

FS30VSJ-3

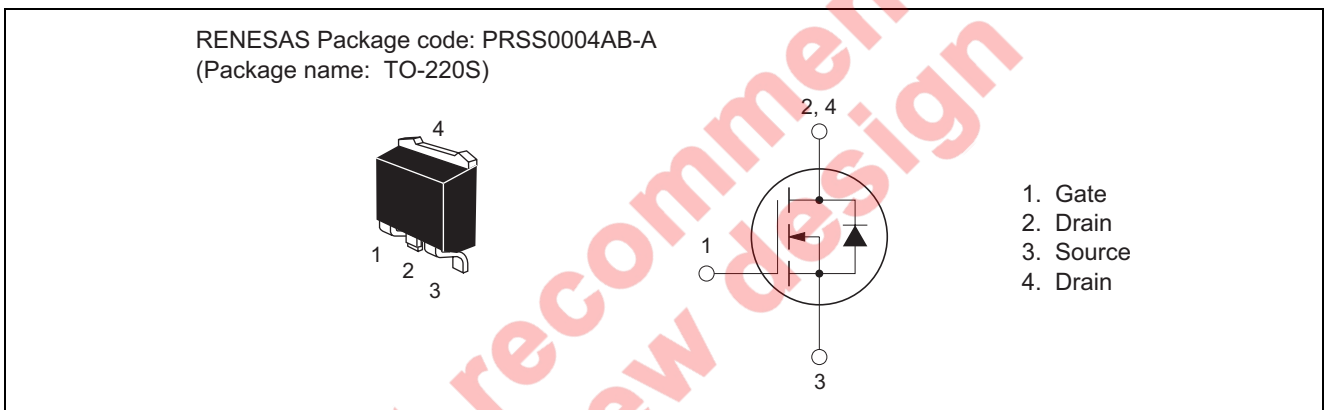
High-Speed Switching Use
Nch Power MOS FET

REJ03G1416-0200
(Previous: MEJ02G0081-0101)
Rev.2.00
Aug 07, 2006

Features

- Drive voltage : 4 V
- V_{DSS} : 150 V
- $r_{DS(ON)(max)}$: 86 m Ω
- I_D : 30 A
- Integrated Fast Recovery Diode (TYP.) : 100 ns

Outline



Applications

Motor control, Lamp control, Solenoid control, DC-DC converters, etc.

Maximum Ratings

($T_c = 25^\circ\text{C}$)

Parameter	Symbol	Ratings	Unit	Conditions
Drain-source voltage	V_{DSS}	150	V	$V_{GS} = 0\text{ V}$
Gate-source voltage	V_{GSS}	± 20	V	$V_{DS} = 0\text{ V}$
Drain current	I_D	30	A	
Drain current (Pulsed)	I_{DM}	120	A	
Avalanche drain current (Pulsed)	I_{DA}	30	A	$L = 100\ \mu\text{H}$
Source current	I_S	30	A	
Source current (Pulsed)	I_{SM}	120	A	
Maximum power dissipation	P_D	70	W	
Channel temperature	T_{ch}	- 55 to +150	$^\circ\text{C}$	
Storage temperature	T_{stg}	- 55 to +150	$^\circ\text{C}$	
Mass	—	1.2	g	Typical value

