

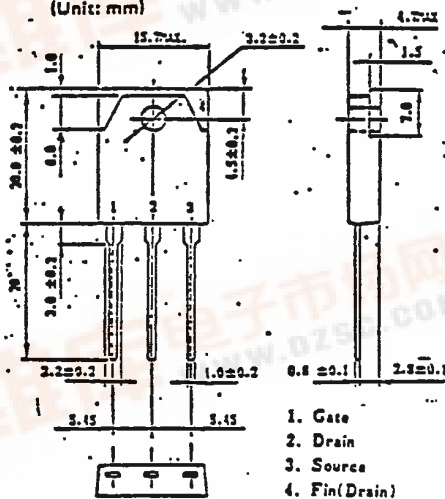


MOS FIELD EFFECT TRANSISTOR

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 RDS(on)

Absolute Maximum Ratings(Ta=25°C)

Drain to Source Voltage	V <sub>DSS</sub>	500V
Gate to Source Voltage	V <sub>GSS</sub>	± 20V
Continuous Drain Current	I <sub>D(DC)</sub>	± 18A
Pulse Drain Current	I <sub>D(pulse)</sub> *	± 60A
Total Power Dissipation	P <sub>T</sub>	3.0W
Total Power Dissipation	P <sub>T#</sub>	120W
Channel Temperature	T <sub>ch</sub>	150 °C
Storage Temperature	T <sub>stg</sub>	-55to+150 °C
* PW ≤ 300 us, Duty Cycle ≤ 2%		
# Tc=25 °C		

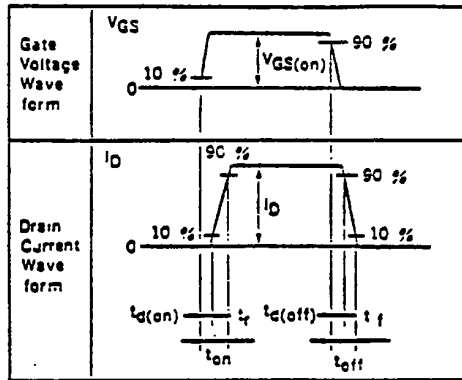
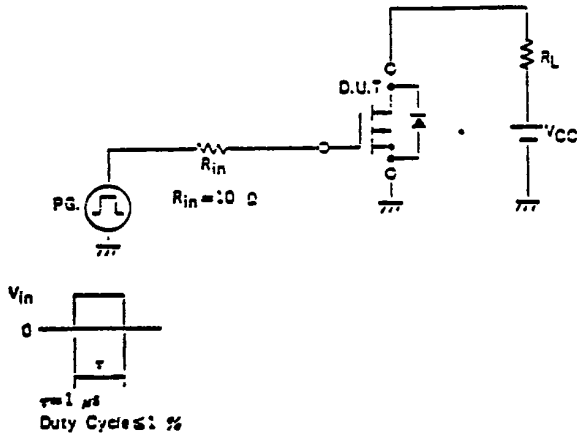
Electrical Characteristics (Ta=25 °C)

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	I <sub>DSS</sub>			100	μA	V <sub>DS</sub> =500V, V <sub>GS</sub> =0
Gate to Source Leakage Current	I <sub>GSS</sub>			±100	nA	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0
Gate to Source Cutoff Voltage	V <sub>GS(off)</sub>	1.5		3.5	V	V <sub>DS</sub> =10V, I <sub>D</sub> =1.0mA
Forward Transfer Admittance	y <sub>fs</sub>	8.0			S	V <sub>DS</sub> =10V, I <sub>D</sub> =0.0A
Drain to Source On-State Resistance	R <sub>DS(on)</sub>		0.35	0.45	Ω	V <sub>GS</sub> =10V, I <sub>D</sub> =0.0A
Input Capacitance	C <sub>iss</sub>		2600		pF	V <sub>DS</sub> = 10V, V <sub>GS</sub> =0,
Output Capacitance	C <sub>oss</sub>		620		pF	
Reverse Transfer Capacitance	C <sub>rss</sub>		170		pF	f=1.0MHz
Turn-On Delay Time	t <sub>d(on)</sub>		35		ns	I <sub>D</sub> =0.0A
Rise Time	t <sub>r</sub>		55		ns	V <sub>GS(on)</sub> = 10V,
Turn-Off Delay Time	t <sub>d(off)</sub>		150		ns	V <sub>CC</sub> =150V,
Fall Time	t <sub>f</sub>		55		ns	R <sub>L</sub> = 16 Ω

