

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 °C

Channel Temperature 150 °C Maximum

Maximum Power Dissipation ($T_c = 25\text{ °C}$)

Total Power Dissipation 150 W

Maximum Voltages and Currents ($T_a = 25\text{ °C}$)

V_{DSS} Drain to Source Voltage 500 V

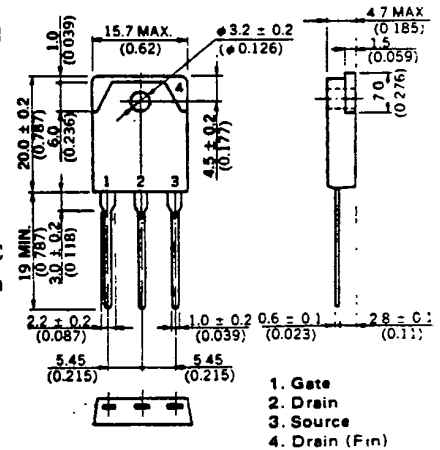
V_{GSS} Gate to Source Voltage ±20 V

$I_{D(DC)}$ Drain Current (DC) ±20 A

$I_{D(pulse)}$ Drain Current (pulse)* ±80 A

* $PW \leq 300\ \mu s$, Duty Cycle $\leq 2\%$

PACKAGE DIMENSIONS
in millimeters (inches)



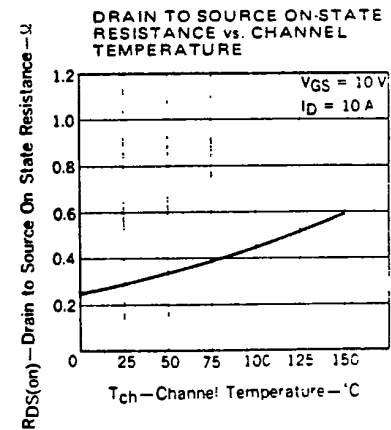
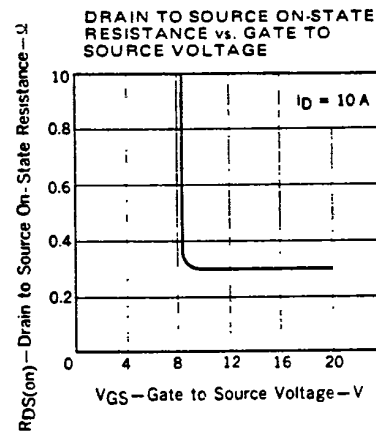
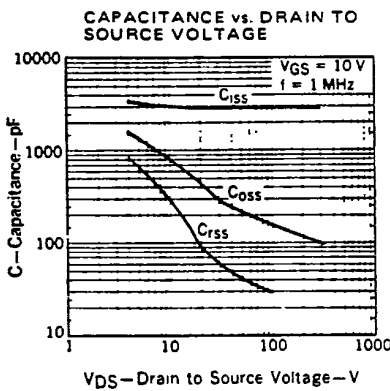
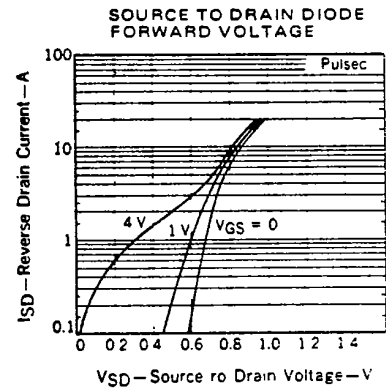
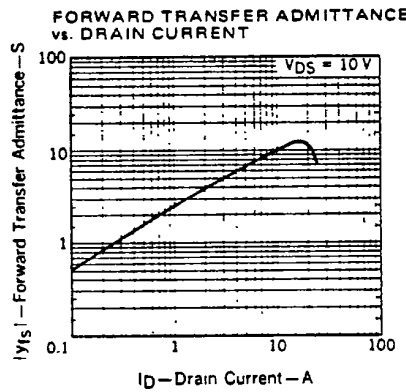
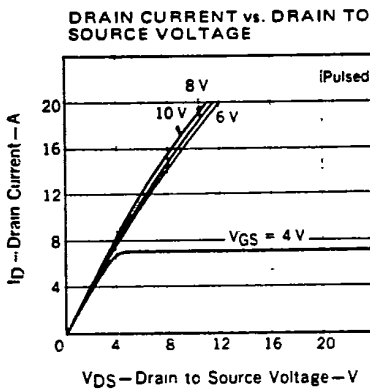
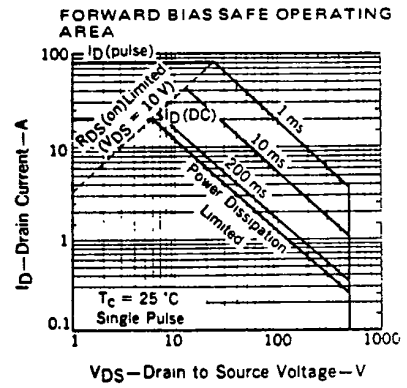
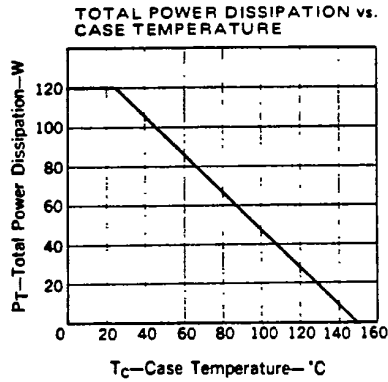
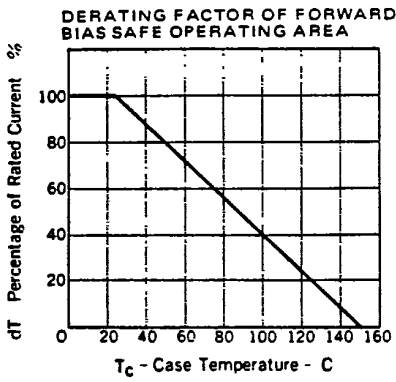
ELECTRICAL CHARACTERISTICS ($T_a = 25\text{ °C}$)