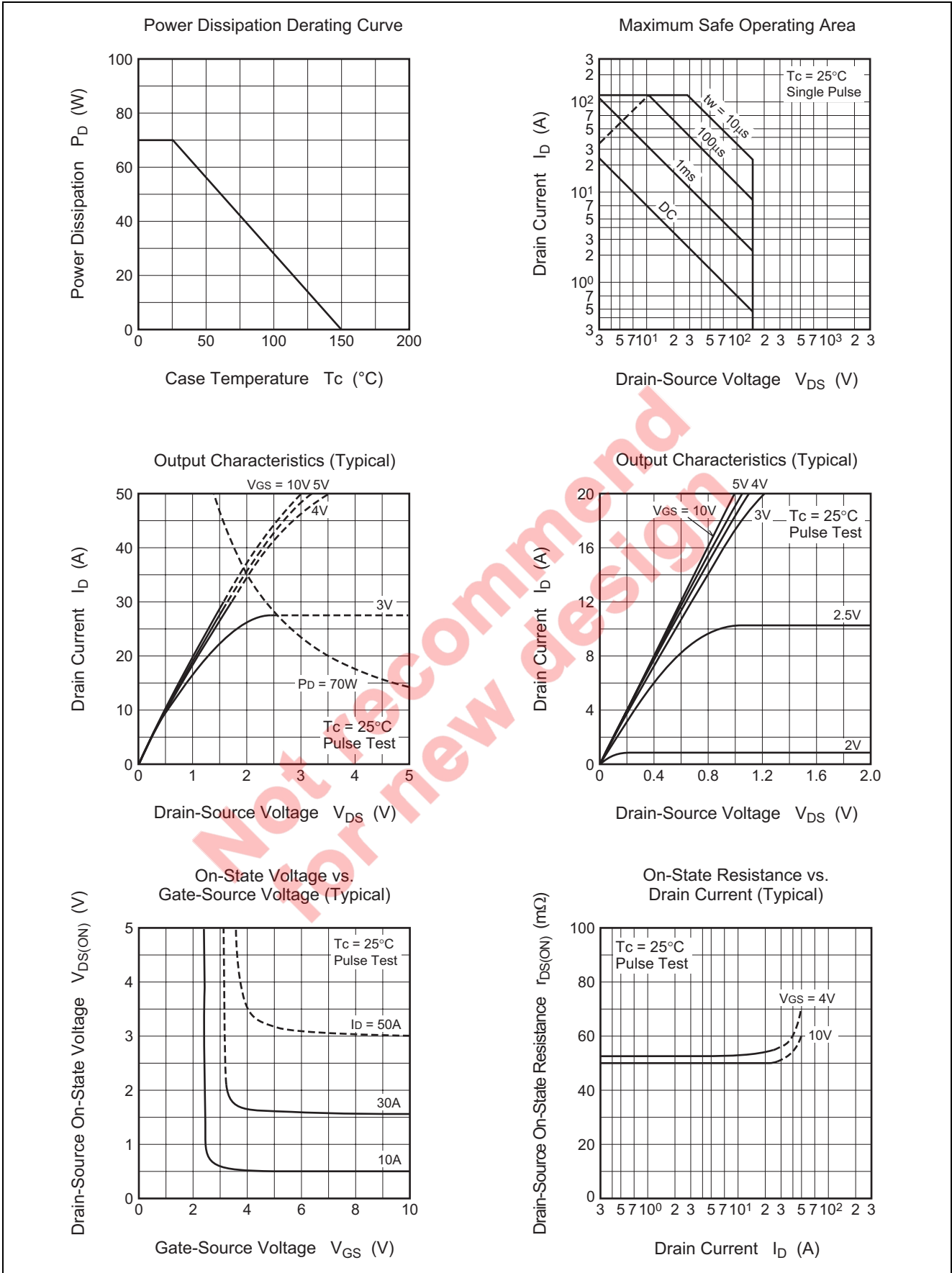
Electrical Characteristics

(T_{ch} = 25°C)

