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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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EOL announced Product

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H5N2901FN

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G0372-0100Z

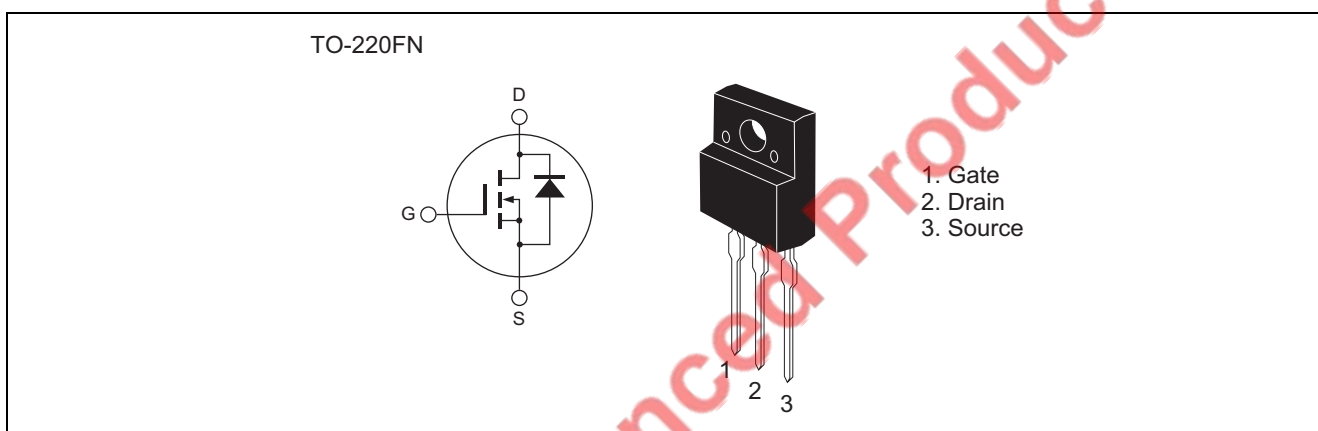
Rev.1.00

May.28.2004

Features

- Low on-resistance
- Low leakage current
- High speed switching

Outline



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to Source voltage	V_{DSS}	290	V
Gate to Source voltage	V_{GSS}	±30	V
Drain current	I_D	18	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	72	A
Body-Drain diode reverse Drain current	I_{DR}	18	A
Body-Drain diode reverse Drain peak current	$I_{DR(pulse)}$ ^{Note1}	72	A
Avalanche current	I_{AP} ^{Note3}	6	A
Avalanche energy	E_{AR} ^{Note3}	2.1	mJ
Channel dissipation	P_{ch} ^{Note2}	30	W
Channel to case thermal impedance	θ_{ch-c}	4.17	°C/W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$

