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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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Not recommended
for new design

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FK7KM-12

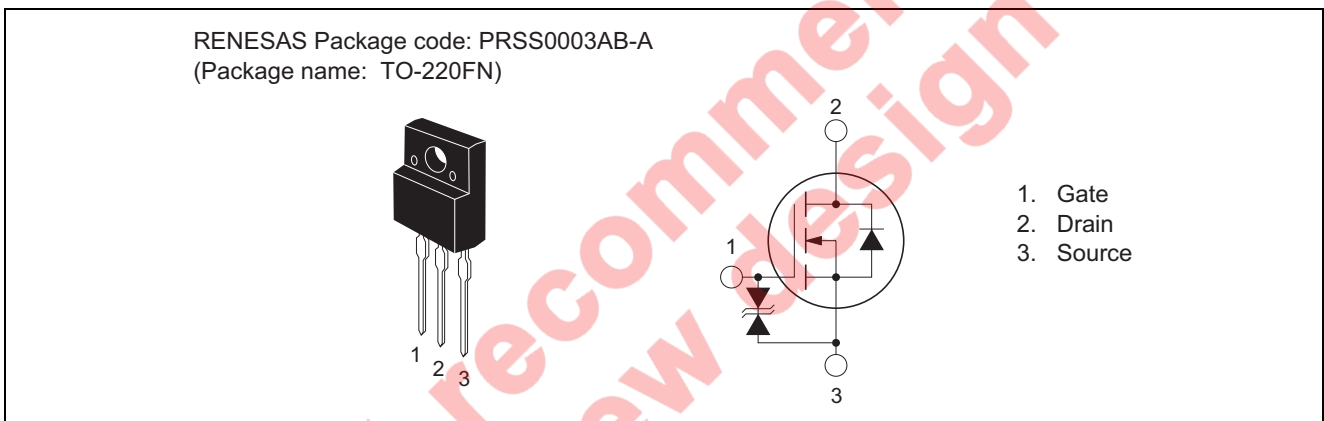
High-Speed Switching Use
Nch Power MOS FET

REJ03G1377-0200
(Previous: MEJ02G0237-0101)
Rev.2.00
Jul 07, 2006

Features

- V_{DSS} : 600 V
- $r_{DS(ON)(max)}$: 1.63 Ω
- I_D : 7 A
- V_{iso} : 2000 V
- Integrated Fast Recovery Diode (MAX.) : 150 ns

Outline



Applications

Servo motor drive, Robot, UPS, Lamp ballast, etc.

Maximum Ratings

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

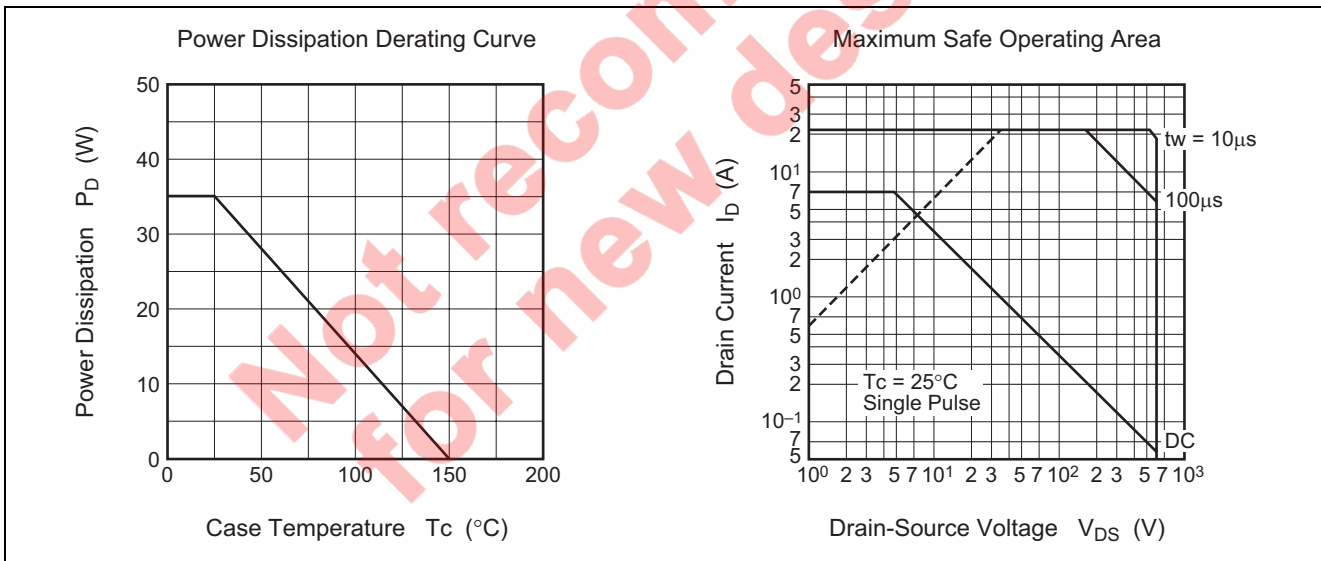
Parameter	Symbol	Ratings	Unit	Conditions
Drain-source voltage	V_{DSS}	600	V	$V_{GS} = 0\text{ V}$
Gate-source voltage	V_{GSS}	± 30	V	$V_{DS} = 0\text{ V}$
Drain current	I_D	7	A	
Drain current (Pulsed)	I_{DM}	21	A	
Source current	I_S	7	A	
Source current (Pulsed)	I_{SM}	21	A	
Maximum power dissipation	P_D	35	W	
Channel temperature	T_{ch}	- 55 to +150	$^\circ\text{C}$	
Storage temperature	T_{stg}	- 55 to +150	$^\circ\text{C}$	
Isolation voltage	V_{iso}	2000	V _{rms}	AC for 1 minute, Terminal to case
Mass	—	2.0	g	Typical value

