

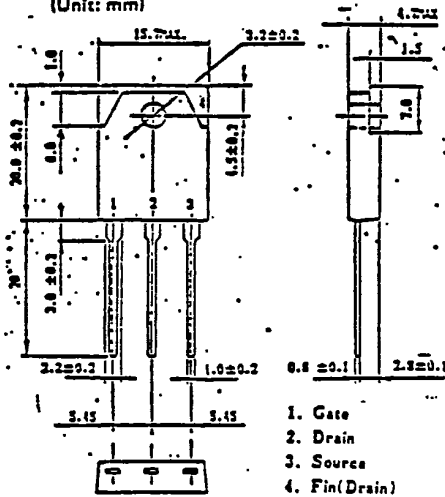


MOS FIELD EFFECT TRANSISTOR

2SK831

FAST SWITCHING
N-CHANNEL SILICON POWER MOS FET

PACKAGE DIMENSIONS
(Unit: mm)



Features

Suitable for switching power supplies,
actuator controls and pulse circuits
Low $R_{DS(on)}$

Absolute Maximum Ratings ($T_a=25^\circ C$)

Drain to Source Voltage	V_{DS}	500V
Gate to Source Voltage	V_{GS}	$\pm 20V$
Continuous Drain Current	$I_D(DC)$	$\pm 18A$
Pulse Drain Current	$I_D(pulse)$	$* \pm 60A$
Total Power Dissipation	PT	3.0W
Total Power Dissipation	PT**	120W
Channel Temperature	T_{ch}	150 °C
Storage Temperature	T_{stg}	-55 to +150 °C

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

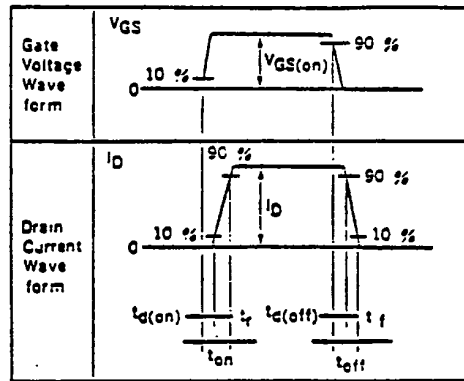
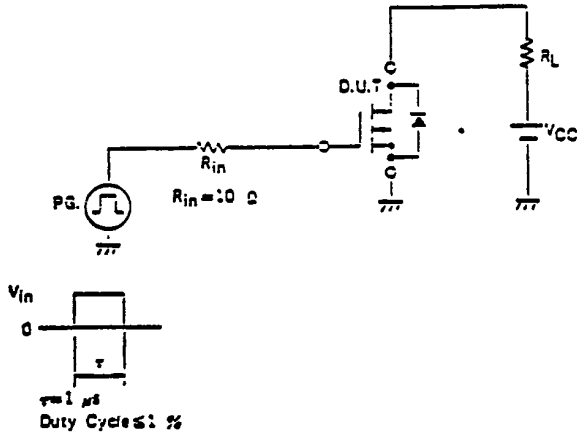
** $T_c=25^\circ C$

Electrical Characteristics ($T_a=25^\circ C$)

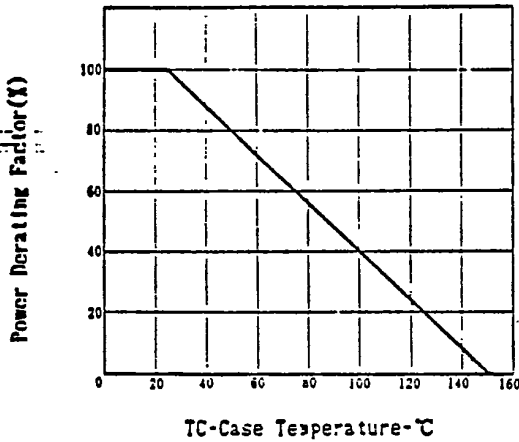
Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	I_{DSS}			100	μA	$V_{DS}=500V, V_{GS}=0$
Gate to Source Leakage Current	I_{GSS}			± 100	nA	$V_{GS}=\pm 20V, V_{DS}=0$
Gate to Source Cutoff Voltage	$V_{GS(off)}$	1.5		3.5	V	$V_{DS}=10V, I_D=1.0mA$
Forward Transfer Admittance	yfs	8.0			S	$V_{DS}=10V, I_D=0.0A$
Drain to Source On-State Resistance	$R_{DS(on)}$		0.35	0.45	Ω	$V_{GS}=10V, I_D=0.0A$
Resistance						
Input Capacitance	C_{iss}		2600		pF	$V_{DS}=10V,$ $V_{GS}=0,$
Output Capacitance	C_{oss}		620		pF	$V_{GS}=0,$ $f=1.0MHz$
Reverse Transfer Capacitance	C_{rss}		170		pF	$I_D=0.0A$
Turn-On Delay Time	$t_d(on)$		35		ns	$V_{GS(on)}=10V,$
Rise Time	tr		55		ns	$V_{cc}=150V,$
Turn-Off Delay Time	$t_d(off)$		150		ns	$R_L=16 \Omega$
Fall Time	tf		55		ns	