2. Value at $T_c = 25^\circ C$

3. $STch = 25^\circ C$, $T_{ch} \leq 150^\circ C$

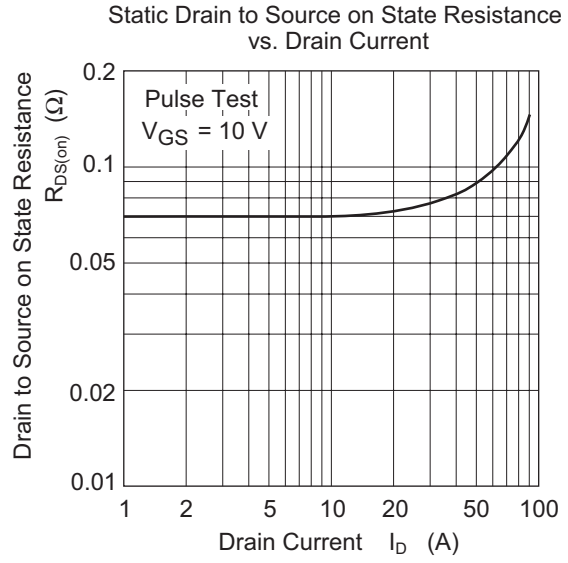
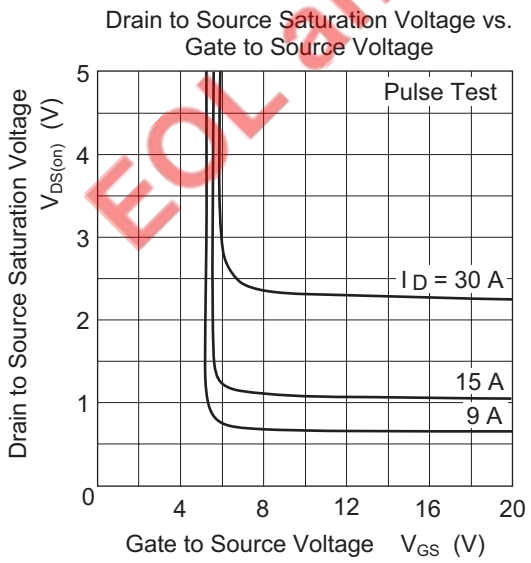
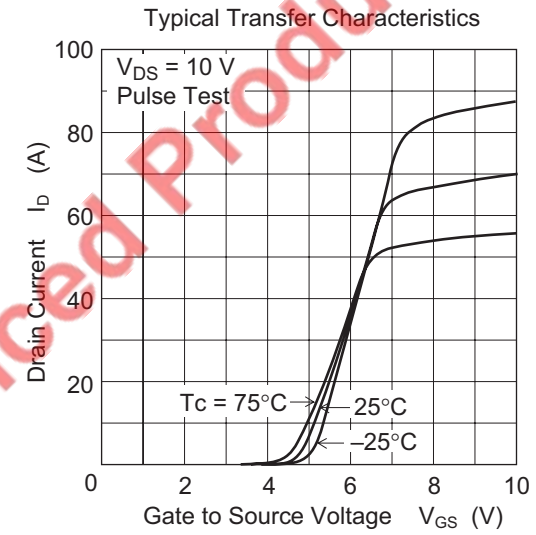
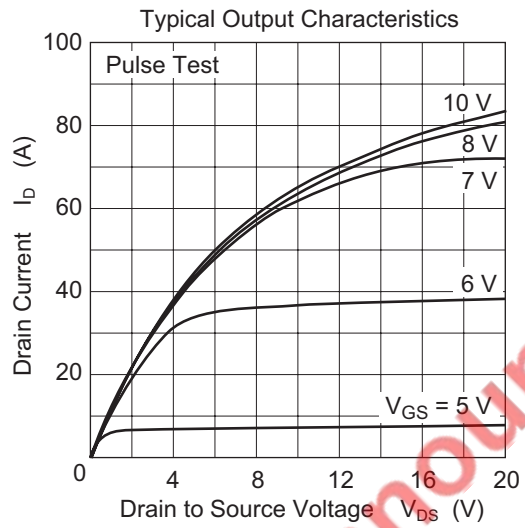
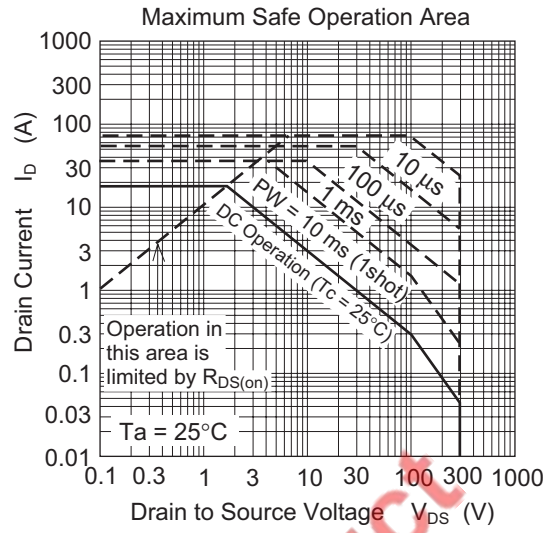
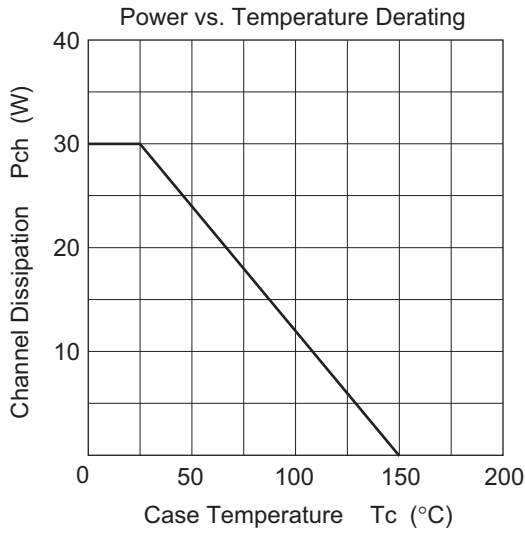
Electrical Characteristics