Electrical Characteristics

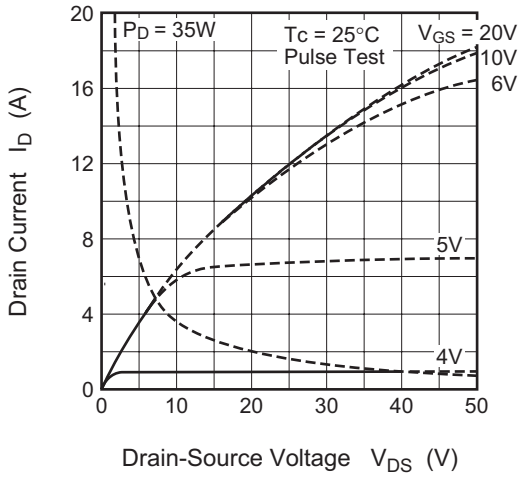
(T_{ch} = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Drain-source breakdown voltage	V _{(BR) DSS}	600	—	—	V	I _D = 1 mA, V _{GS} = 0 V
Gate-source breakdown voltage	V _{(BR) GSS}	±30	—	—	V	I _G = ±100 μA, V _{DS} = 0 V
Gate-source leakage current	I _{GSS}	—	—	±10	μA	V _{GS} = ±25 V, V _{DS} = 0 V
Drain-source leakage current	I _{DSS}	—	—	1	mA	V _{DS} = 600 V, V _{GS} = 0 V
Gate-source threshold voltage	V _{GS(th)}	2	3	4	V	I _D = 1 mA, V _{DS} = 10 V
Drain-source on-state resistance	r _{DS(ON)}	—	1.25	1.63	Ω	I _D = 3 A, V _{GS} = 10 V
Drain-source on-state voltage	V _{DS(ON)}	—	3.75	4.89	V	I _D = 3 A, V _{GS} = 10 V
Forward transfer admittance	y _{fs}	3.3	5.5	—	S	I _D = 3 A, V _{DS} = 10 V
Input capacitance	C _{iss}	—	1100	—	pF	V _{DS} = 25 V, V _{GS} = 0 V, f = 1 MHz
Output capacitance	C _{oss}	—	125	—	pF	
Reverse transfer capacitance	C _{rss}	—	17	—	pF	
Turn-on delay time	t _{d(on)}	—	30	—	ns	V _{DD} = 200 V, I _D = 3 A, V _{GS} = 10 V, R _{GEN} = R _{GS} = 50 Ω
Rise time	t _r	—	30	—	ns	
Turn-off delay time	t _{d(off)}	—	100	—	ns	
Fall time	t _f	—	35	—	ns	
Source-drain voltage	V _{SD}	—	1.5	2.0	V	I _S = 3 A, V _{GS} = 0 V
Thermal resistance	R _{th(ch-c)}	—	—	3.57	°C/W	Channel to case
Reverse recovery time	t _{rr}	—	—	150	ns	I _S = 7 A, d _{is} /d _t = -100 A/μs

