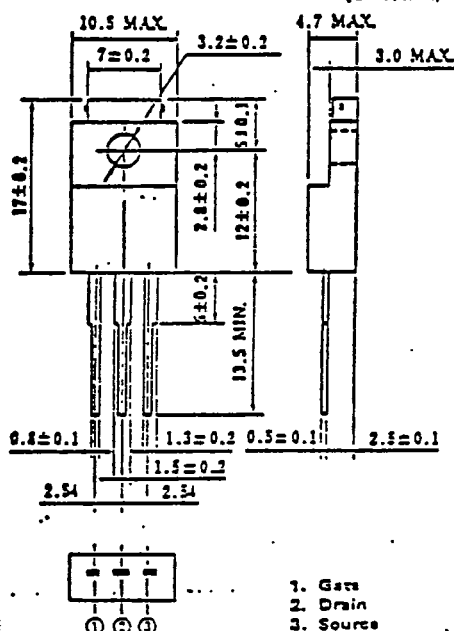


NEC
ELECTRON DEVICE

MOS FIELD EFFECT TRANSISTOR

2SK815
**FAST SWITCHING
N-CHANNEL SILICON POWER MOS FET**
**PACKAGE DIMENSIONS
(Unit: mm)**

Features

Suitable for switching power supplies,
actuator controls and pulse circuits
4V Gate Drive — Logic level —
Low $R_{DS(on)}$
Large Current Switching : $I_D(DC)=21A$
No Second breakdown

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

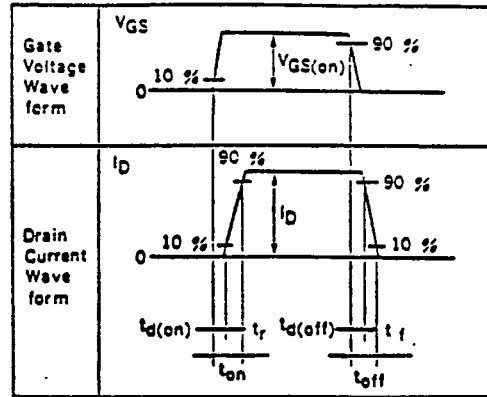
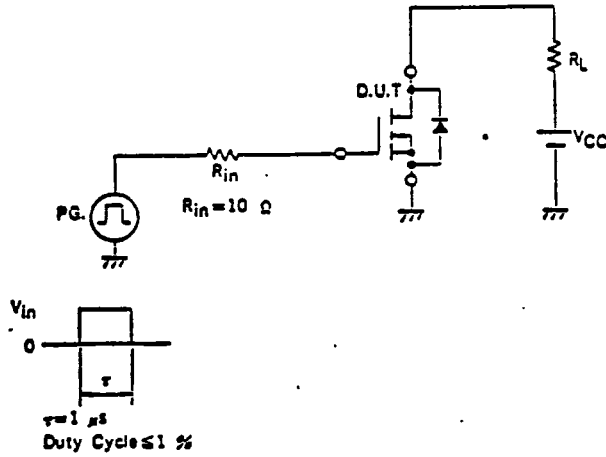
Drain to Source Voltage	V_{DS}	100V
Gate to Source Voltage	V_{GS}	$\pm 20V$
Continuous Drain Current	$I_D(DC)$	$\pm 21A$
Pulse Drain Current	$I_D(pulse)$	$* \pm 81A$
Total Power Dissipation	P_T	2.0W
Total Power Dissipation	$P_{T\#}$	35W
Channel Temperature	T_{ch}	150 °C
Storage Temperature	T_{stg}	-55to+150 °C
* $T_{ch} \leq 150^\circ C$		
# $T_c = 25^\circ C$		

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

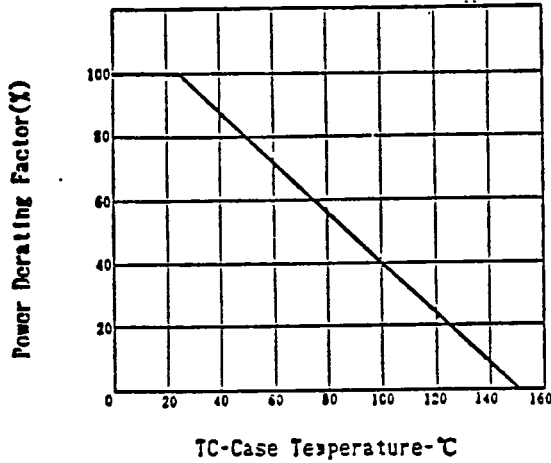
Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	I_{DSS}			10	μA	$V_{DS}=100V, V_{GS}=0$
Gate to Source Leakage Current	I_{GSS}			± 100	nA	$V_{GS}=\pm 20V, V_{DS}=0$
Gate to Source Cutoff Voltage	$V_{GS(off)}$	1.0		2.5	V	$V_{DS}=10V, I_D=1.0mA$
Forward Transfer Admittance	$ y_{fs} $	6.0	16		S	$V_{DS}=10V, I_D=15A$
Drain To Source On-State Resistance	$R_{DS(on)}$		0.07	0.085	Ω	$V_{GS}=10V, I_D=15A$
Drain to Source On-State Resistance	$R_{DS(on)}$		0.09	0.15	Ω	$V_{GS}=4.0V, I_D=15A$
Input Capacitance	C_{iss}		2100		pF	$V_{DS}=10V$
Output Capacitance	C_{oss}		630		pF	$V_{GS}=0$
Reverse Transfer Capacitance	C_{rss}		100		pF	$f=1.0MHz$
Turn-On Delay Time	$t_d(on)$		20		ns	$I_D=15A$
Rise Time	t_r		10		ns	$V_{GS(on)}=10V$
Turn-Off Delay Time	$t_d(off)$		110		ns	$V_{CC}=20V$
Fall Time	t_f		110		ns	$R_L=2\Omega$