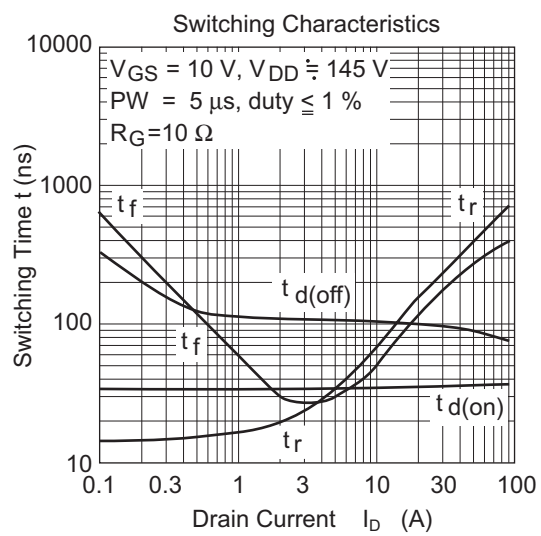
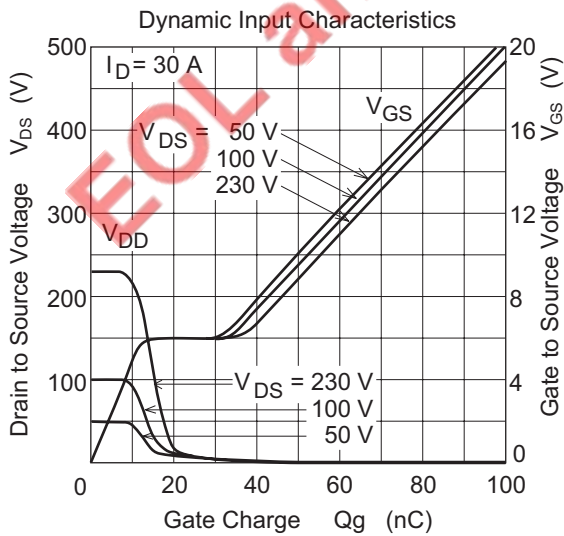
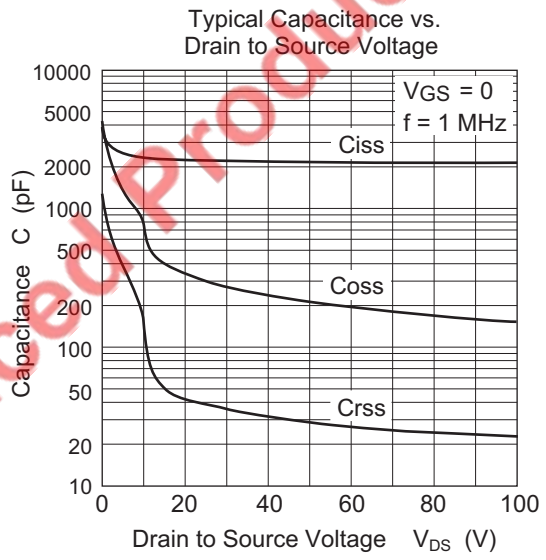
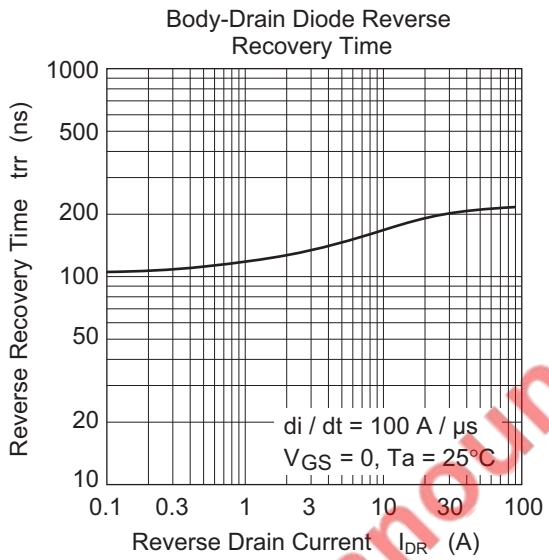
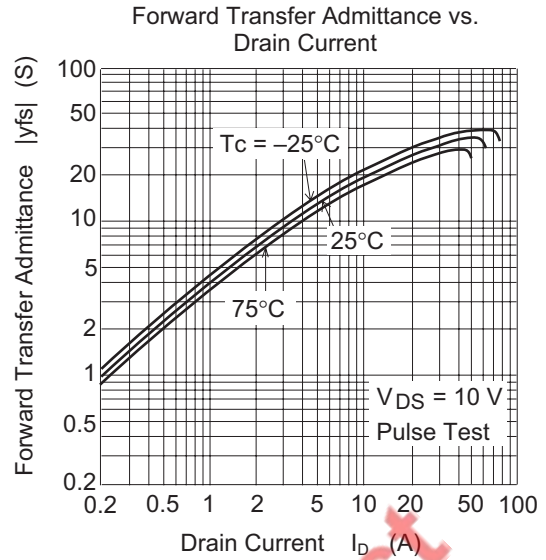
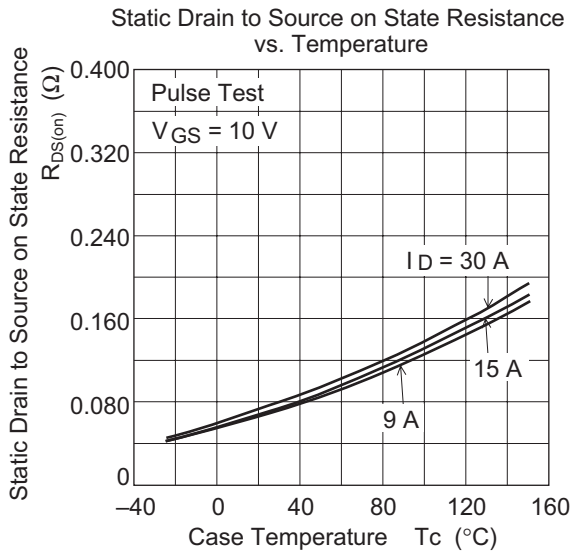
(Ta = 25°C)