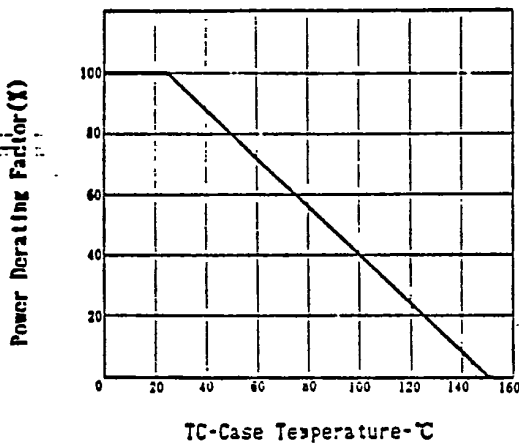


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TURN-ON AND TURN-OFF TIME TEST CIRCUIT

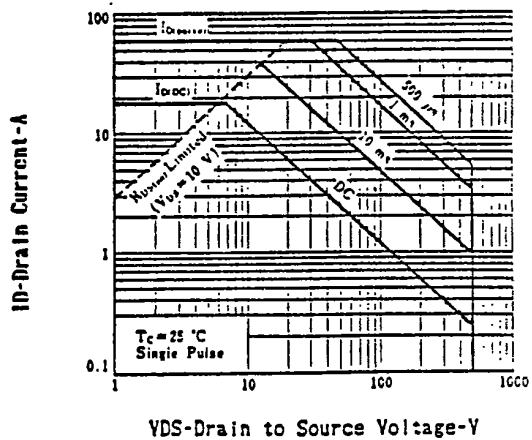
98D 19010 D T-39-13



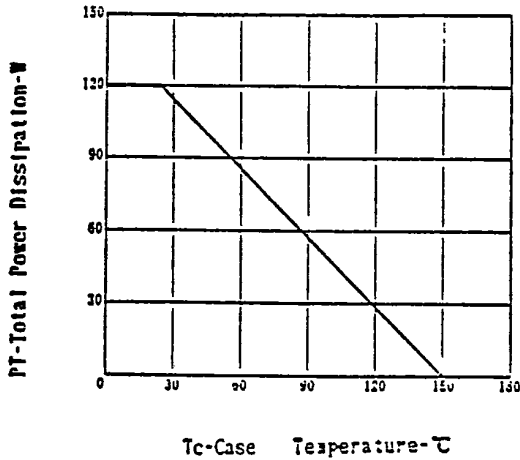
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



