

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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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

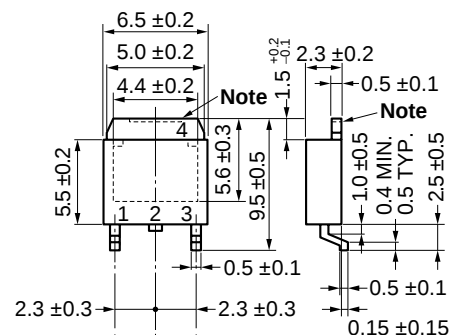
ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Drain to Source Voltage	V_{DS}	-100	V
Gate to Source Voltage	V_{GS}	± 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 ($T_C = 25^\circ\text{C}$)	P_T	20	W
Total Power Dissipation ($T_A = 25^\circ\text{C}$) ^{Note 2}	P_T	2.0	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Notes 1. $PW \leq 300 \mu\text{s}$, Duty Cycle $\leq 10\%$

2. When mounted on ceramic substrate of $2.5 \text{ cm}^2 \times 0.7 \text{ mm}$

<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.

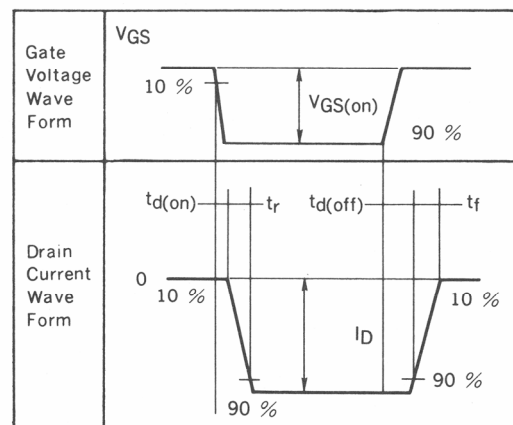
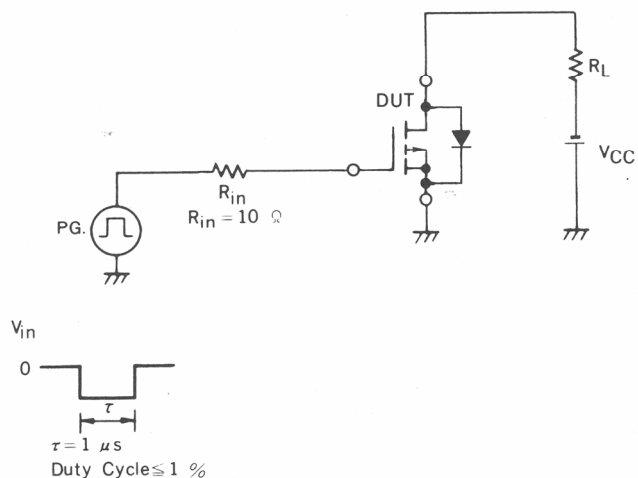
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

