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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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H7N0308AB

Silicon N Channel MOS FET
High Speed Power Switching

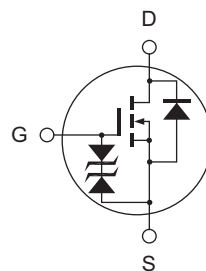
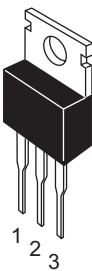
REJ03G1122-0400
(Previous: ADE-208-1569B)
Rev.4.00
Sep 07, 2005

Features

- Low on-resistance
 $R_{DS(on)} = 3.8 \text{ m}\Omega$ typ.
- Low drive current
- 4.5 V gate drive device can be driven from 5 V source

Outline

RENESAS Package code: PRSS0004AC-A
(Package name: TO-220AB)



1. Gate
2. Drain (Flange)
3. Source

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Drain to source voltage	V _{DSS}	30	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	70	A
Drain peak current	I _{D (pulse)} ^{Note 1}	280	A
Body-drain diode reverse drain current	I _{DR}	70	A
Channel dissipation	P _{ch} ^{Note 2}	100	W
Channel to case thermal impedance	θ _{ch-c}	1.25	°C/W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%

2. Value at Tc = 25°C

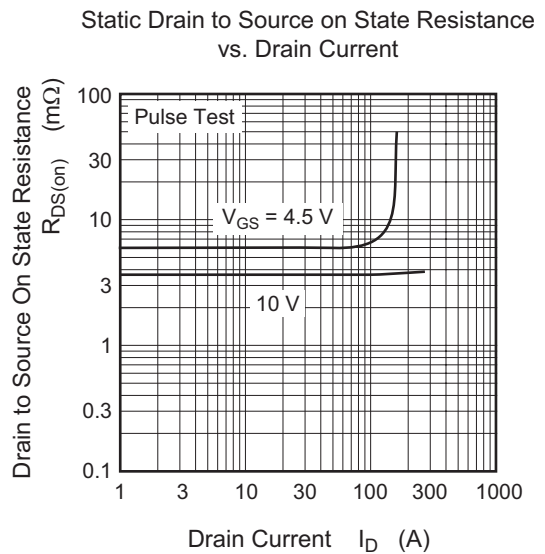
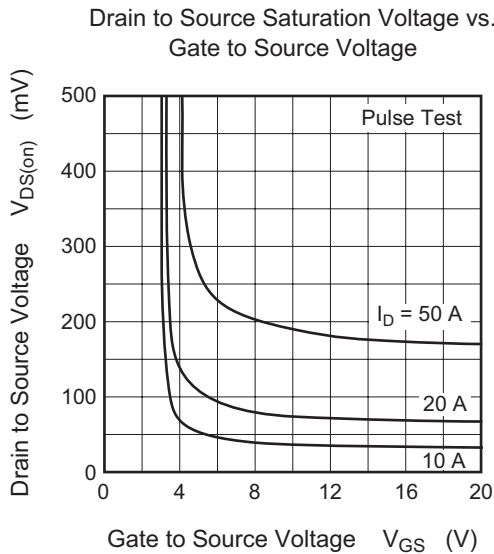
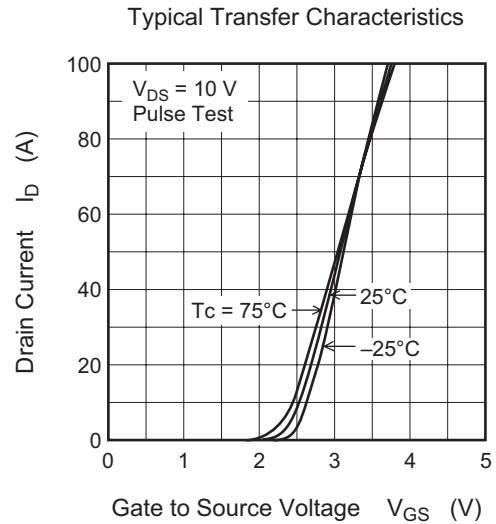
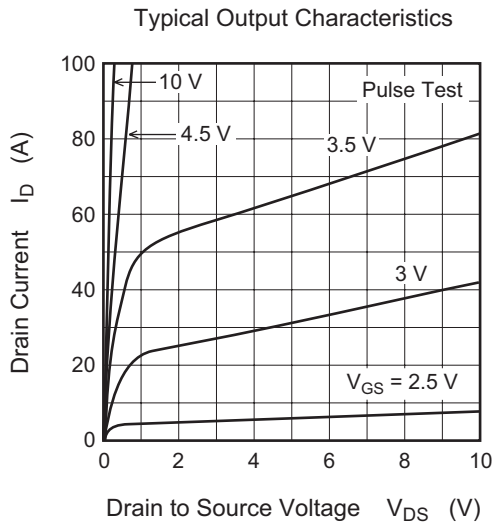
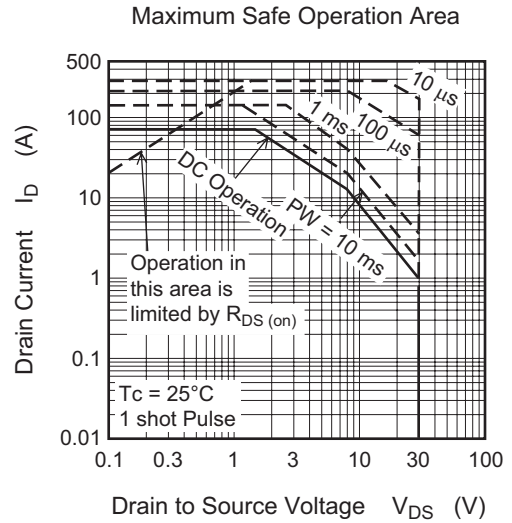
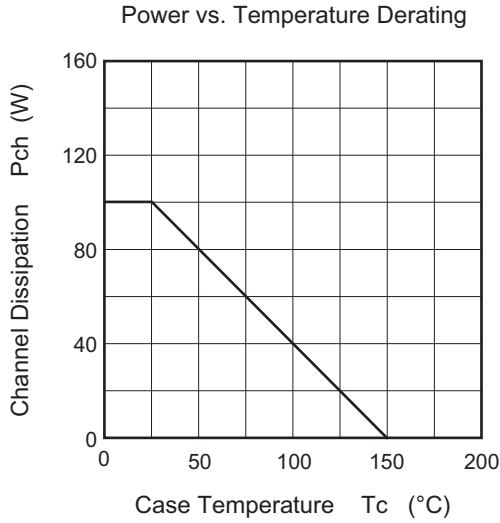
Electrical Characteristics