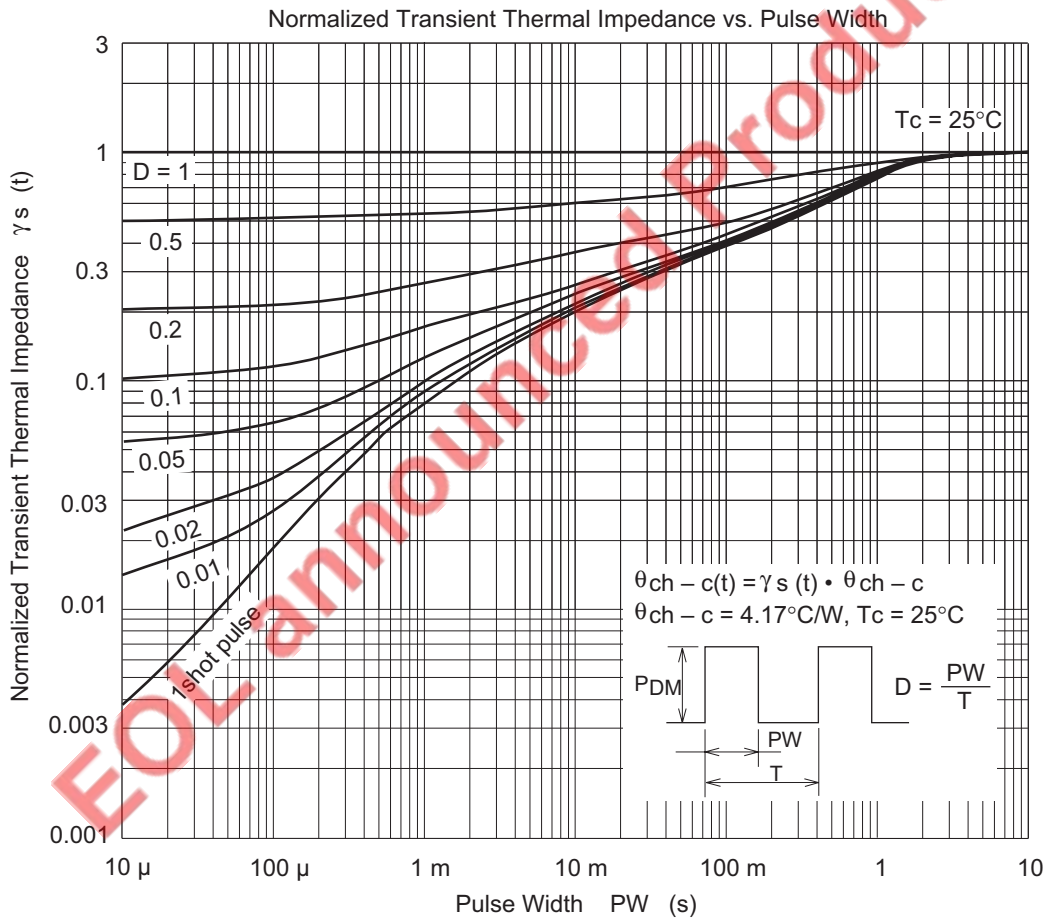
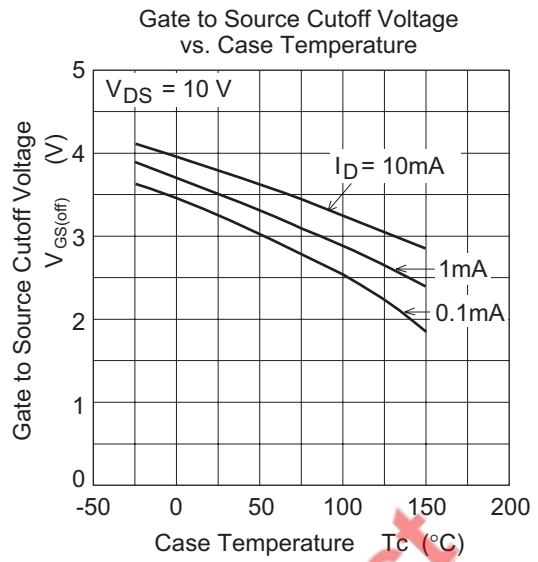
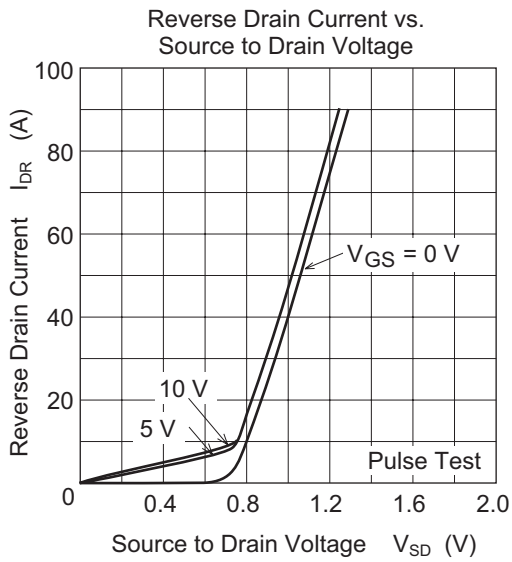
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to Source breakdown voltage	$V_{(BR)DSS}$	290	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Zero Gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 290 \text{ V}$, $V_{GS} = 0$
Gate to Source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$
Gate to Source cutoff voltage	$V_{GS(off)}$	3.0	—	4.0	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Forward transfer admittance	$ y_{fs} $	10	18	—	S	$I_D = 9 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{Note4}
Static Drain to Source on state resistance	$R_{DS(on)}$	—	0.070	0.091	Ω	$I_D = 9 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note4}
Input capacitance	C_{iss}	—	2200	—	pF	$V_{DS} = 25 \text{ V}$
Output capacitance	C_{oss}	—	300	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	38	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	35	—	ns	$I_D = 9 \text{ A}$
Rise time	t_r	—	60	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	110	—	ns	$R_L = 16.1 \Omega$
Fall time	t_f	—	45	—	ns	$R_g = 10 \Omega$
Total Gate charge	Q_g	—	56	—	nC	$V_{DD} = 230 \text{ V}$
Gate to Source charge	Q_{gs}	—	13	—	nC	$V_{GS} = 10 \text{ V}$
Gate to Drain charge	Q_{gd}	—	26	—	nC	$I_D = 18 \text{ A}$
Body-Drain diode forward voltage	V_{DF}	—	0.9	1.5	V	$I_F = 18 \text{ A}$, $V_{GS} = 0$ ^{Note4}
Body-Drain diode reverse recovery time	t_{rr}	—	190	—	ns	$I_F = 18 \text{ A}$, $V_{GS} = 0$
Body-Drain diode reverse recovery charge	Q_{rr}	—	1.3	—	μC	$diF/dt = 100 \text{ A}/\mu\text{s}$