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

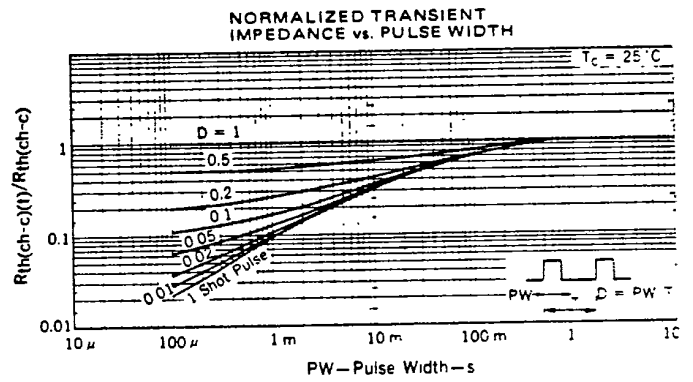
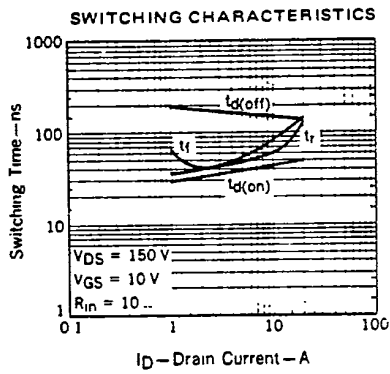
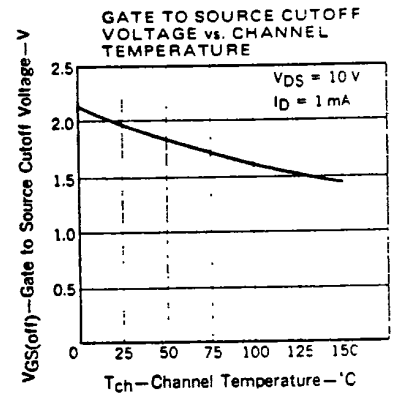
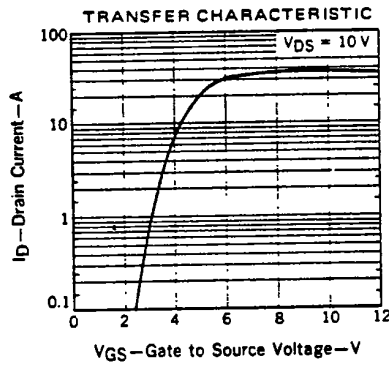
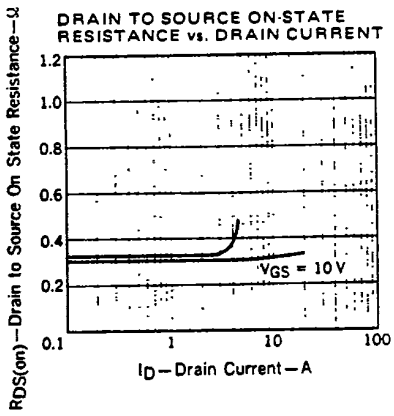
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TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



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SWITCHING TIME TEST CIRCUIT

