

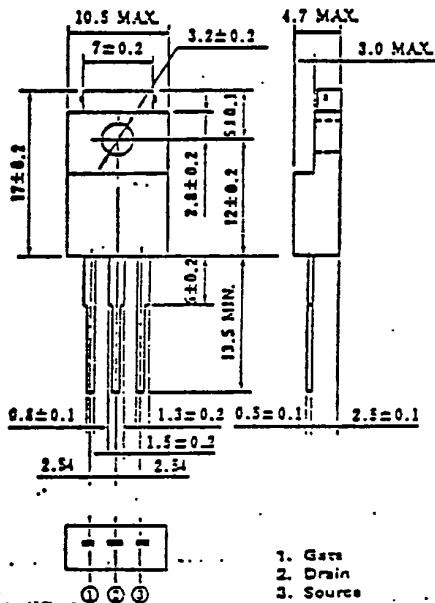
NEC
ELECTRON DEVICE

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 ($T_a=25^\circ C$)

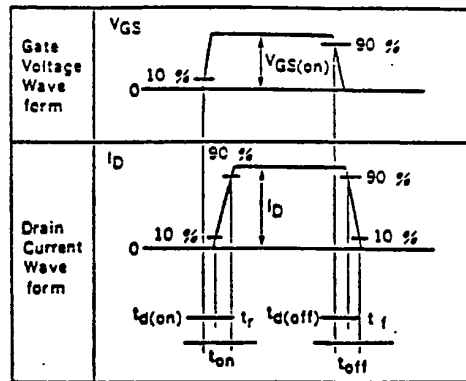
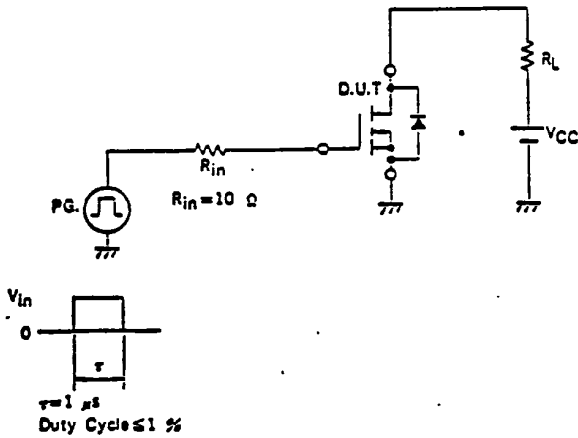
Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	I_{DSS}			10	μA	$V_{DS}=100V, V_{GS}=0$
Gate to Source Leakage Current	I_{GSS}			± 100	nA	$V_{GS}=\pm 20V, V_{DS}=0$
Gate to Source Cutoff Voltage	$V_{GS(off)}$	1.0		2.5	V	$V_{DS}=10V, I_D=1.0mA$
Forward Transfer Admittance	$ 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	$V_{GS}=1.0V, I_D=15A$
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	$V_{CC}=30V$
Fall Time	t_f		110		ns	$R_L=2\ \Omega$

NEC cannot assume any responsibility for any circuits shown or represent that they are free from patent infringement.

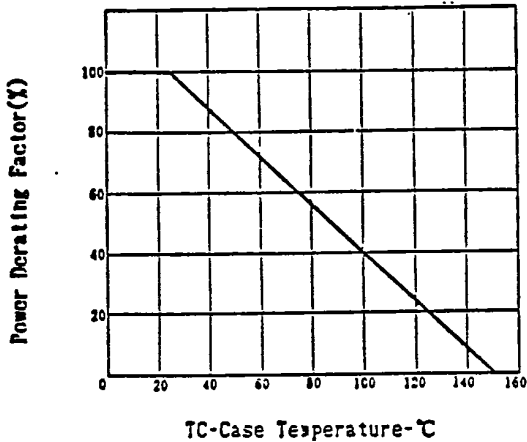
NEC Corporation

6427525 N E C ELECTRONICS INC
TURN-ON AND TURN-OFF TIME TEST CIRCUIT

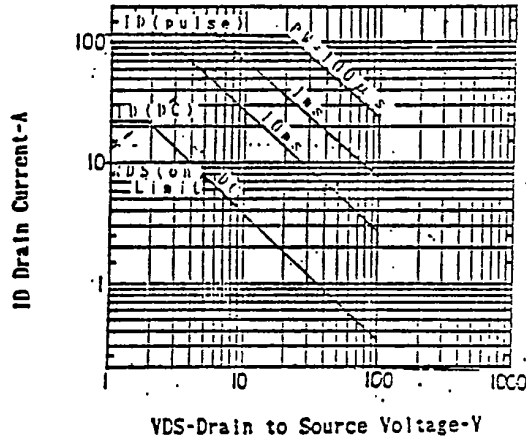
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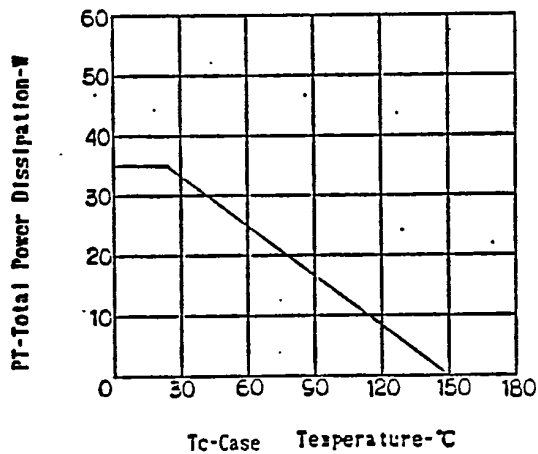
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



FORWARD BIAS SAFE OPERATING AREA



TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE

