

To our customers,

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## Old Company Name in Catalogs and Other Documents

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

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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

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**Phase-out/Discontinued**

# 2SK707

**DESCRIPTION** The 2SK707 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 . . . . .  $120$  W

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

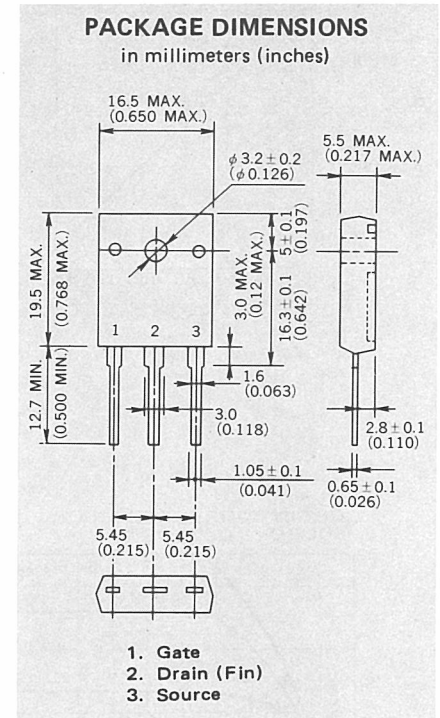
$V_{DSS}$  Drain to Source Voltage . . . . .  $250$  V

