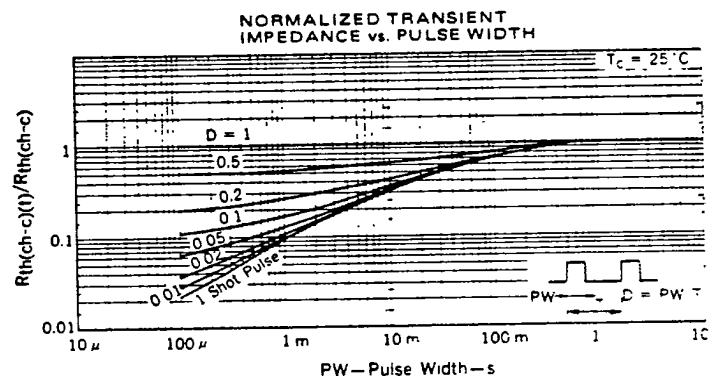
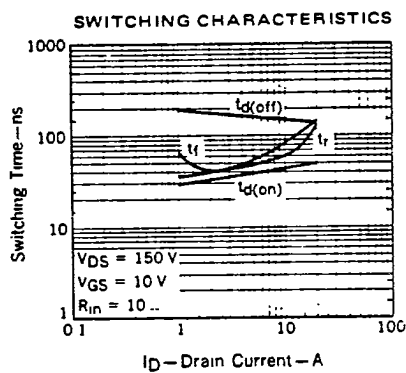
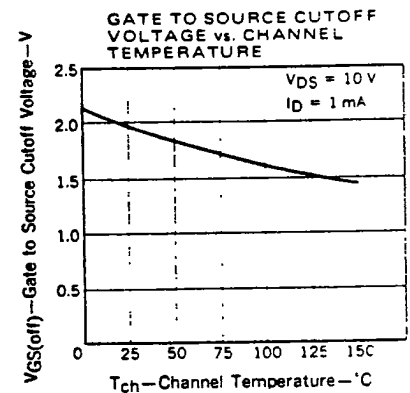
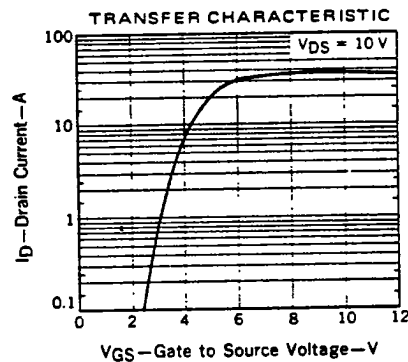
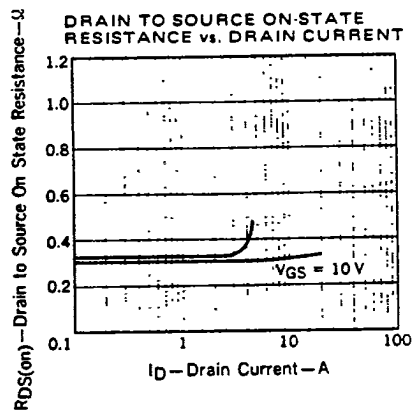
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TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

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SWITCHING TIME TEST CIRCUIT