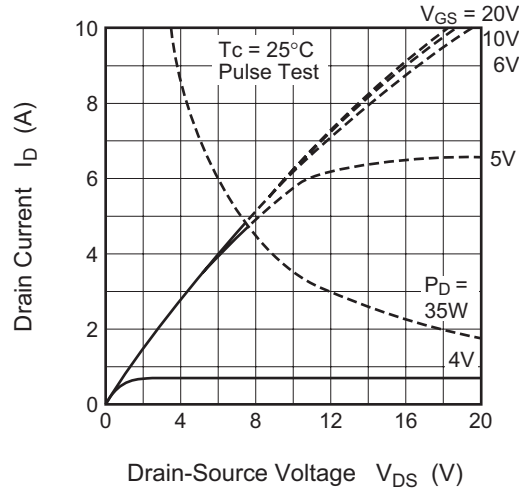
Performance Curves



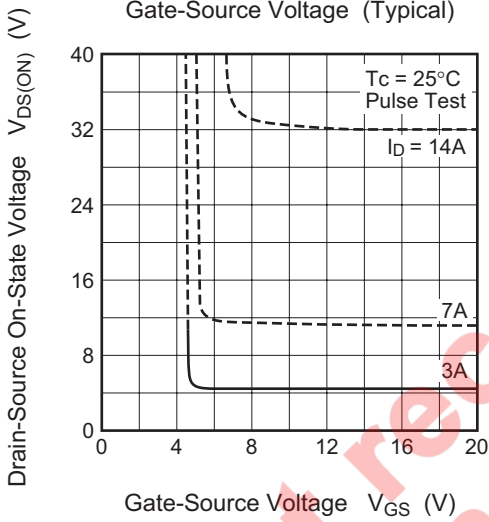
Output Characteristics (Typical)



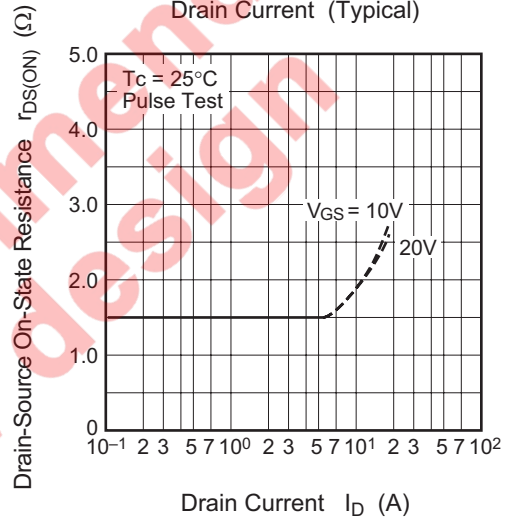
Output Characteristics (Typical)



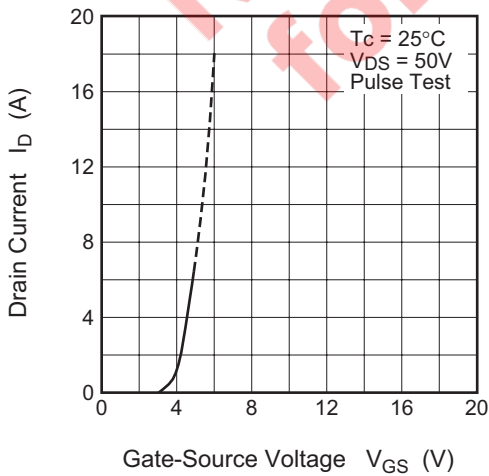
On-State Voltage vs. Gate-Source Voltage (Typical)



