To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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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RENESAS

MOS FIELD EFFECT TRANSISTOR

Phase-out/Discontinued

2SJ128-Z

P-CHANNEL SILICON POWER MOS FET FOR HIGH SPEED SWITCHING

FEATURES

- Suitable for switching power supplies, actuator controls, and pulse circuits.
- Low $R_{DS(on)}$
- No second breakdown
- 4 V gate drive (Logic level)
- Designed for Hybrid Integrated Circuits

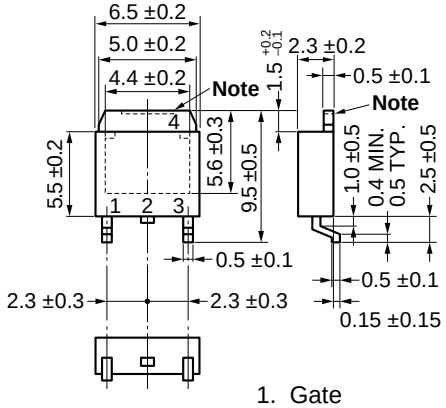
ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Drain to Source Voltage	V_{DSS}	–100	V
Gate to Source Voltage	V_{GSS}	∓20	V
Continuous Drain Current (DC)	$I_{D(DC)}$	∓2	A
Peak Drain Current (pulse) Note 1	$I_{D(pulse)}$	∓8	A
Total Power Dissipation (T_C = 25°C)	P_T	20	W
Total Power Dissipation (T_A = 25°C) Note 2	P_T	2.0	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	–55 to +150	°C

Notes 1. PW ≤ 300 μs, Duty Cycle ≤ 10%

2. When mounted on ceramic substrate of 2.5 cm^2 × 0.7 mm

<R> **PACKAGE DRAWING (Unit: mm)**



TO-252 (MP-3Z)

1. Gate
2. Drain
3. Source
4. Drain Fin

Note The depth of notch at the top of the fin is from 0 to 0.2 mm.

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Leakage Current	I_{DSS}			–10	μA	V_{DS} = –100 V, V_{GS} = 0
Gate to Source Leakage Current	I_{GSS}			∓100	nA	V_{GS} = –20 V, V_{DS} = 0
Gate to Source Cutoff Voltage	$V_{GS(off)}$	–1.0		–3.0	V	V_{DS} = –10 V, I_D = –1 mA
Forward Transfer Admittance	$\|y_{fs}\|$	1.0			S	V_{DS} = –10 V, I_D = –1 A
Drain to Source On-State Resistance	$R_{DS(on)}$		0.8	1.0	Ω	V_{GS} = –10 V, I_D = –1 A
Drain to Source On-State Resistance	$R_{DS(on)}$		1.1	1.5	Ω	V_{GS} = –4 V, I_D = –0.8 A
Input Capacitance	C_{iss}		1000		pF	V_{DS} = –10 V, V_{GS} = 0 f = 1 MHz
Output Capacitance	C_{oss}		200		pF	
Reverse Transfer Capacitance	C_{rss}		25		pF	
Turn–On Delay Time	$t_{d(on)}$		30		ns	I_D = –1 A, V_{CC} ≒ –50 V $V_{GS(on)}$ = –10 V R_L = 10 Ω R_{in} = 10 Ω
Rise Time	t_r		30		ns	
Turn–Off Delay Time	$t_{d(off)}$		110		ns	
Fall Time	t_f		40		ns	

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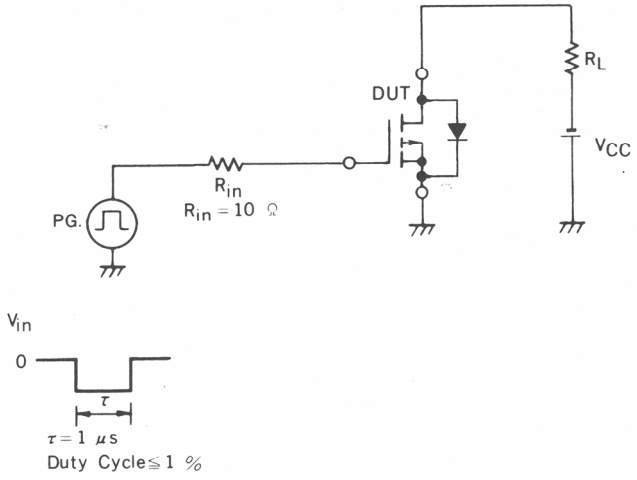
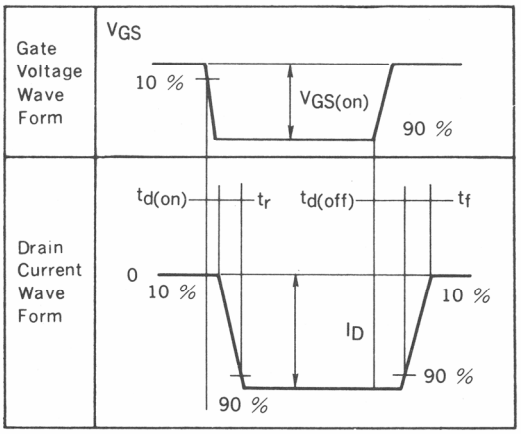
Date Published July 2006 NS CP(K)
Printed in Japan