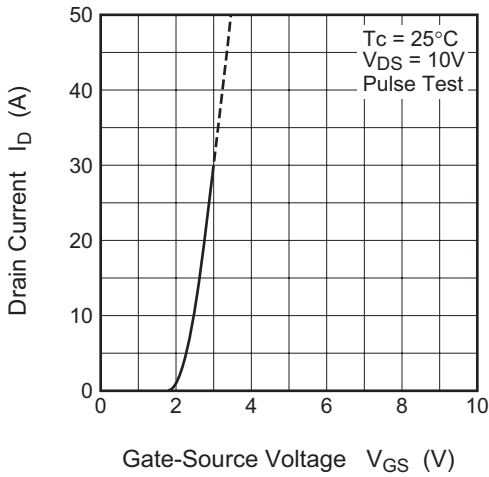
Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain-source breakdown voltage	V _{(BR)DSS}	150	—	—	V	I _D = 1 mA, V _{GS} = 0 V
Gate-source leakage current	I _{GSS}	—	—	±0.1	μA	V _{GS} = ±20 V, V _{DS} = 0 V
Drain-source leakage current	I _{DSS}	—	—	0.1	mA	V _{DS} = 150 V, V _{GS} = 0 V
Gate-source threshold voltage	V _{GS(th)}	1.0	1.5	2.0	V	I _D = 1 mA, V _{DS} = 10 V
Drain-source on-state resistance	r _{DS(ON)}	—	66	86	mΩ	I _D = 15 A, V _{GS} = 10 V
Drain-source on-state resistance	r _{DS(ON)}	—	69	90	mΩ	I _D = 15 A, V _{GS} = 4 V
Drain-source on-state voltage	V _{DS(ON)}	—	0.99	1.29	V	I _D = 15 A, V _{GS} = 10 V
Forward transfer admittance	y _{fs}	—	38	—	S	I _D = 15 A, V _{DS} = 10 V
Input capacitance	C _{iss}	—	3000	—	pF	V _{DS} = 10 V, V _{GS} = 0 V, f = 1MHz
Output capacitance	C _{oss}	—	320	—	pF	
Reverse transfer capacitance	C _{rss}	—	160	—	pF	
Turn-on delay time	t _{d(on)}	—	22	—	ns	V _{DD} = 80 V, I _D = 15 A, V _{GS} = 10 V, R _{GEN} = R _{GS} = 50 Ω
Rise time	t _r	—	42	—	ns	
Turn-off delay time	t _{d(off)}	—	280	—	ns	
Fall time	t _f	—	130	—	ns	
Source-drain voltage	V _{SD}	—	1.0	1.5	V	I _S = 15 A, V _{GS} = 0 V
Thermal resistance	R _{th(ch-c)}	—	—	1.78	°C/W	Channel to case
Reverse recovery time	t _{rr}	—	100	—	ns	I _S = 30 A, di _S /dt = -100 A/μs

Not recommended
for new designs

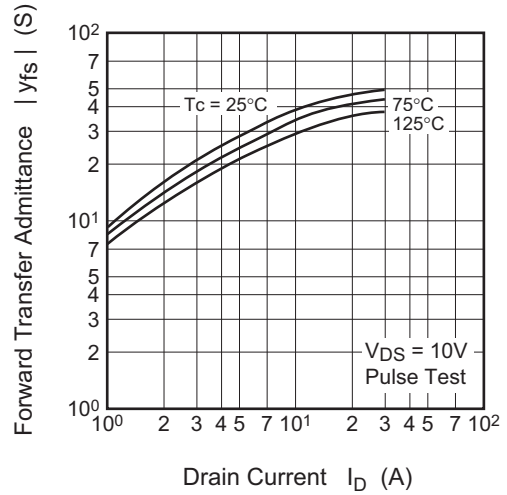
Performance Curves



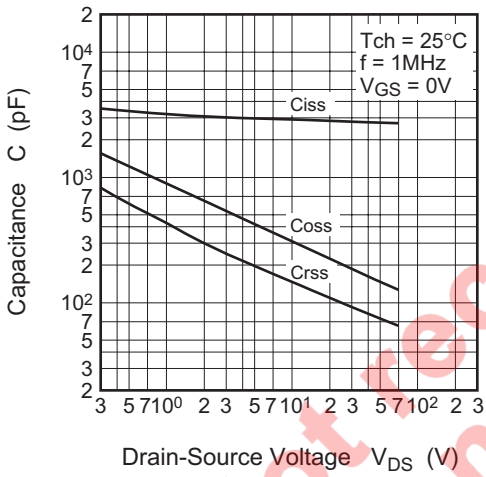
Transfer Characteristics (Typical)