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

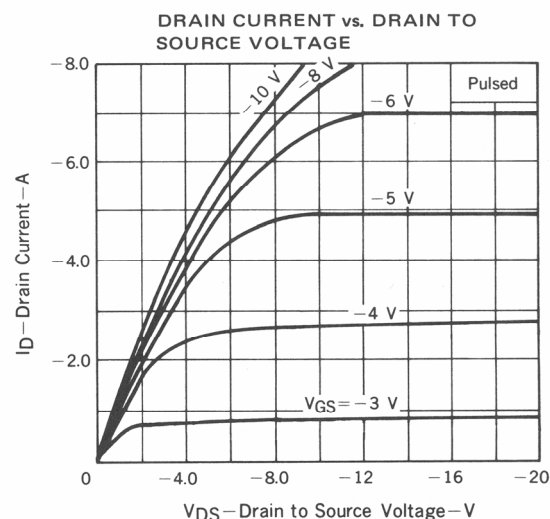
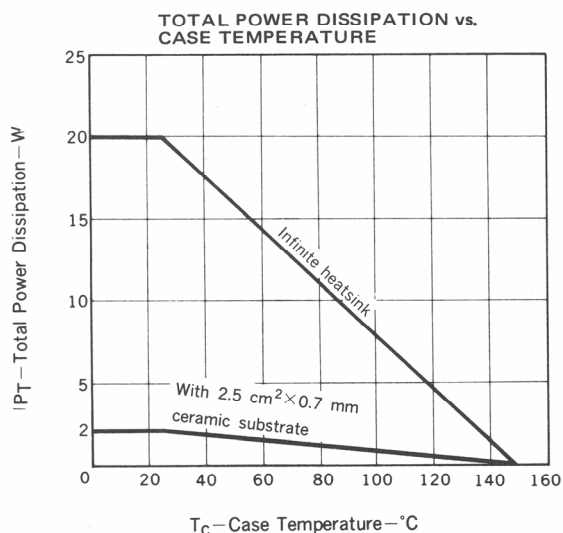
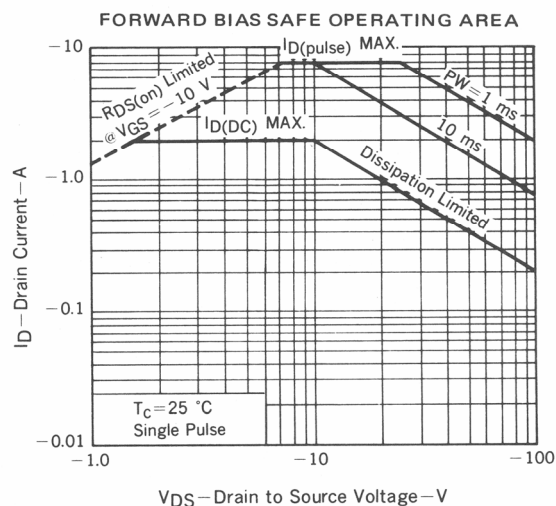
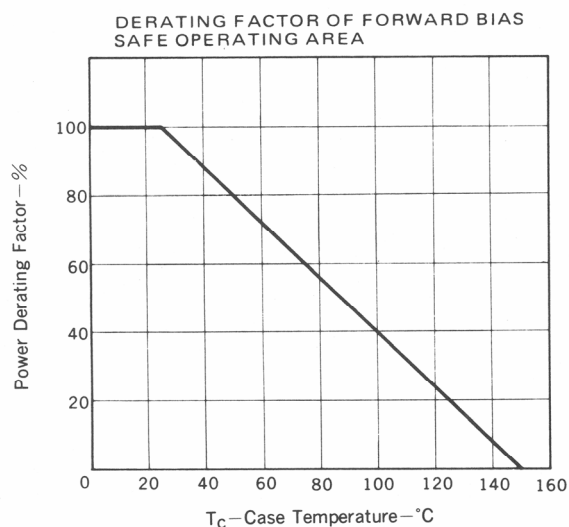
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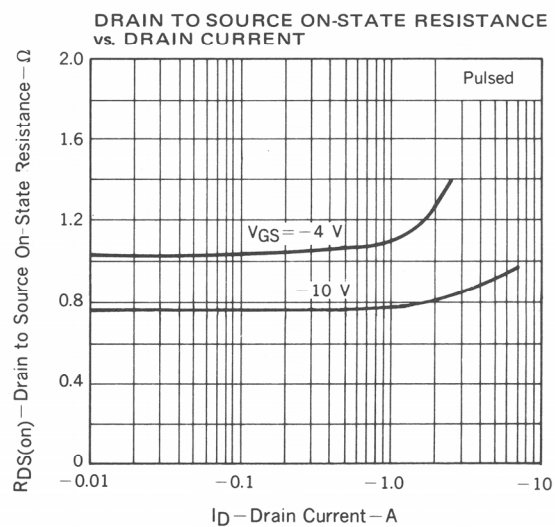