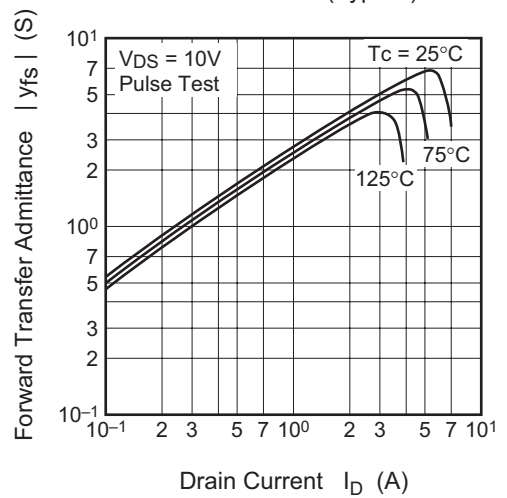
On-State Resistance vs. Drain Current (Typical)

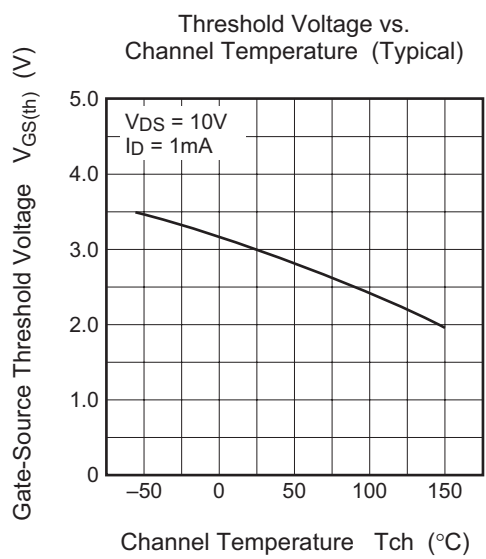
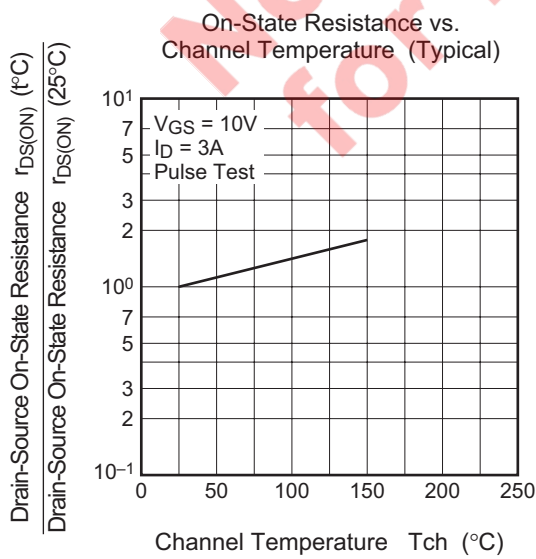
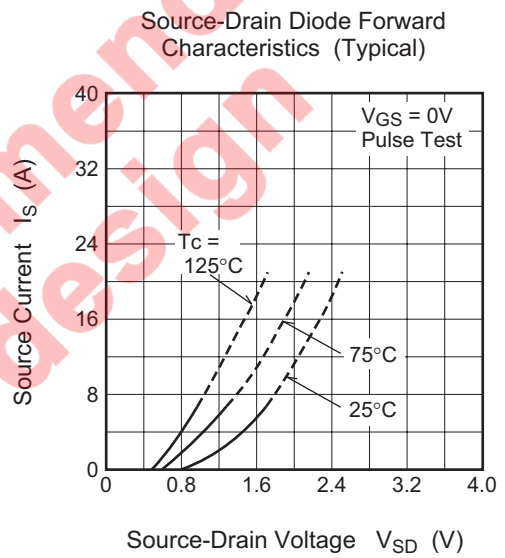
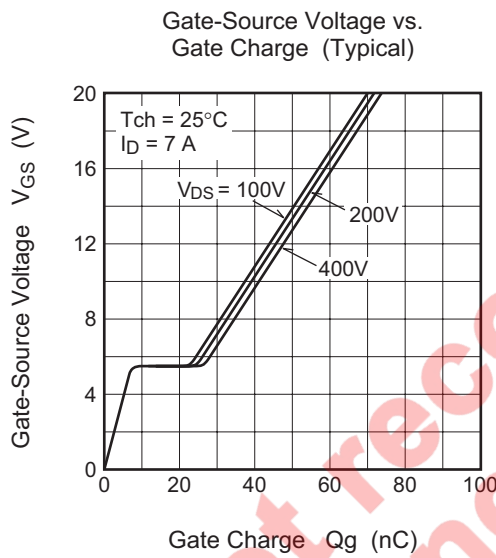
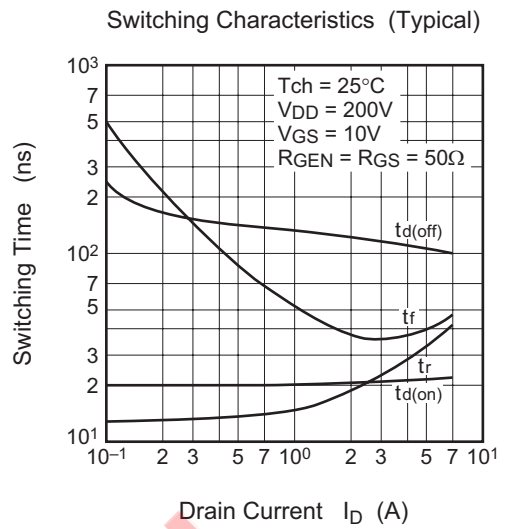
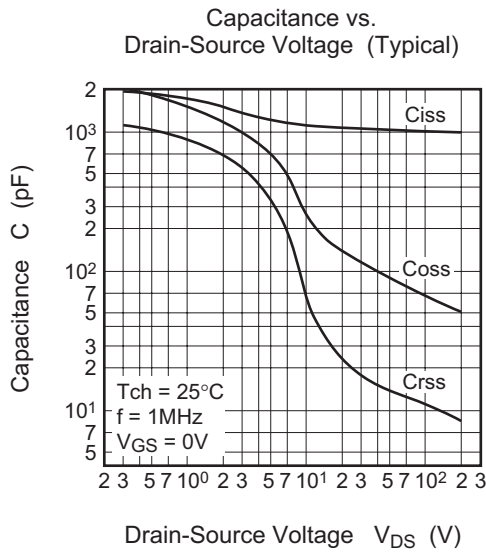