The mark <R> shows major revised points.

The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

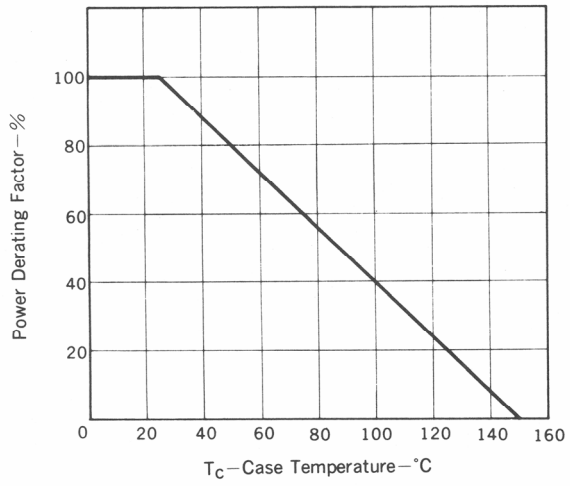
TURN-ON AND TURN-OFF TIME TEST CIRCUIT



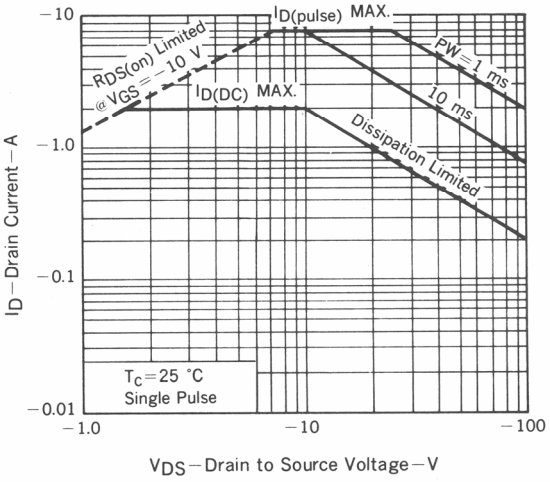


TYPICAL CHARACTERISTICS (T_a = 25 °C)

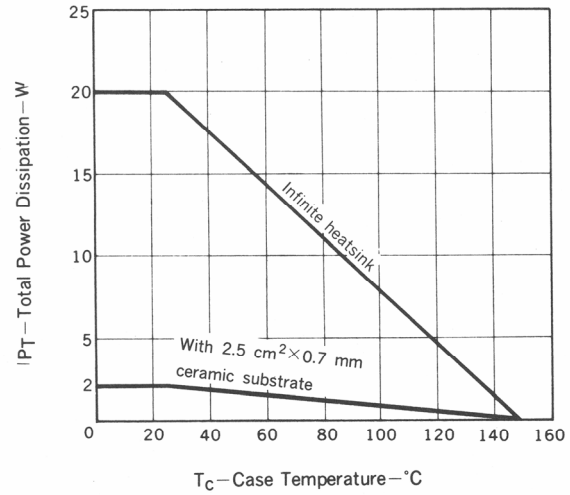
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



