

To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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Phase-out/Discontinued

2SK821

DESCRIPTION The 2SK821 is N-channel MOS Field Effect Power Transistor designed for switching power supplies, DC-DC converters.

- FEATURES**
- Suitable for switching power supplies, actuator controls, and pulse circuits.
 - Low $R_{DS(on)}$
 - No second breakdown

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature -55 to $+150$ °C

Channel Temperature 150 °C Maximum

Maximum Power Dissipation ($T_C = 25$ °C)

Total Power Dissipation 150 W

Maximum Voltages and Currents ($T_a = 25$ °C)

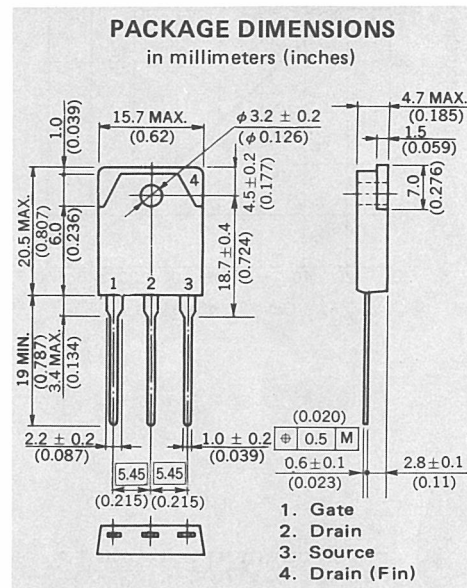
V_{DSS} Drain to Source Voltage 250 V

V_{GSS} Gate to Source Voltage ± 20 V

$I_{D(DC)}$ Drain Current (DC) ± 20 A

$I_{D(pulse)}$ Drain Current (pulse)* ± 80 A

* $PW \leq 100$ μs , Duty Cycle ≤ 2 %

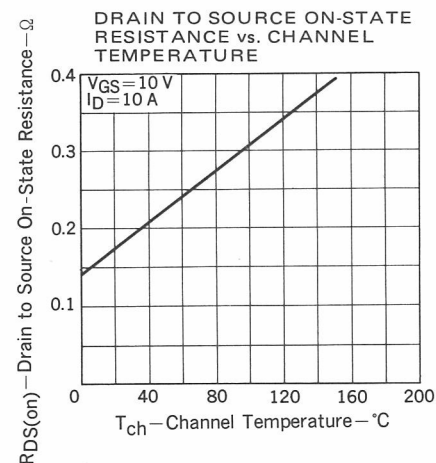
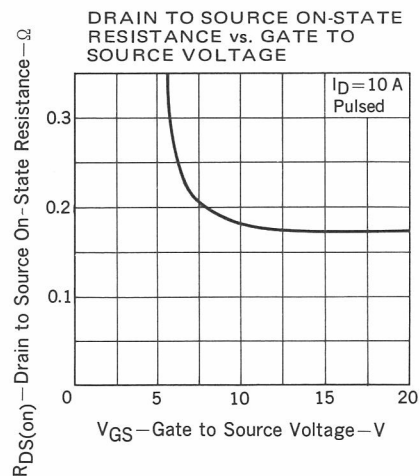
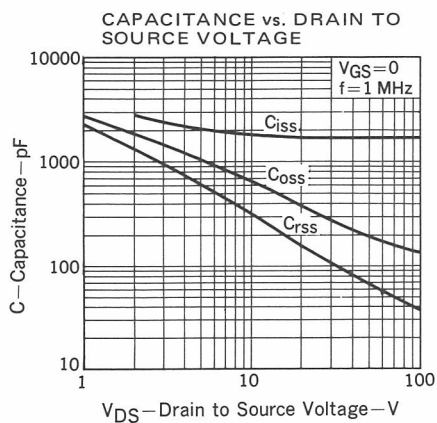
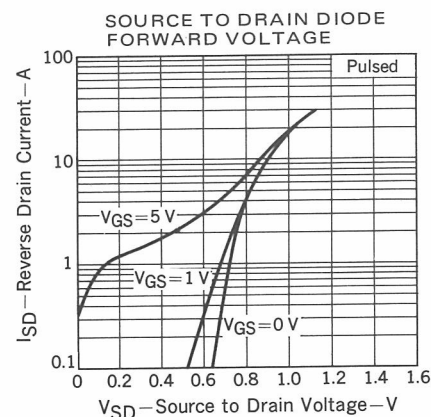
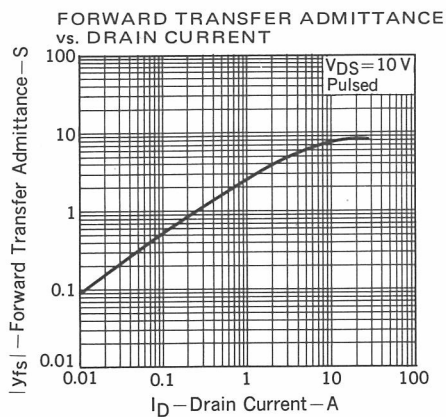
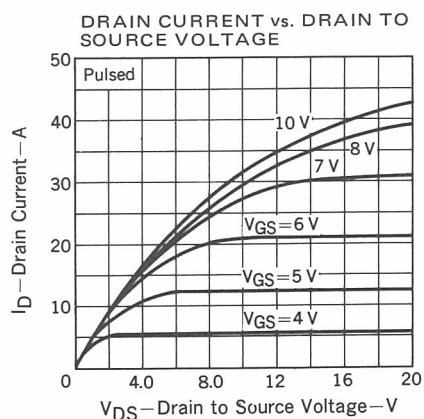
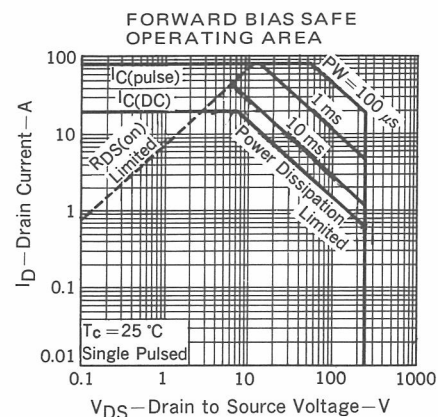
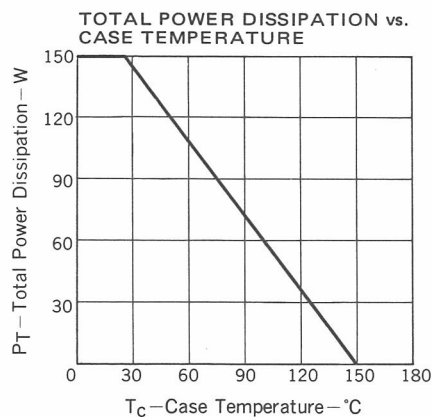
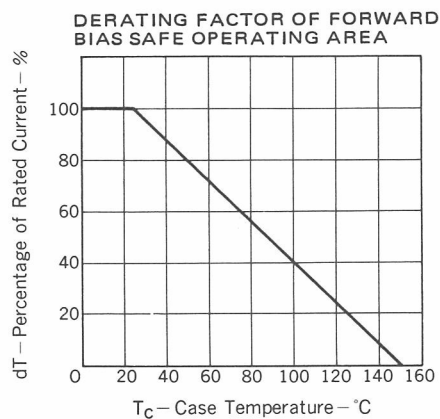