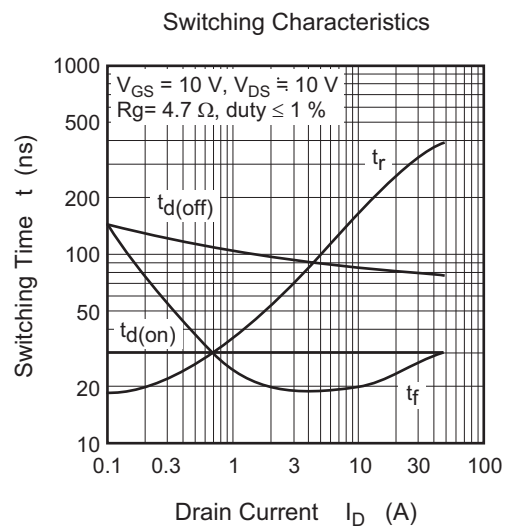
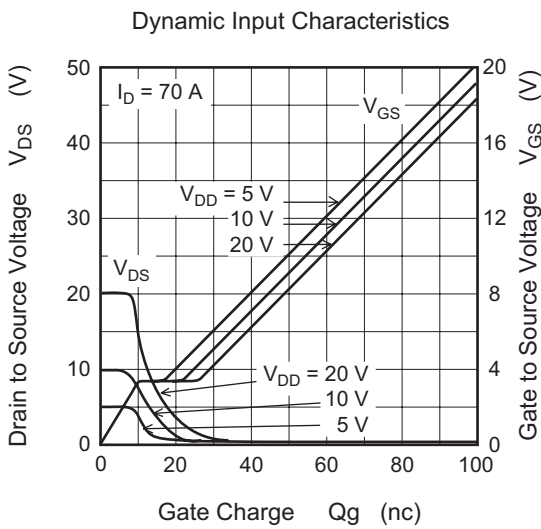
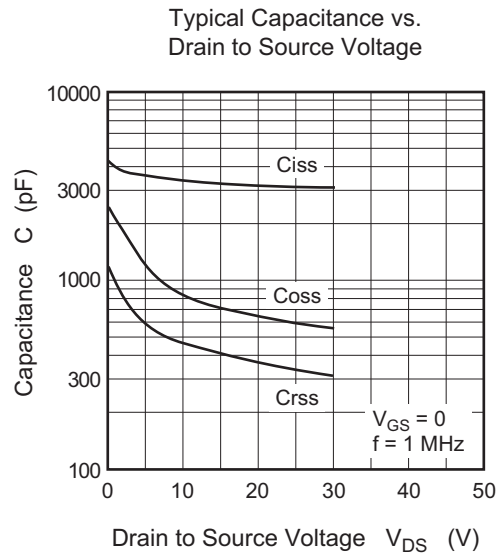
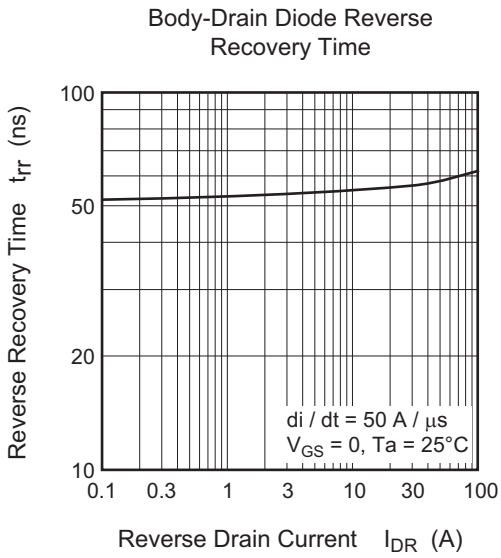
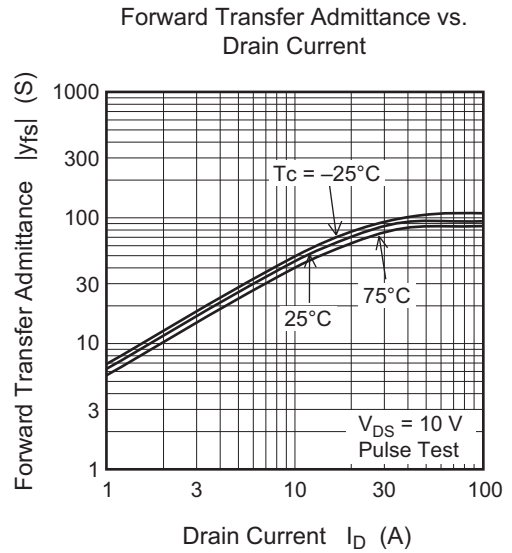
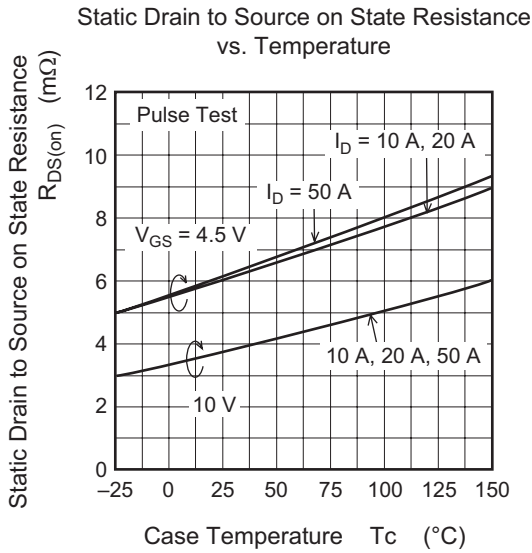
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR)DSS}	30	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR)GSS}	±20	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±16 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	10	μA	V _{DS} = 30 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS (off)}	1.0	—	2.5	V	I _D = 1 mA, V _{DS} = 10 V ^{Note 3}
Static drain to source on state resistance	R _{DS (on)}	—	3.8	4.8	mΩ	I _D = 35 A, V _{GS} = 10 V ^{Note 3}
		—	6.0	8.5	mΩ	I _D = 35 A, V _{GS} = 4.5 V ^{Note 3}