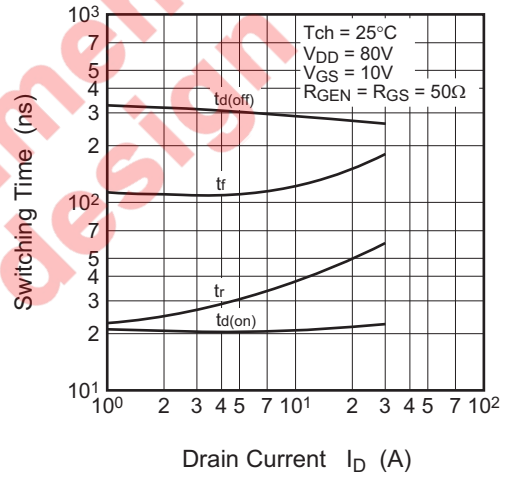
Forward Transfer Admittance vs. Drain Current (Typical)



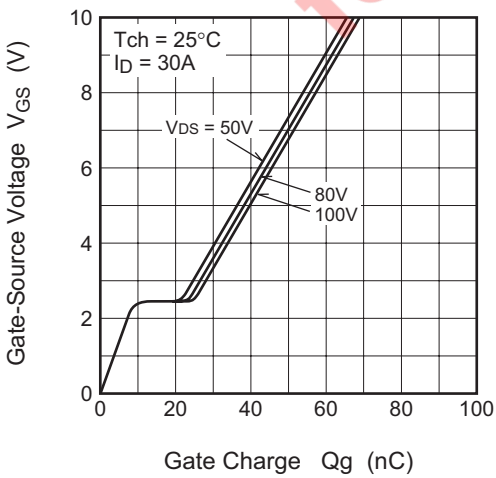
Capacitance vs. Drain-Source Voltage (Typical)



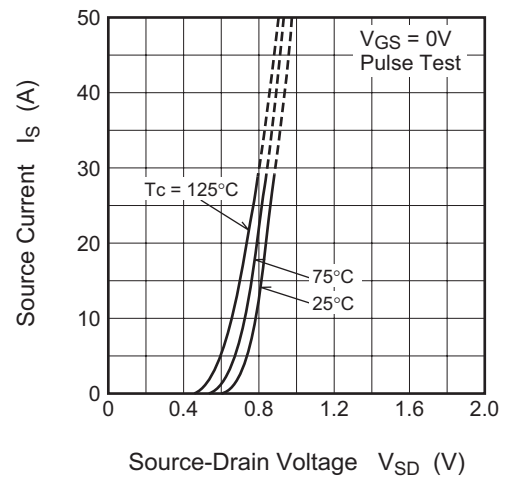
Switching Characteristics (Typical)