ELECTRICAL CHARACTERISTICS ($T_a = 25$ °C)

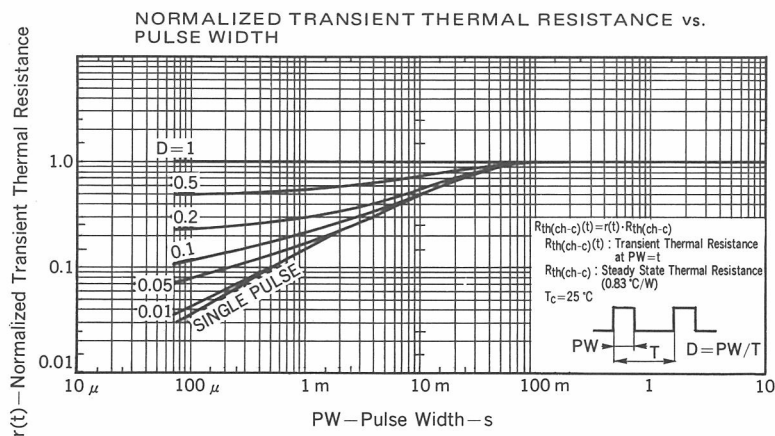
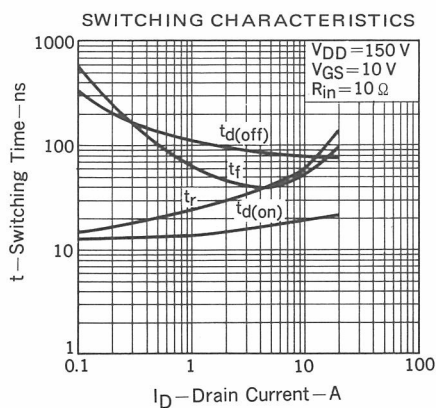
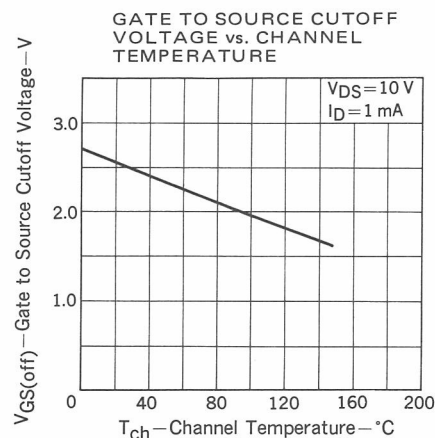
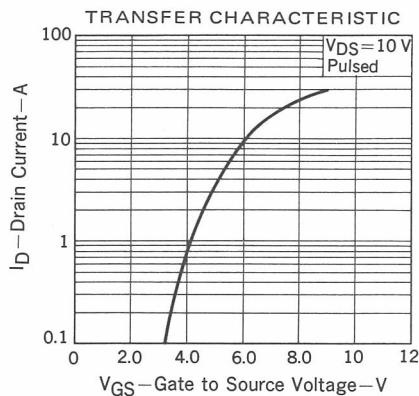
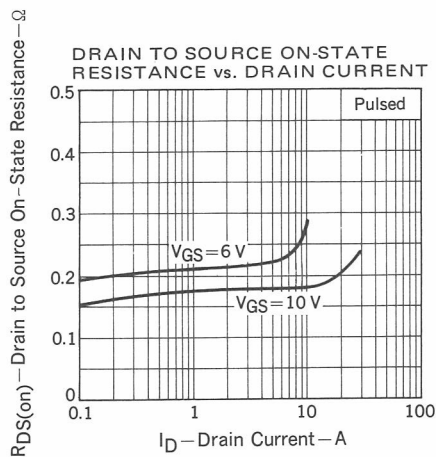
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
I_{DSS}	Drain Leakage Current			100	μA	$V_{DS} = 250$ V, $V_{GS} = 0$
I_{GSS}	Gate to Source Leakage Current			± 100	nA	$V_{GS} = \pm 20$ V, $V_{DS} = 0$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	1.5		3.5	V	$V_{DS} = 10$ V, $I_D = 1$ mA
$ y_{fs} $	Forward Transfer Admittance	5.0			S	$V_{DS} = 10$ V, $I_D = 10$ A
$R_{DS(on)}$	Drain to Source On-State Resistance		0.18	0.23	Ω	$V_{GS} = 10$ V, $I_D = 10$ A
C_{iss}	Input Capacitance		1900		pF	$V_{DS} = 10$ V, $V_{GS} = 0$, $f = 1$ MHz
C_{oss}	Output Capacitance		680		pF	
C_{rss}	Reverse Transfer Capacitance		320		pF	
$t_{d(on)}$	Turn-On Delay Time		30		ns	$I_D = 10$ A, $V_{DD} \div 150$ V $V_{GS(on)} = 10$ V $R_L = 15$ Ω $R_{in} = 10$ Ω
t_r	Rise Time		45		ns	
$t_{d(off)}$	Turn-Off Delay Time		120		ns	
t_f	Fall Time		40		ns	

Phase-out/Discontinued

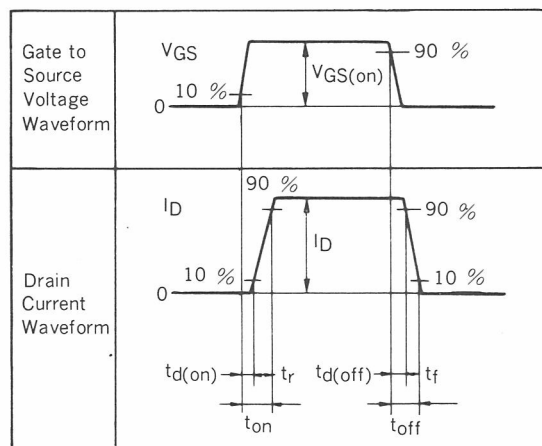
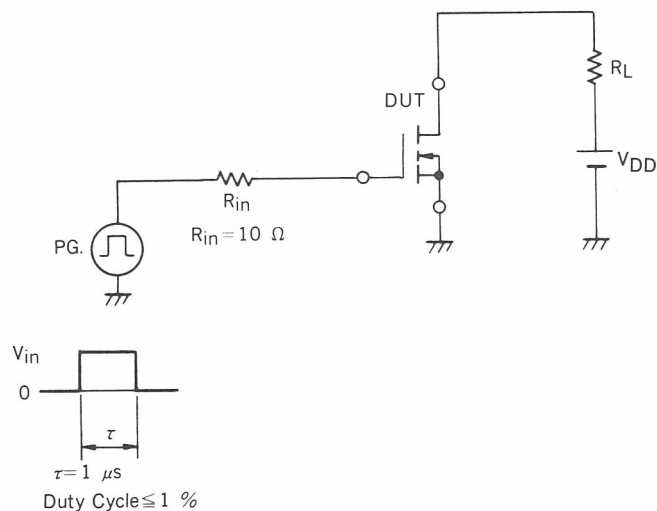
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



Phase-out/Discontinued



SWITCHING TIME TEST CIRCUIT



Phase-out/Discontinued