$V_{GSS}$  Gate to Source Voltage. . . . .  $\pm 20$  V

$I_{D(DC)}$  Drain Current (DC) . . . . .  $\pm 25$  A

$I_{D(pulse)}$  Drain Current (pulse)\* . . . . .  $\pm 100$  A

\*  $PW \leq 100 \mu s$ , Duty Cycle  $\leq 2\%$

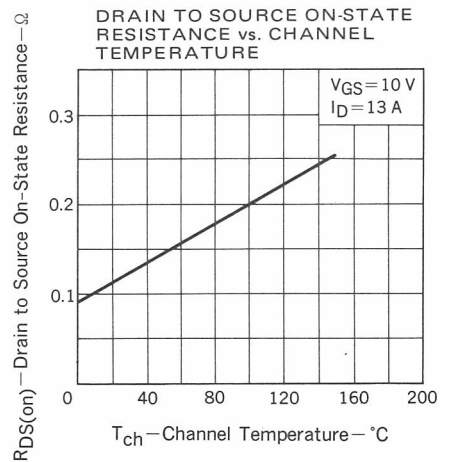
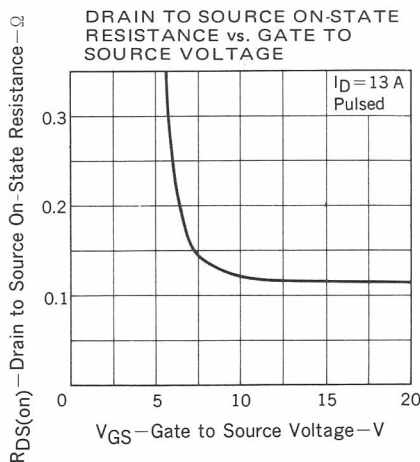
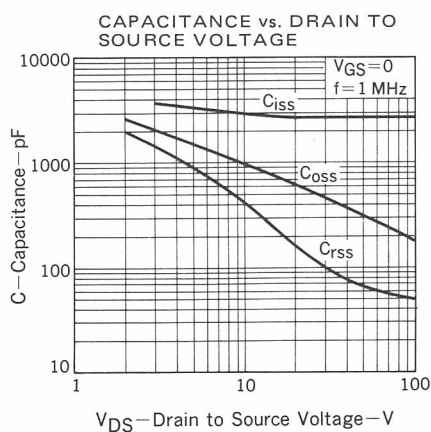
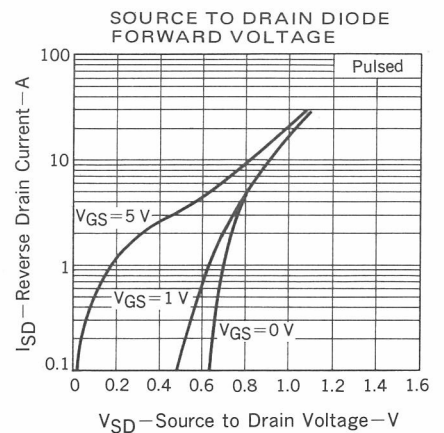
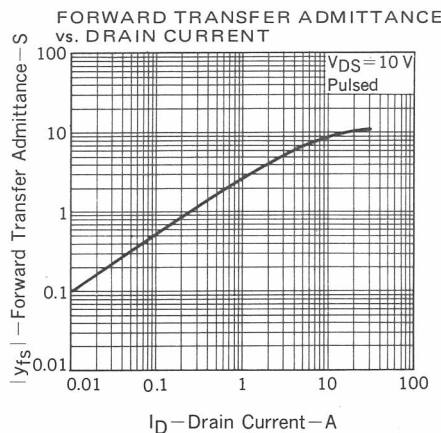
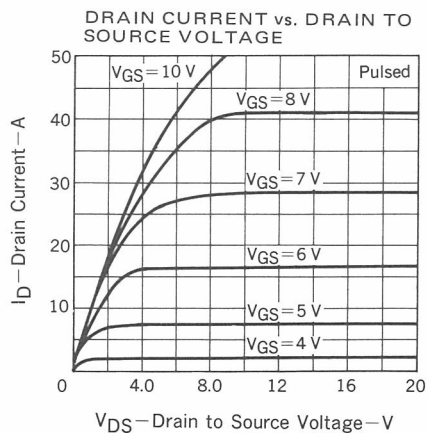
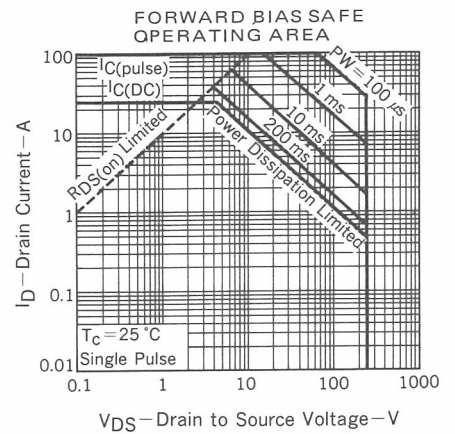
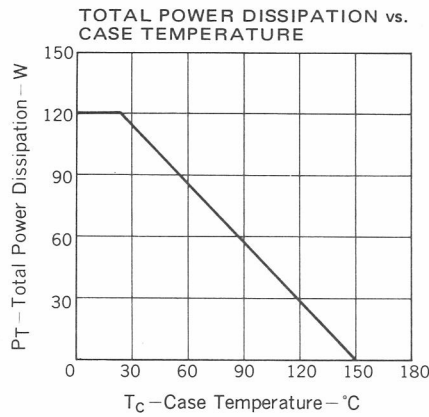
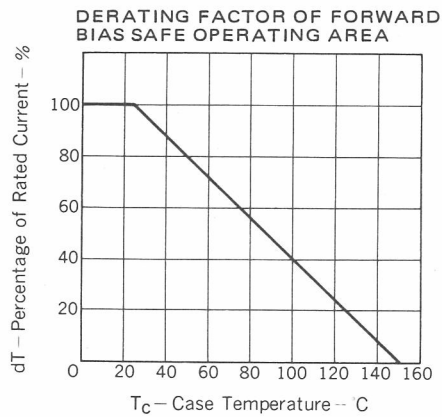