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TURN-ON AND TURN-OFF TIME TEST CIRCUIT

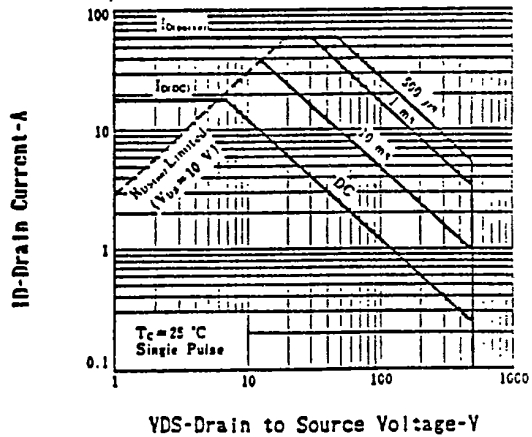
98D 19010 D T-39-13



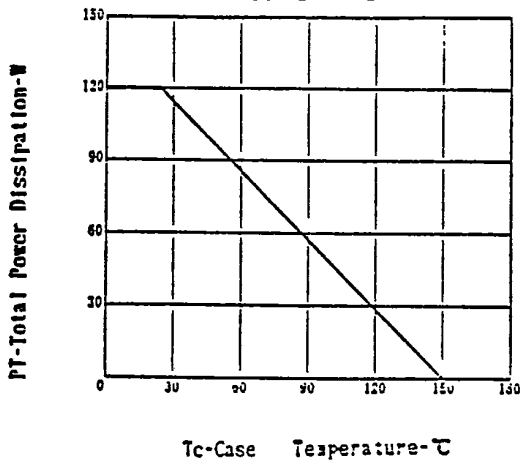
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



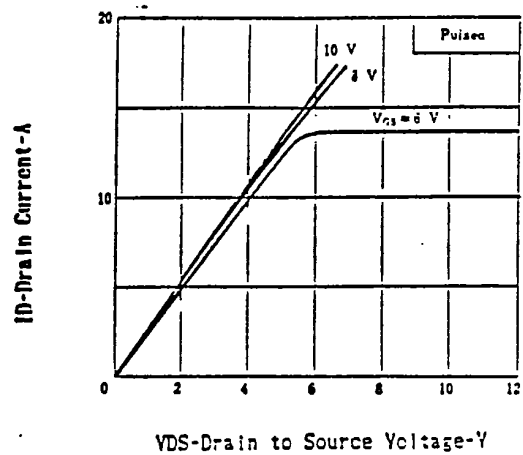
FORWARD BIAS SAFE OPERATING AREA



TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE

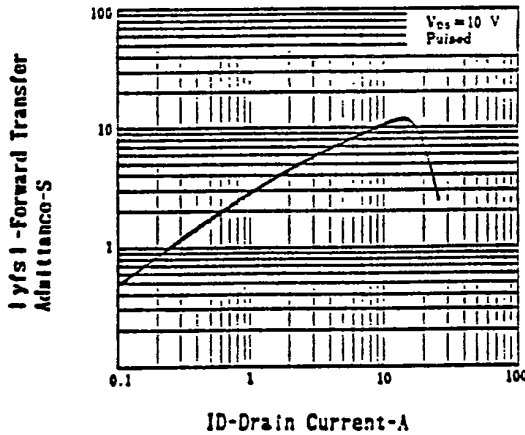


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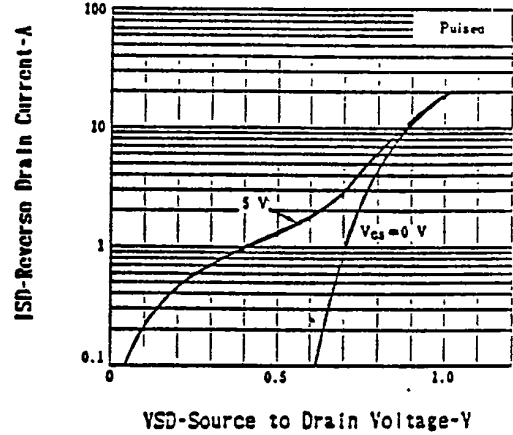
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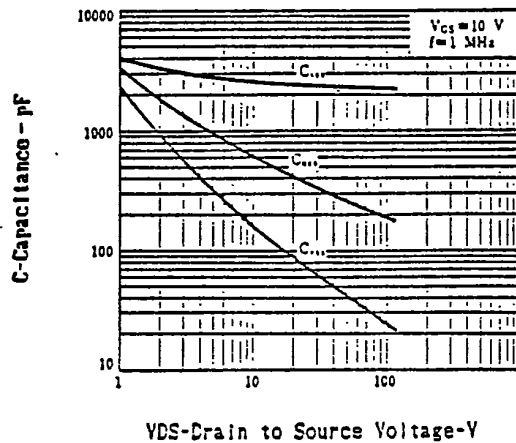
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