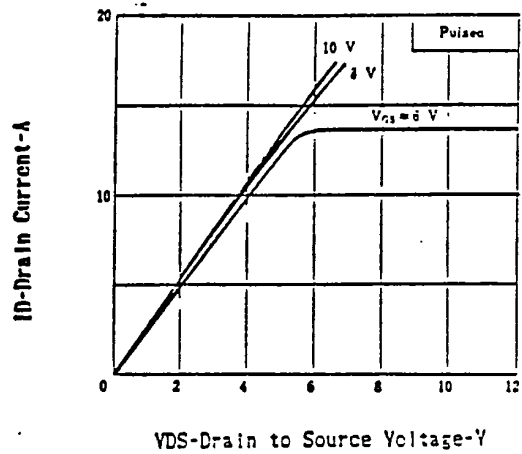
FORWARD BIAS SAFE OPERATING AREA



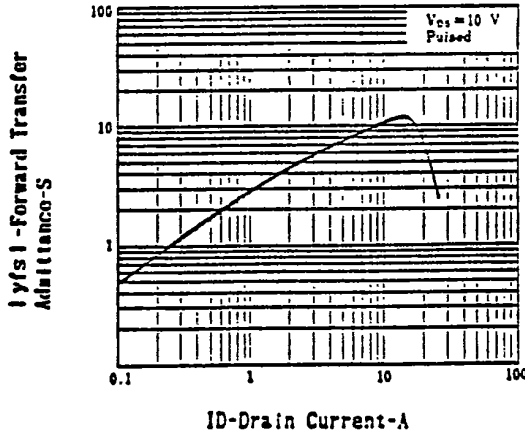
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE

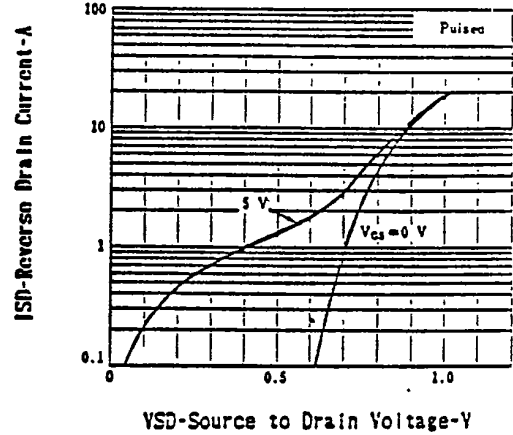


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 FORWARD TRANSFER ADMITTANCE  
 vs. DRAIN CURRENT

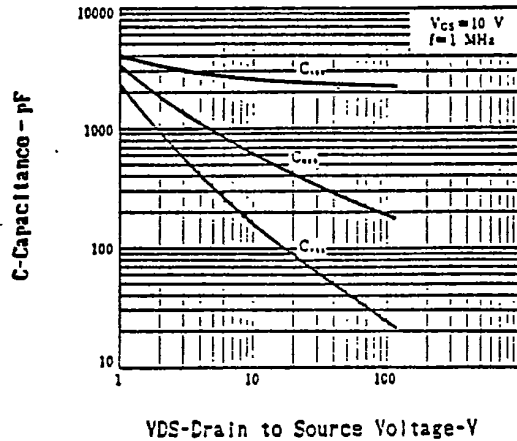


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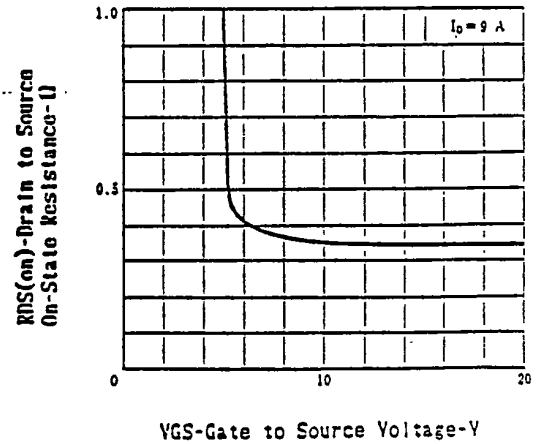
SOURCE TO DRAIN DIODE  
 FORWARD VOLTAGE



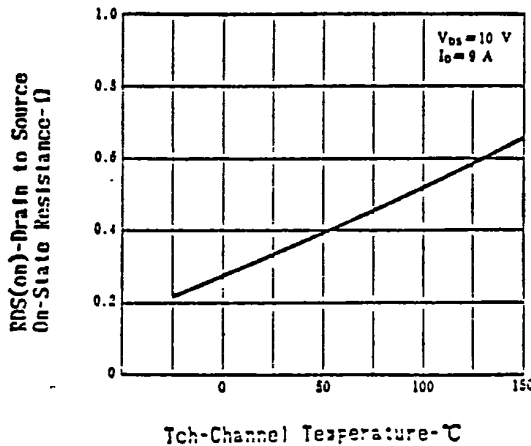
CAPACITANCE vs. DRAIN TO  
 SOURCE VOLTAGE



