

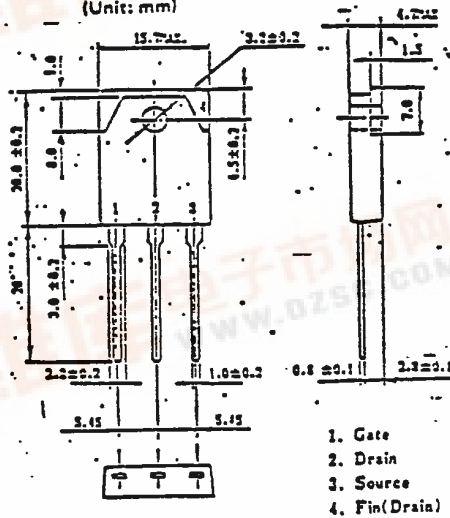


MOS FIELD EFFECT TRANSISTOR

2SK821

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 _{DSS}	250
Gate to Source Voltage	V _{GSS}	±20V
Continuous Drain Current	I _D (DC)	±20A
Pulse Drain Current	I _D (pulse) *	±80A
Total Power Dissipation	P _T	3.0
Total Power Dissipation	P _T **	120
Channel Temperature	T _{ch}	150 °C
Storage Temperature	T _{stg}	-55 to +150 °C

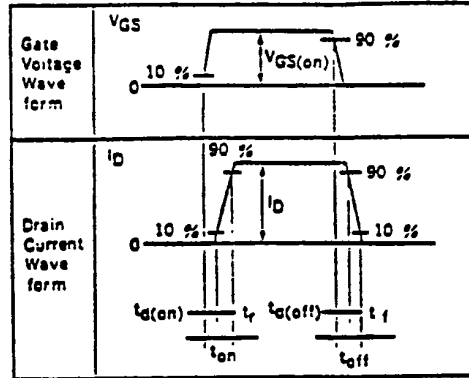
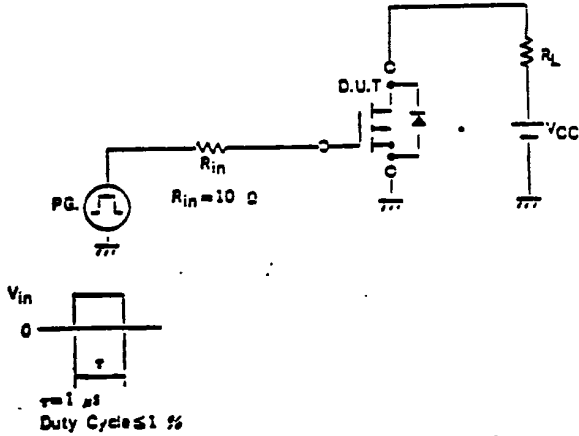
* PW ≤ 100 us, Duty Cycle ≤ 2%
** Tc=25 °C

Electrical Characteristics (Ta=25 °C)

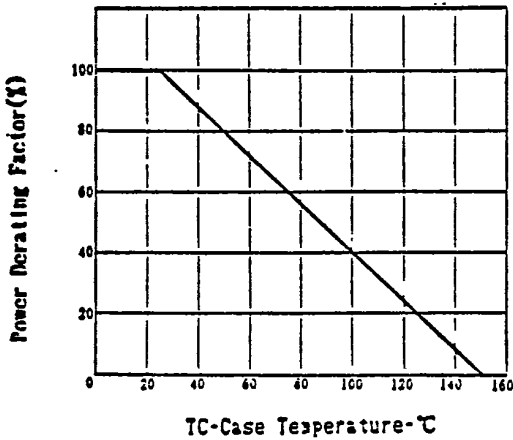
Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	I _{DSS}			100	μA	V _{DS} =250V, V _{GS} =0
Gate to Source Leakage Current	I _{GSS}			±100	nA	V _{GS} =±20V, V _{DS} =0
Gate to Source Cutoff Voltage	V _{GS(off)}	1.5		3.5	V	V _{DS} =10V, I _D =1.0mA
Forward Transfer Admittance	y _{fs}	5.0			S	V _{DS} =10V, I _D =10A
Drain to Source On-State Resistance	R _{DS(on)}		0.18	0.23	Ω	V _{GS} =10V, I _D =10A
Input Capacitance	C _{iss}		1900		pF	V _{DS} =10V,
Output Capacitance	C _{oss}		680		pF	V _{GS} =0,
Reverse Transfer Capacitance	C _{rss}		320		pF	f=1.0MHz
Turn-On Delay Time	t _{d(on)}		30		ns	I _D =10A
Rise Time	t _r		45		ns	V _{GS(on)} =10V,
Turn-Off Delay Time	t _{d(off)}		120		ns	V _{CC} =150V,
Fall Time	t _f		40		ns	R _L =15 Ω