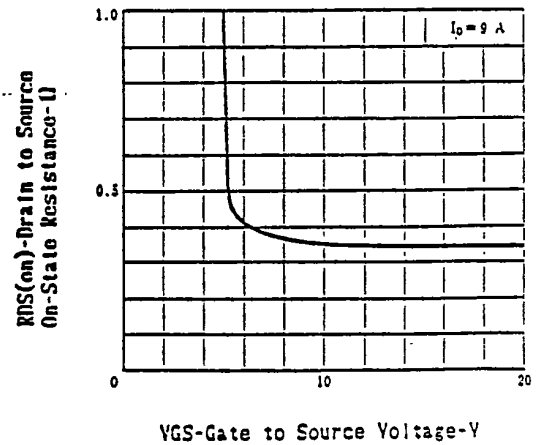
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



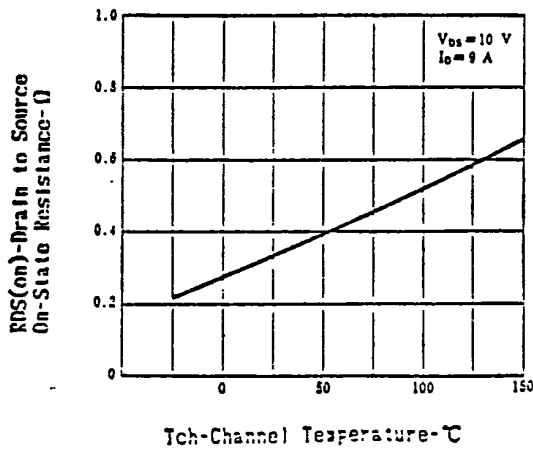
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



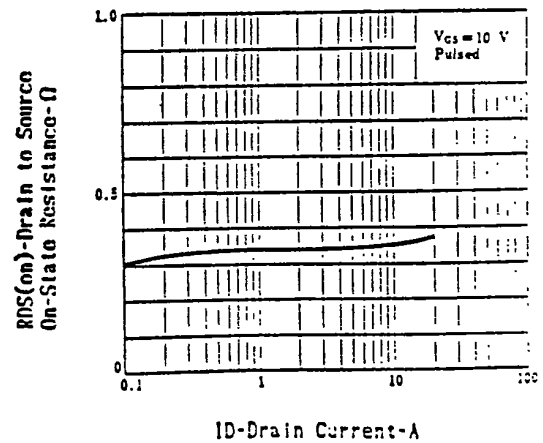
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



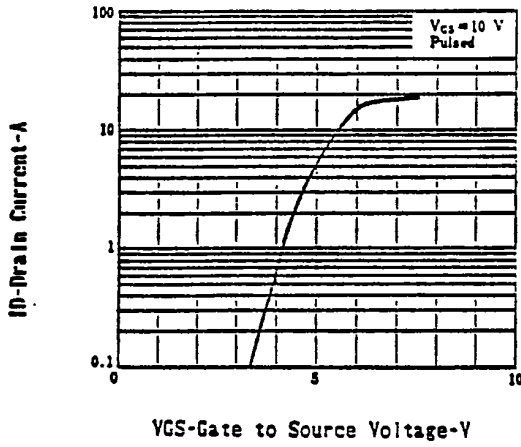
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



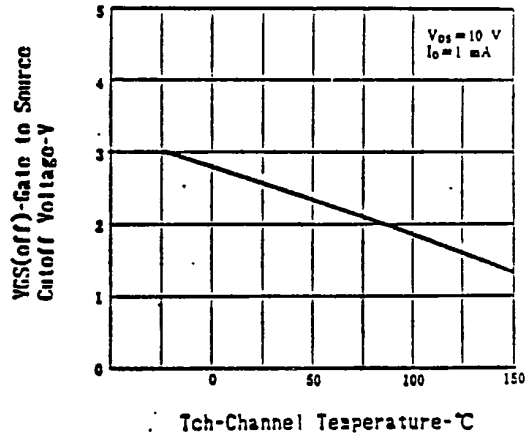
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



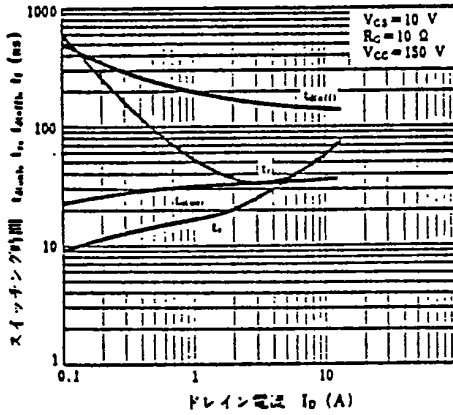
TRANSFER CHARACTERISTICS



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



SWITCHING CHARACTERISTICS



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