Forward transfer admittance	y _{fs}	54	90	—	S	I _D = 35 A, V _{DS} = 10 V ^{Note 3}
Input capacitance	C _{iss}	—	3350	—	pF	V _{DS} = 10 V
Output capacitance	C _{oss}	—	840	—	pF	V _{GS} = 0
Reverse transfer capacitance	C _{rss}	—	480	—	pF	f = 1 MHz
Total gate charge	Q _g	—	52	—	nC	V _{DD} = 10 V
Gate to source charge	Q _{gs}	—	11	—	nC	V _{GS} = 10 V
Gate to drain charge	Q _{gd}	—	10	—	nC	I _D = 70 A
Turn-on delay time	t _{d (on)}	—	30	—	ns	V _{GS} = 10 V, I _D = 35 A
Rise time	t _r	—	370	—	ns	R _L = 0.29 Ω
Turn-off delay time	t _{d (off)}	—	80	—	ns	R _g = 4.7 Ω
Fall time	t _f	—	27	—	ns	
Body-drain diode forward voltage	V _{DF}	—	0.93	—	V	I _F = 70 A, V _{GS} = 0
Body-drain diode reverse recovery time	t _{rr}	—	60	—	ns	I _F = 70 A, V _{GS} = 0 di _F /dt = 50 A/μs