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TURN-ON AND TURN-OFF TIME TEST CIRCUIT

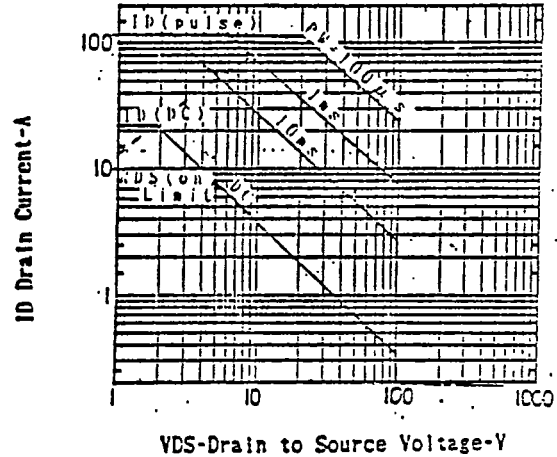
98D 18979 D T-39-11



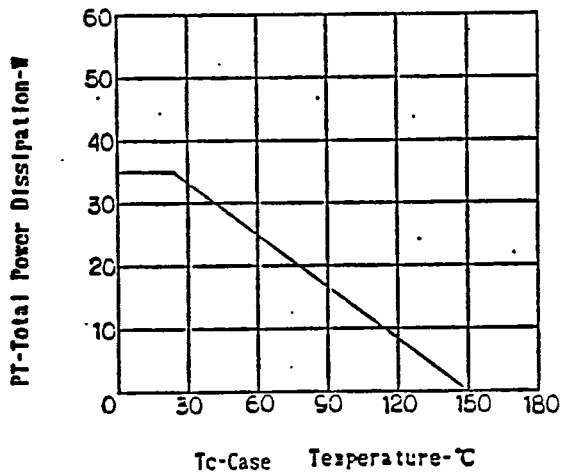
DERATING FACTOR OF FORWARD BIAS
SAFE OPERATING AREA



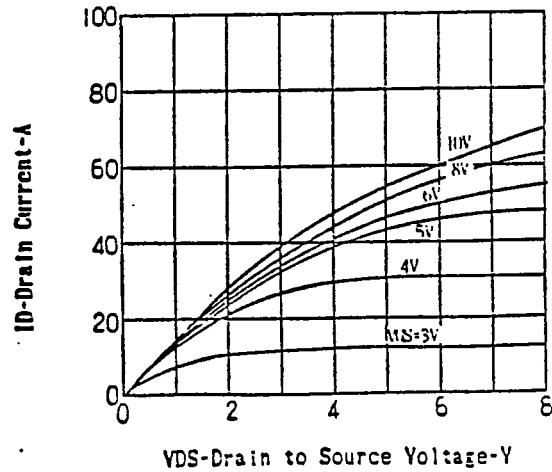
FORWARD BIAS SAFE OPERATING AREA

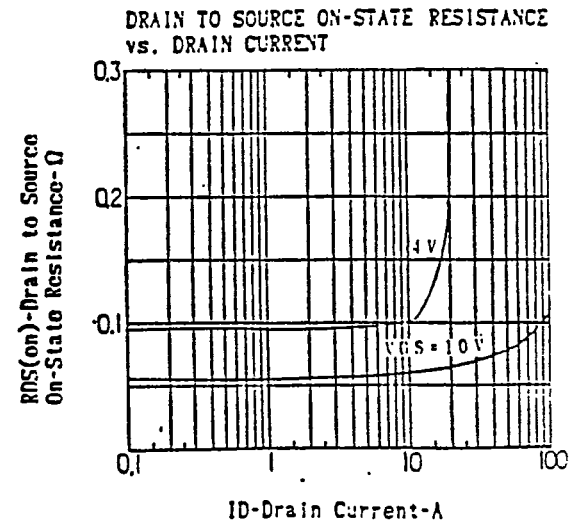