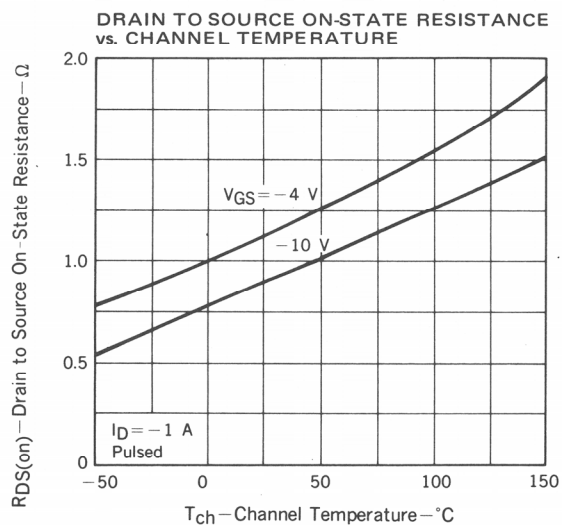
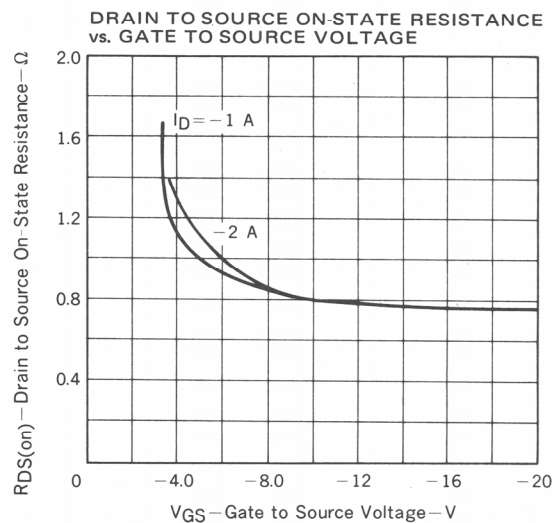
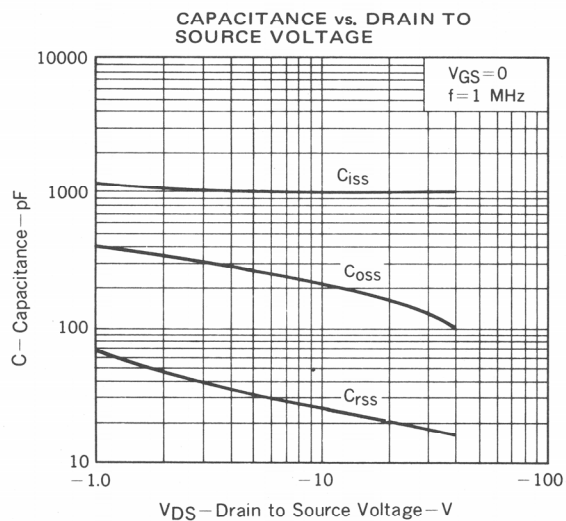
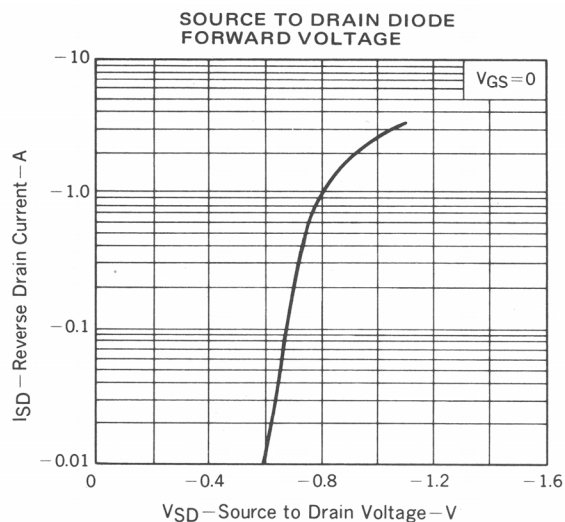
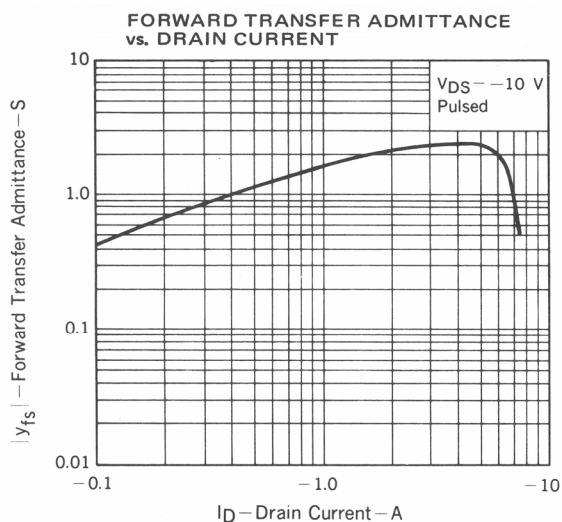
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