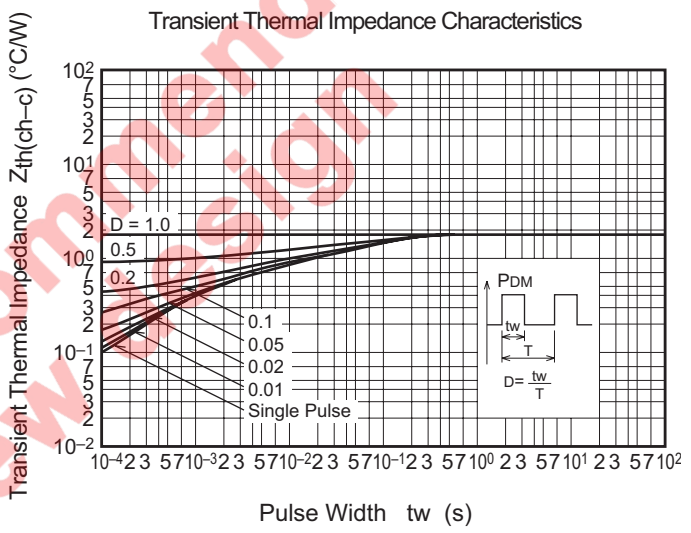
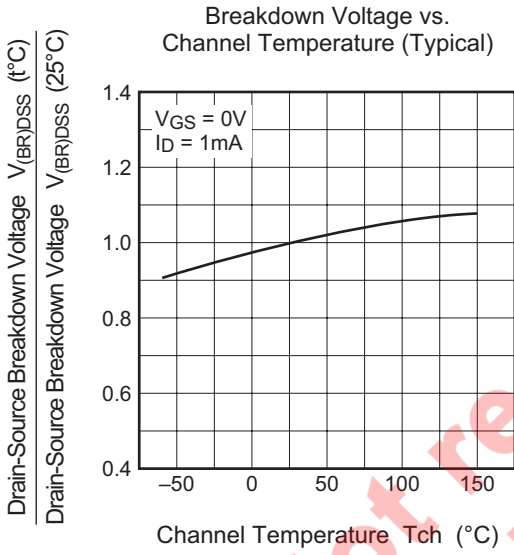
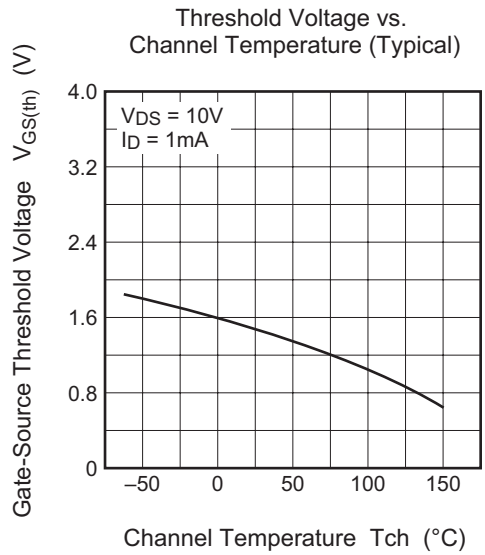
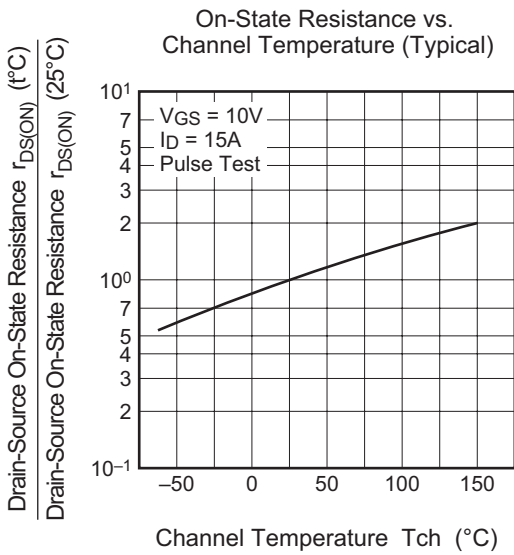


Gate-Source Voltage vs. Gate Charge (Typical)

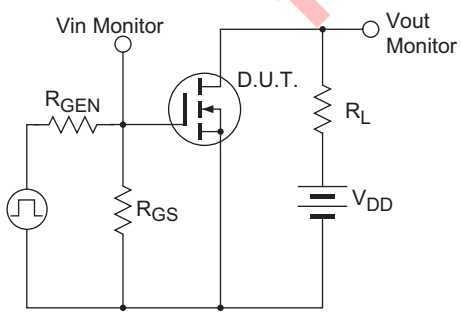


Source-Drain Diode Forward Characteristics (Typical)