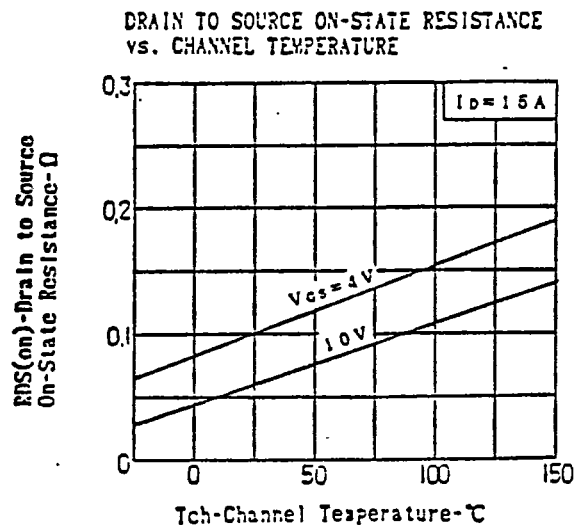
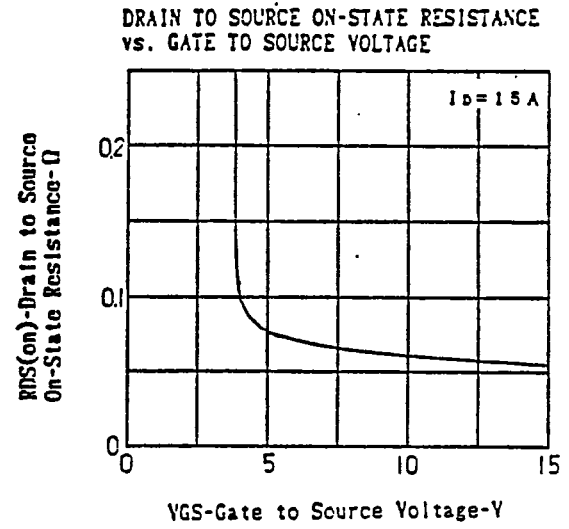
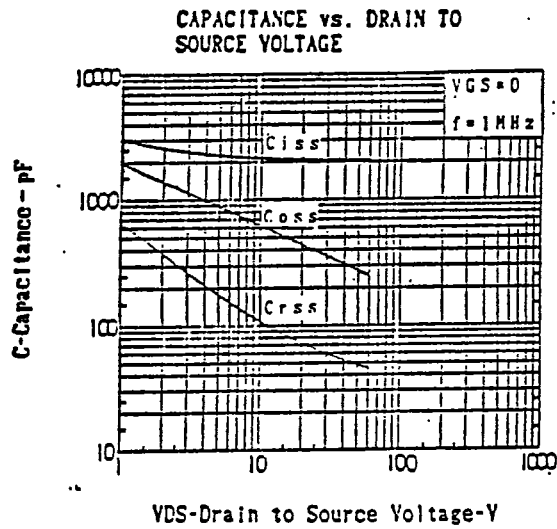
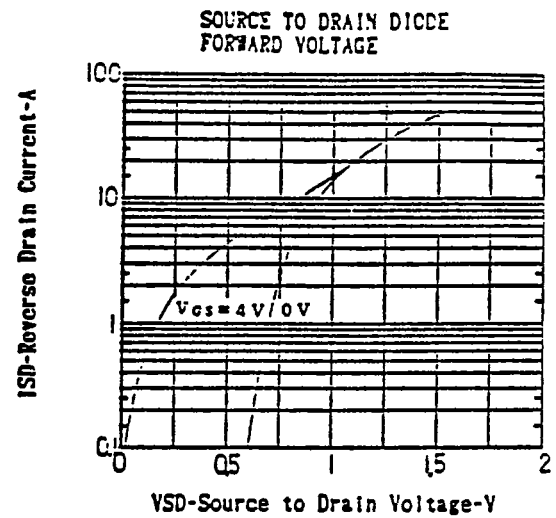
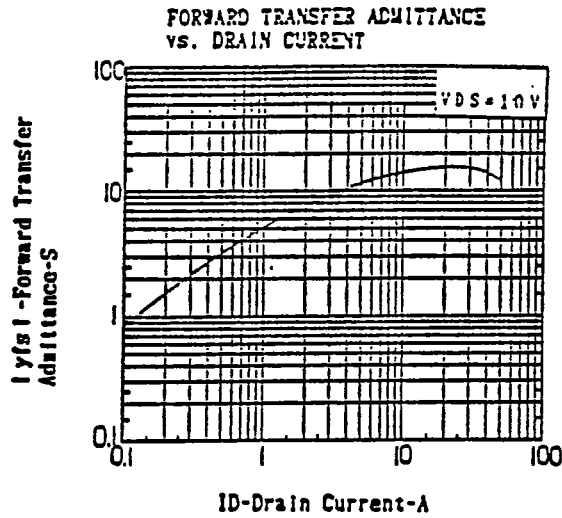


TOTAL POWER DISSIPATION vs.
CASE TEMPERATURE



DRAIN CURRENT vs. DRAIN TO
SOURCE VOLTAGE





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