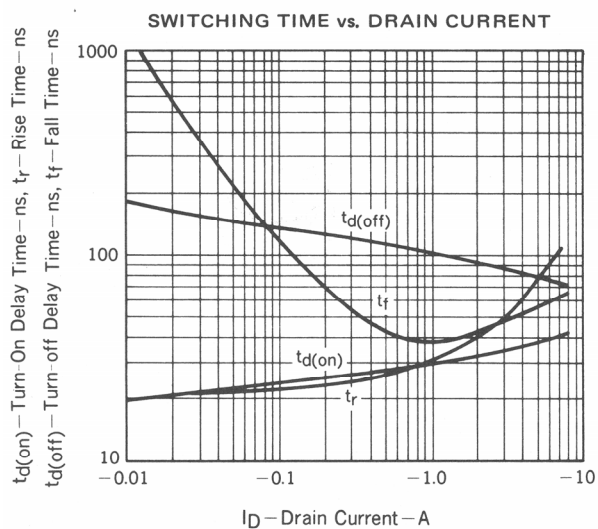
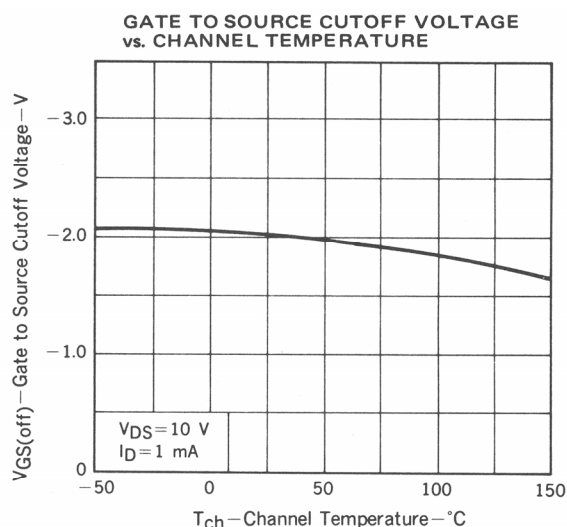
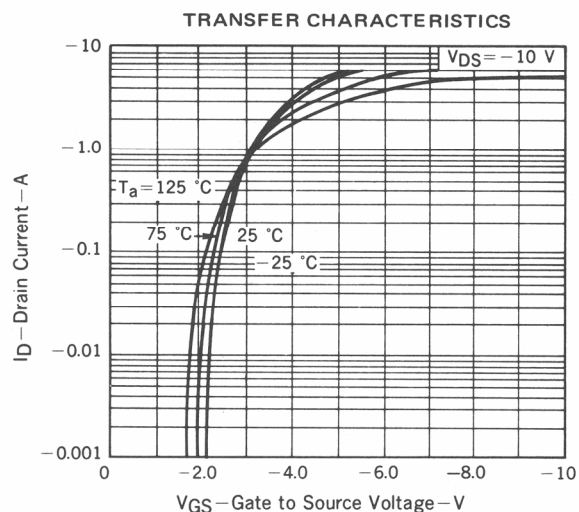
TURN-ON AND TURN-OFF TIME TEST CIRCUIT



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







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