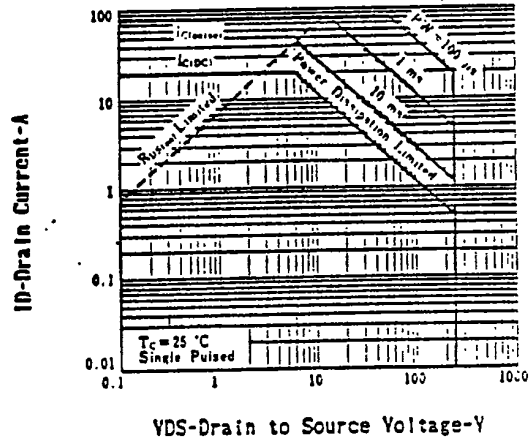
TURN-ON AND TURN-OFF TIME TEST CIRCUIT



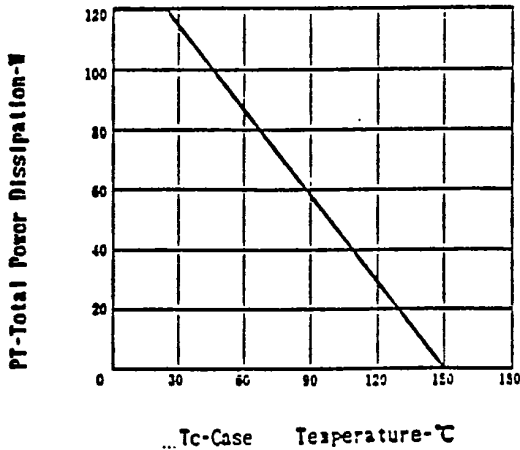
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



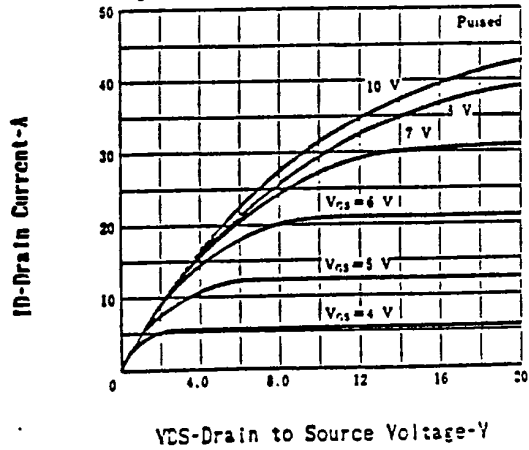
FORWARD BIAS SAFE OPERATING AREA



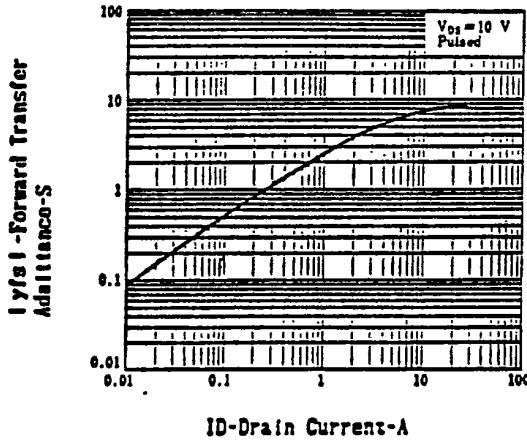
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



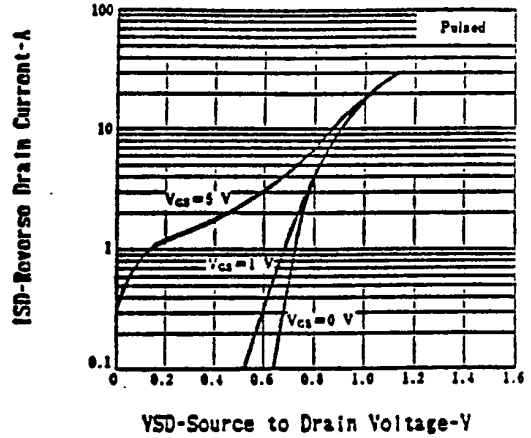
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



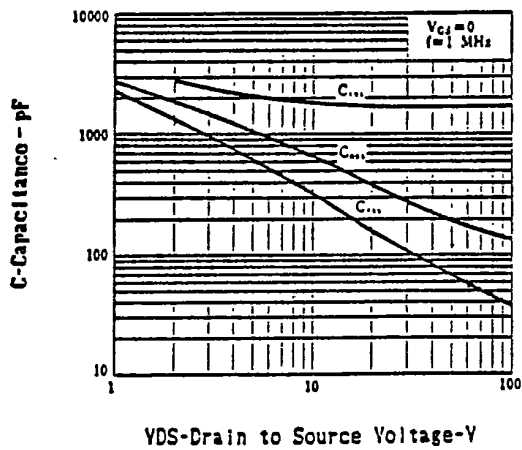
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