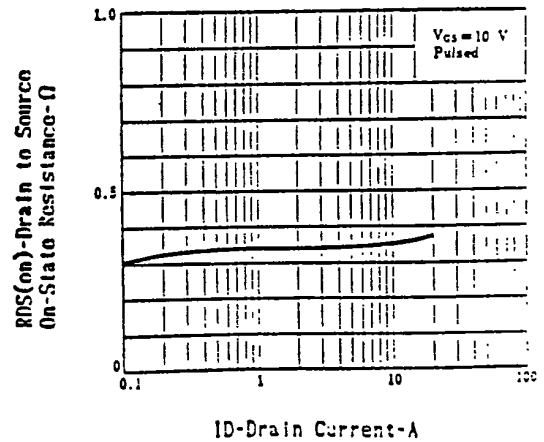
DRAIN TO SOURCE ON-STATE RESISTANCE  
 vs. GATE TO SOURCE VOLTAGE



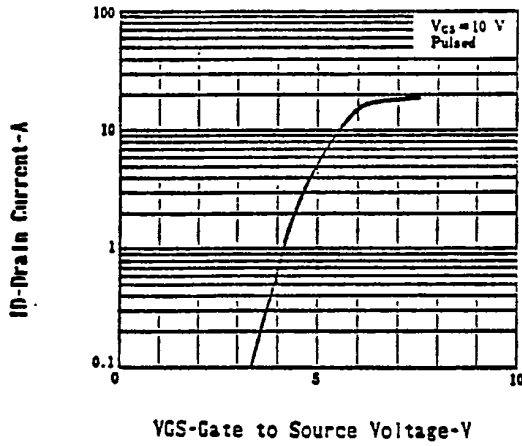
DRAIN TO SOURCE ON-STATE RESISTANCE  
 vs. CHANNEL TEMPERATURE



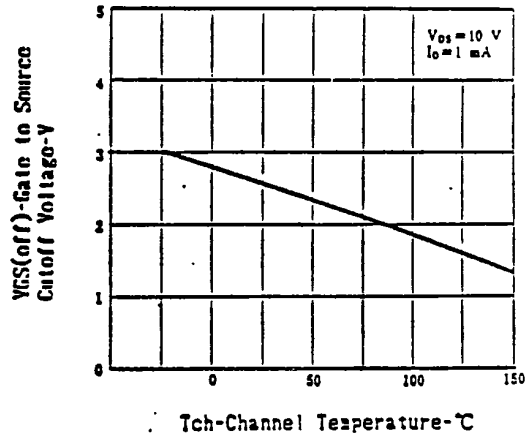
DRAIN TO SOURCE ON-STATE RESISTANCE  
 vs. DRAIN CURRENT



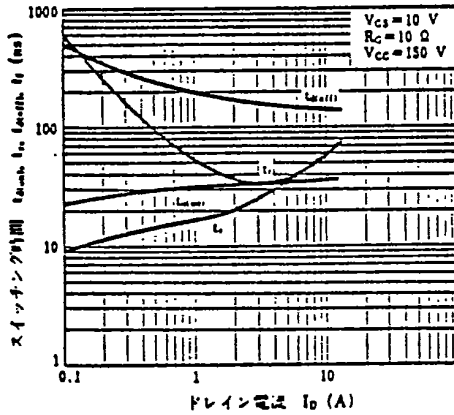
TRANSFER CHARACTERISTICS



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



SWITCHING CHARACTERISTICS



NEC Corporation

INTERNATIONAL ELECTRON DEVICES DIV.  
 NEC Building, 33-1, Shiba Gocho  
 Minato-ku, Tokyo 108, Japan  
 Tel: Tokyo 454-1111  
 Telex Address: NECTOK J22686  
 Cable Address: MICROPHONE TOKYO