**ELECTRICAL CHARACTERISTICS ( $T_a = 25$  °C)**

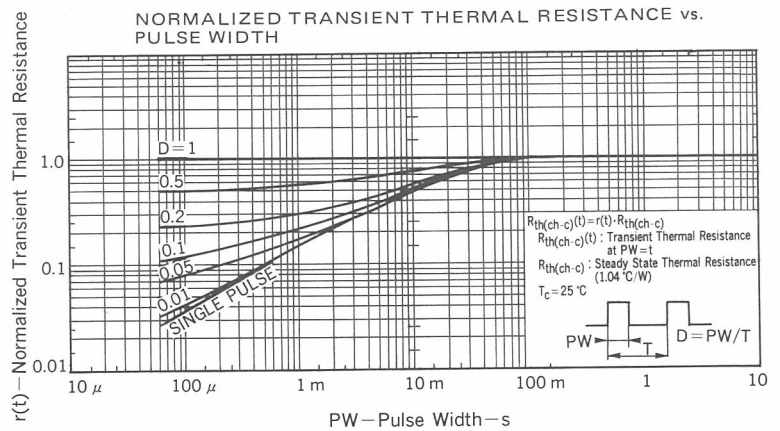
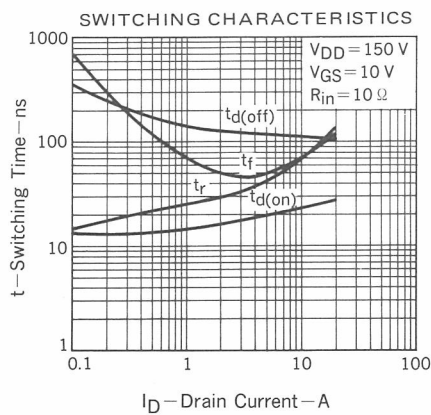
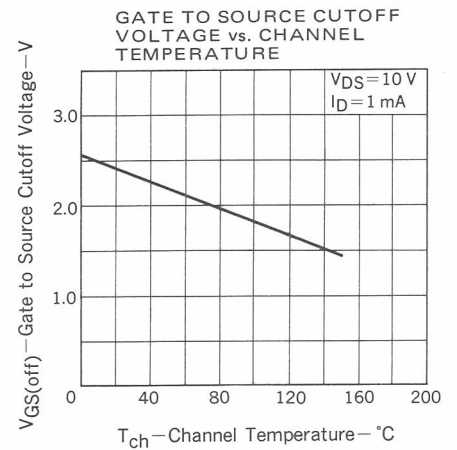
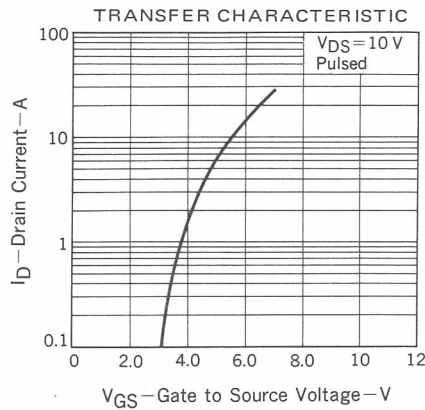
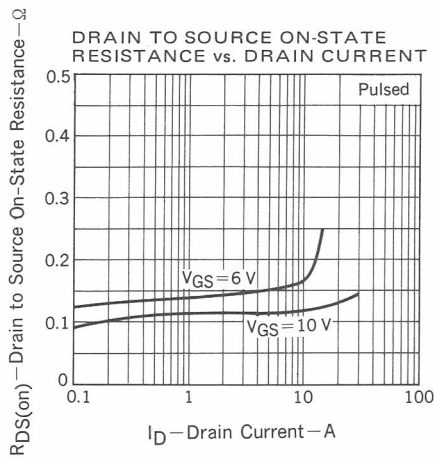
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$I_{DSS}$	Drain Leakage Current			100	$\mu A$	$V_{DS} = 250$ V, $V_{GS} = 0$
$I_{GSS}$	Gate to Source Leakage Current			$\pm 100$	nA	$V_{GS} = \pm 20$ V, $V_{DS} = 0$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	1.5		3.5	V	$V_{DS} = 10$ V, $I_D = 1$ mA
$ y_{fs} $	Forward Transfer Admittance	5.0			S	$V_{DS} = 10$ V, $I_D = 13$ A
$R_{DS(on)}$	Drain to Source On-State Resistance		0.12	0.15	$\Omega$	$V_{GS} = 10$ V, $I_D = 13$ A
$C_{iss}$	Input Capacitance		2950		pF	$V_{DS} = 10$ V, $V_{GS} = 0$ , $f = 1$ MHz
$C_{oss}$	Output Capacitance		990		pF	
$C_{rss}$	Reverse Transfer Capacitance		450		pF	
$t_{d(on)}$	Turn-On Delay Time		25		ns	$I_D = 13$ A, $V_{DD} \cong 150$ V $V_{GS(on)} = 10$ V $R_L = 11.5 \Omega$ $R_{in} = 10 \Omega$
$t_r$	Rise Time		85		ns	
$t_{d(off)}$	Turn-Off Delay Time		115		ns	
$t_f$	Fall Time		85		ns	

**Phase-out/Discontinued**

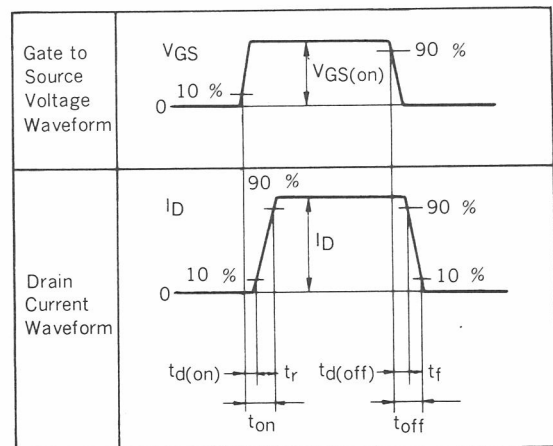
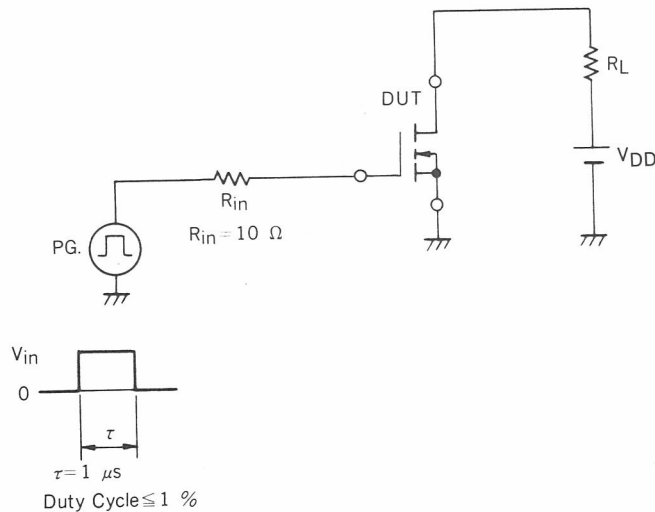
TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )



**Phase-out/Discontinued**



**SWITCHING TIME TEST CIRCUIT**



**Phase-out/Discontinued**