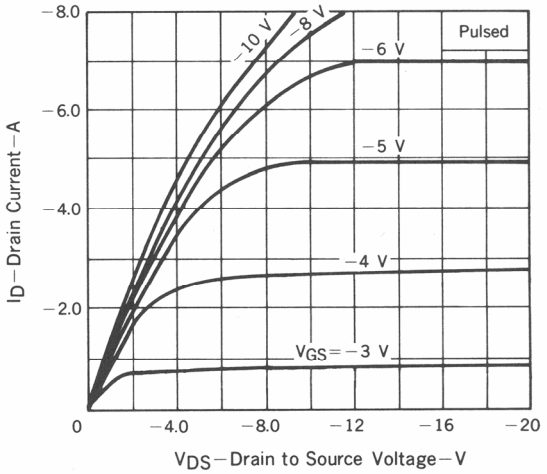
FORWARD BIAS SAFE OPERATING AREA



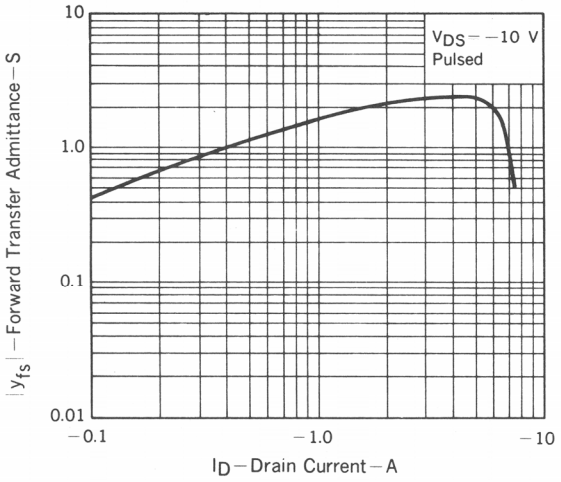
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



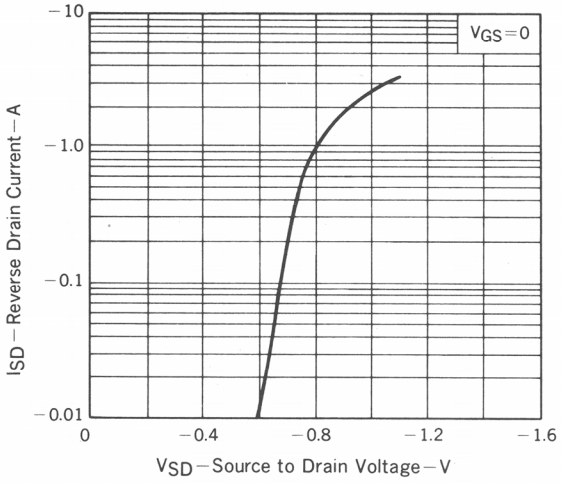
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



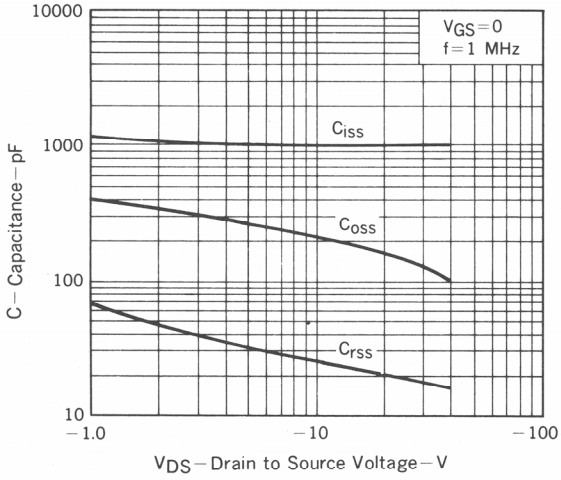
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



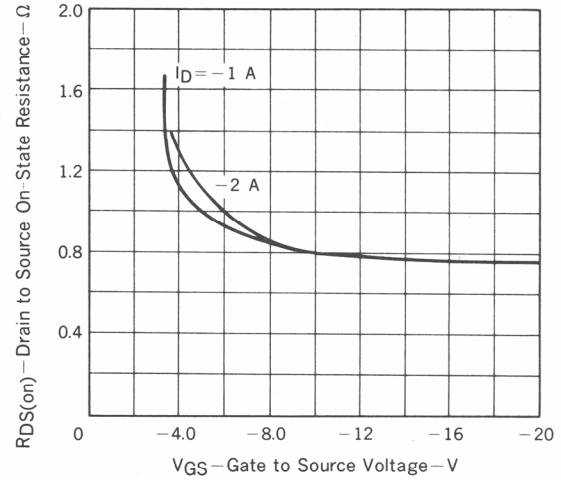
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



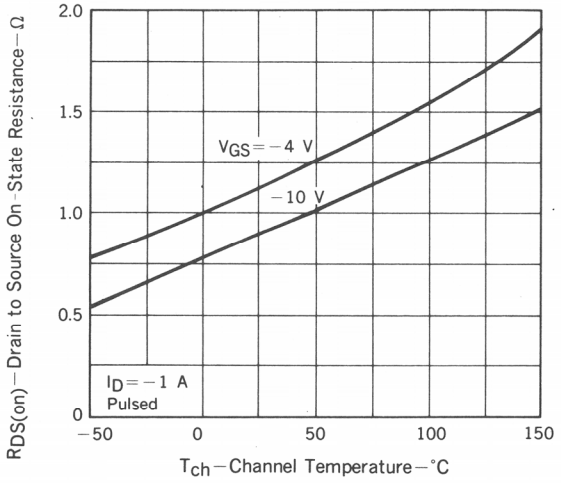
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