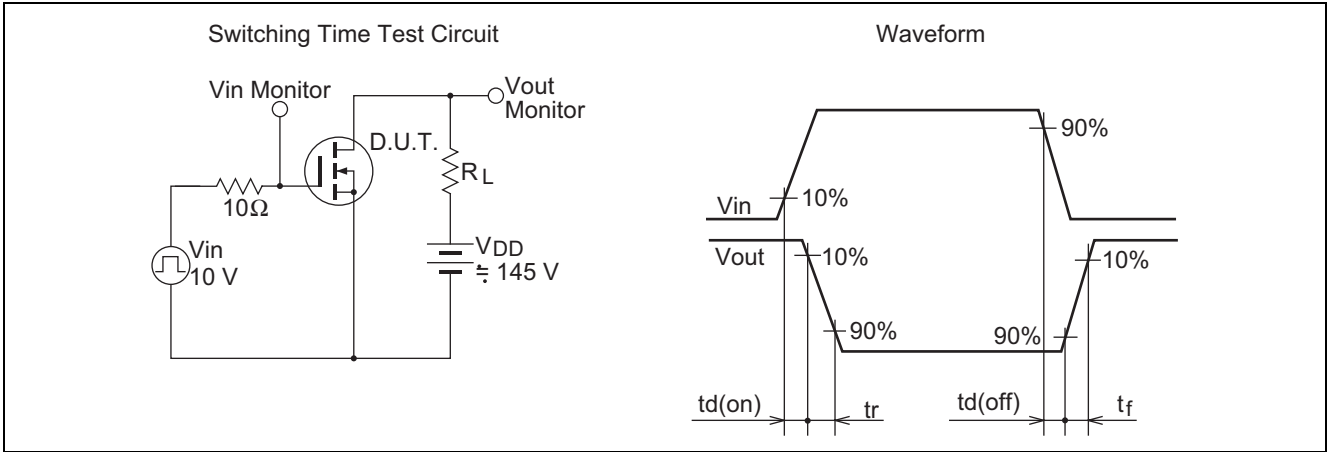
Notes: 4. Pulse test

Main Characteristics









EOL announced Product

Package Dimensions

TO-220FN

EIAJ Package Code	JEDEC Code	Mass (g) (reference value)	Lead Material
—	—	2.0	Cu alloy

Note 1) The dimensional figures indicate representative values unless otherwise the tolerance is specified.

Symbol	Dimension in Millimeters		
	Min	Typ	Max
A	—	—	—
A ₁	—	—	—
A ₂	—	—	—
b	—	—	—
D	—	—	—
E	—	—	—
e	—	—	—
x	—	—	—
y	—	—	—
y ₁	—	—	—
ZD	—	—	—
ZE	—	—	—

Ordering Information

Part Name	Quantity	Shipping Container
H5N2901FN-E	50 pcs	Plastic magazine

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Renesas Technology America, Inc.

450 Holger Way, San Jose, CA 95134-1368, U.S.A
Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

Renesas Technology Europe Limited

Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

Renesas Technology Hong Kong Ltd.

7th Floor, North Tower, World Finance Centre, Harbour City, 1 Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2730-6071

Renesas Technology Taiwan Co., Ltd.

10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

Renesas Technology (Shanghai) Co., Ltd.

Unit2607 Ruijing Building, No.205 Maoming Road (S), Shanghai 200020, China
Tel: <86> (21) 6472-1001, Fax: <86> (21) 6415-2952

Renesas Technology Singapore Pte. Ltd.

1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: <65> 6213-0200, Fax: <65> 6278-8001