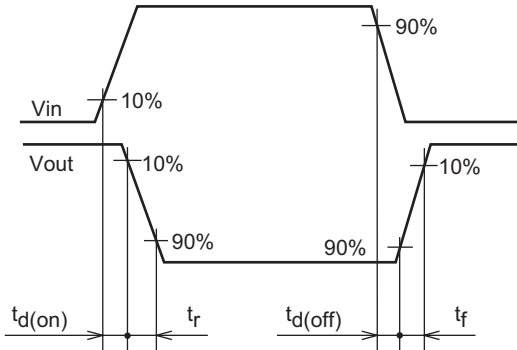




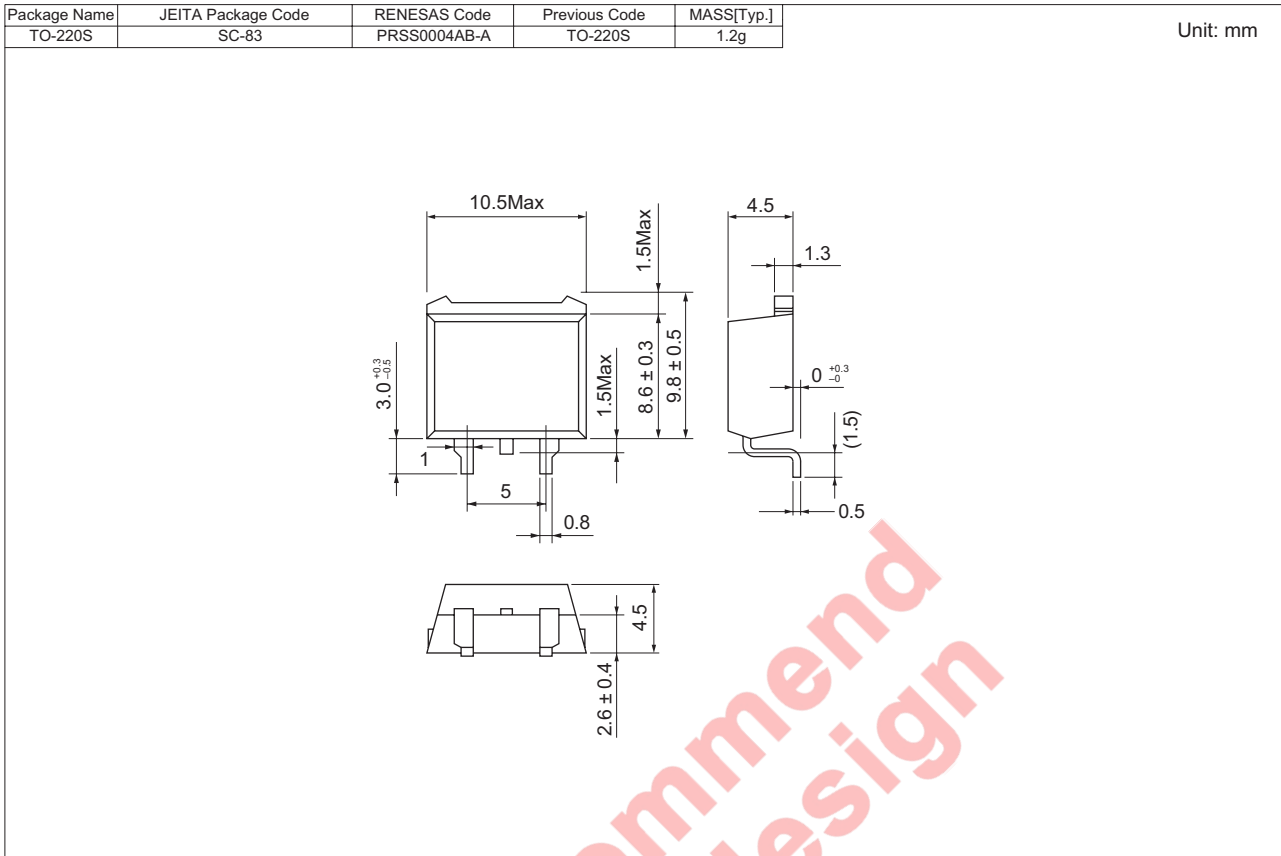
Switching Time Measurement Circuit



Switching Waveform



Package Dimensions



Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Surface-mounted type	Taping	1000	Type name – T +Direction (1 or 2) +1	FS30VSJ-3-T11
Surface-mounted type	Plastic Magazine (Tube)	50	Type name	FS30VSJ-3
Straight type	Plastic Magazine (Tube)	50	Type name +A1	FS30VSJ-3-A1

Note : Please confirm the specification about the shipping in detail.

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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 (Shanghai) Co., Ltd.

Unit 204, 205, AZIAcenter, No.1233 Lujiazui Ring Rd, Pudong District, Shanghai, China 200120
Tel: <86> (21) 5877-1818, Fax: <86> (21) 6887-7898

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 Singapore Pte. Ltd.

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

Renesas Technology Korea Co., Ltd.

Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea
Tel: <82> (2) 796-3115, Fax: <82> (2) 796-2145

Renesas Technology Malaysia Sdn. Bhd

Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510