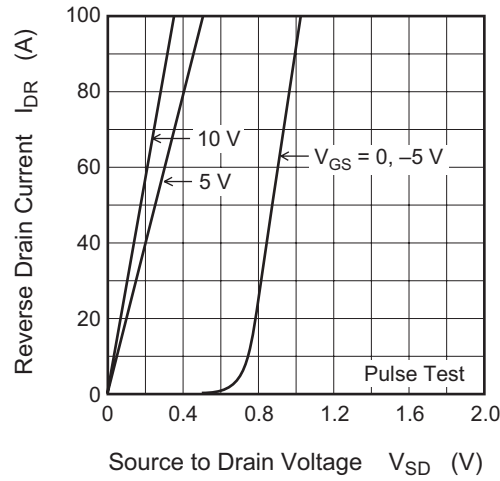
Note: 3. Pulse test

Main Characteristics

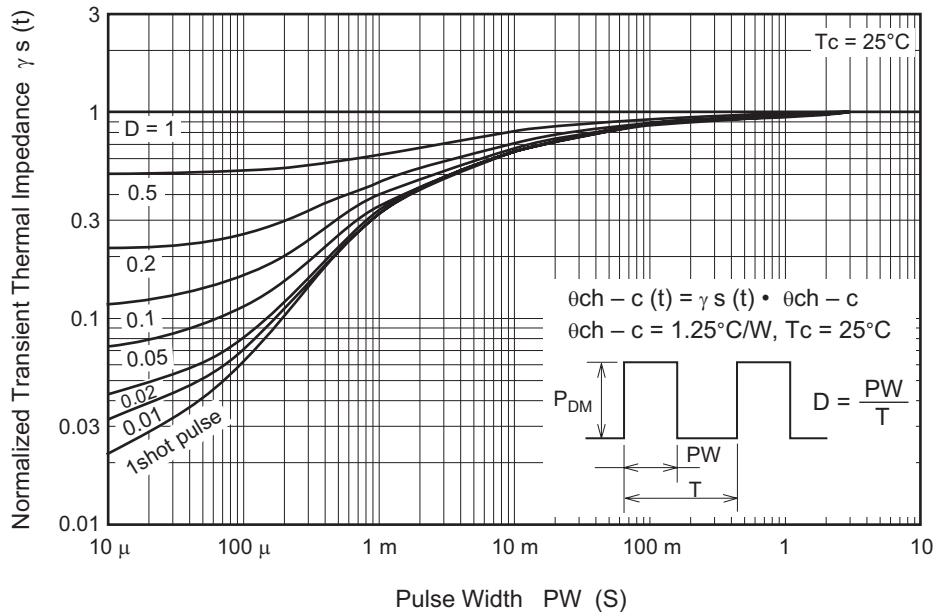




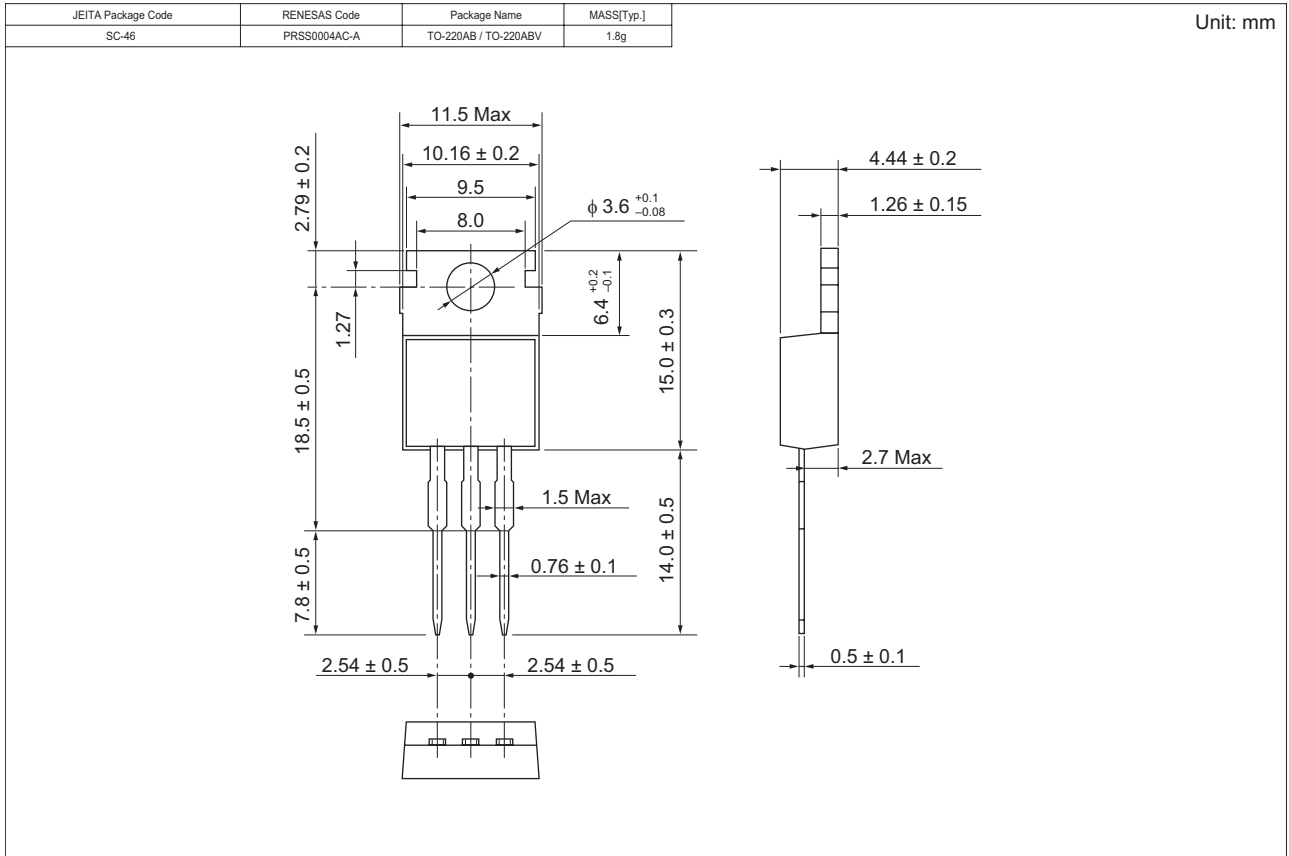
Reverse Drain Current vs. Source to Drain Voltage



Normalized Transient Thermal Impedance vs. Pulse Width



Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
H7N0308AB-E	500 pcs	Box (Sack)

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