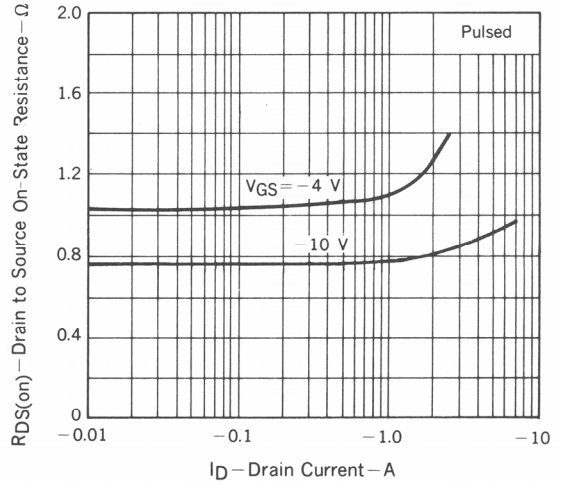
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



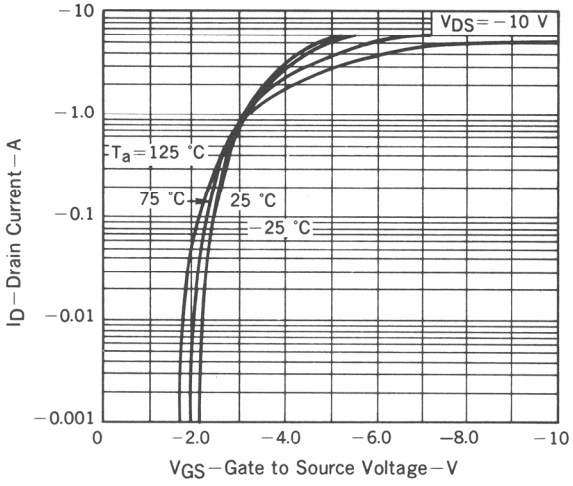
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



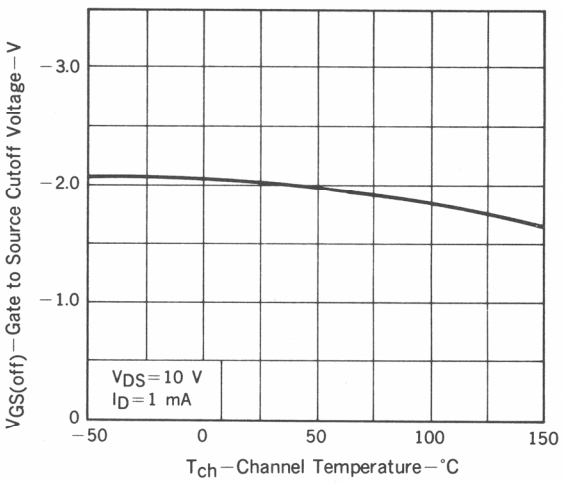
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



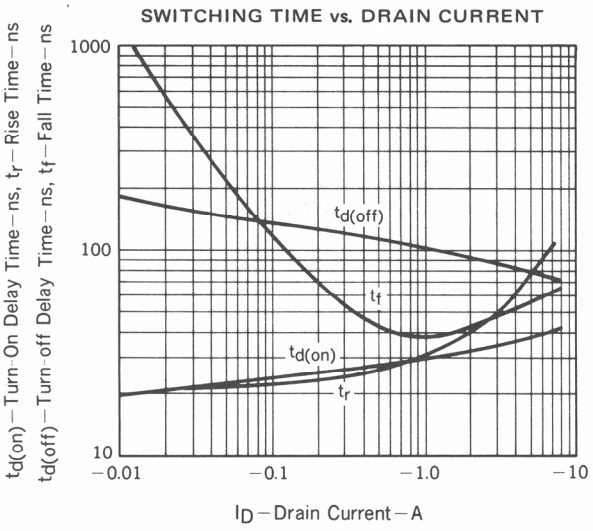
TRANSFER CHARACTERISTICS



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



SWITCHING TIME vs. DRAIN CURRENT



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