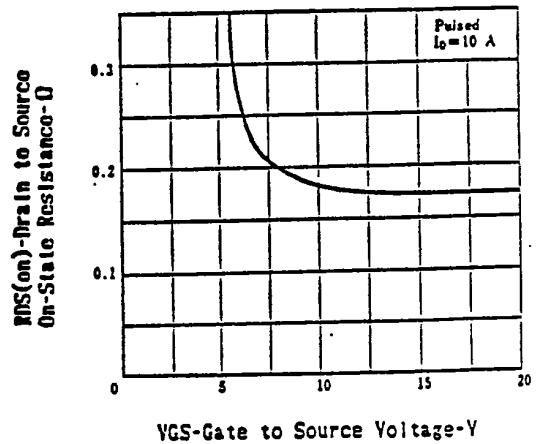
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



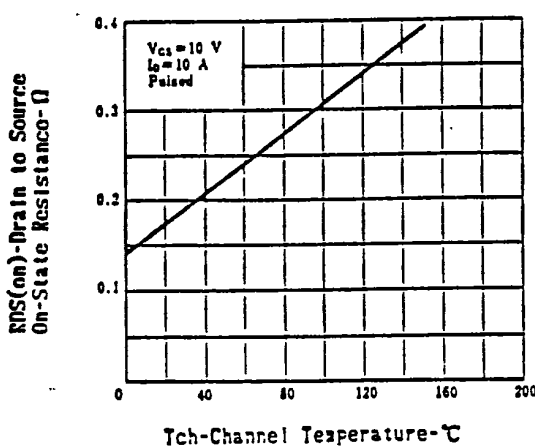
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



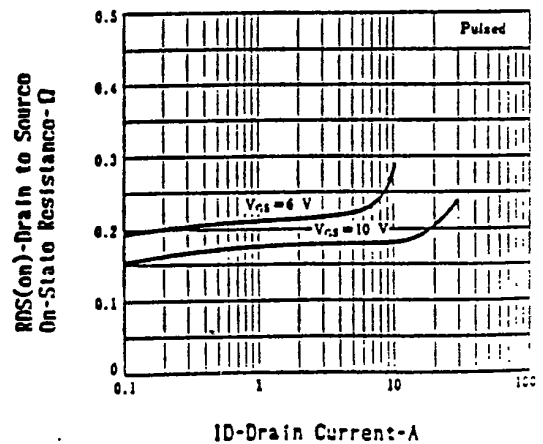
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



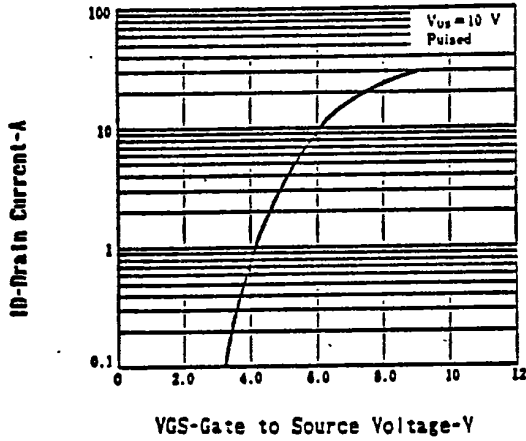
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



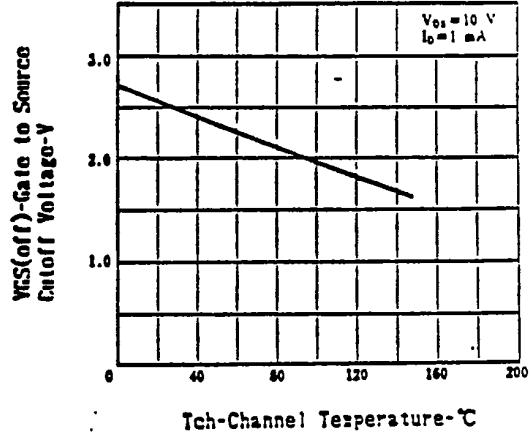
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



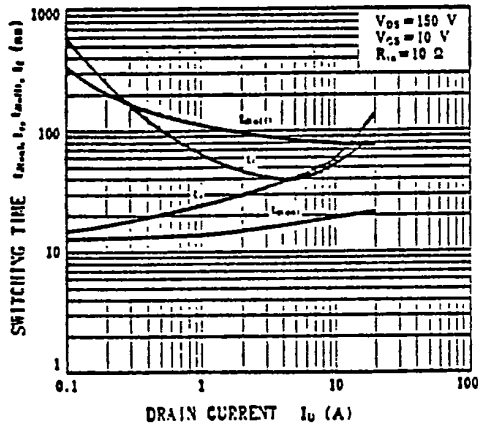
TRANSFER CHARACTERISTICS



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



SWITCHING CHARACTERISTICS



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