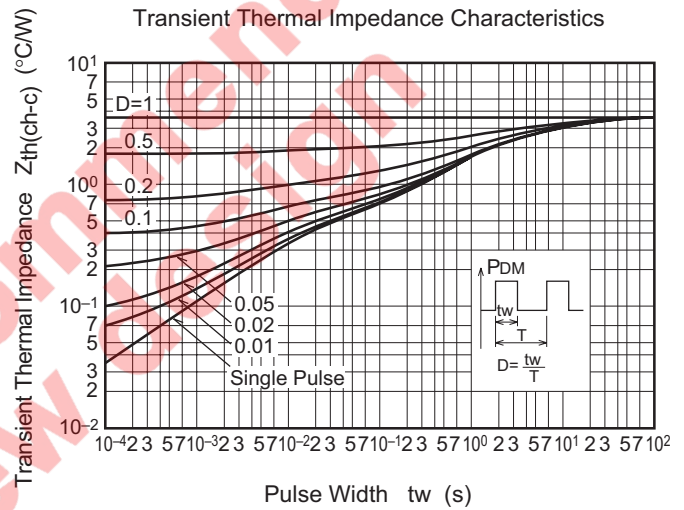
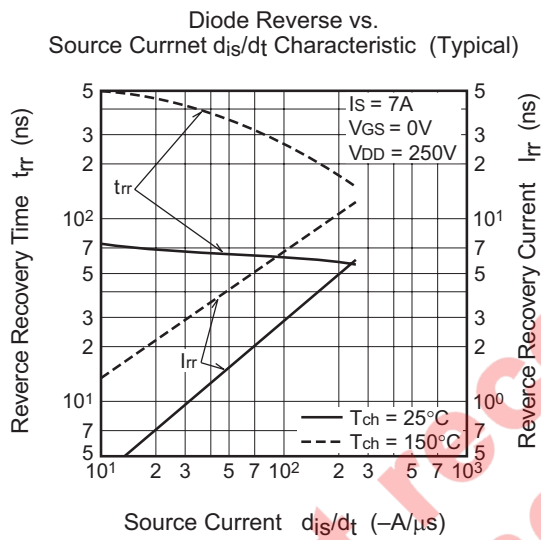
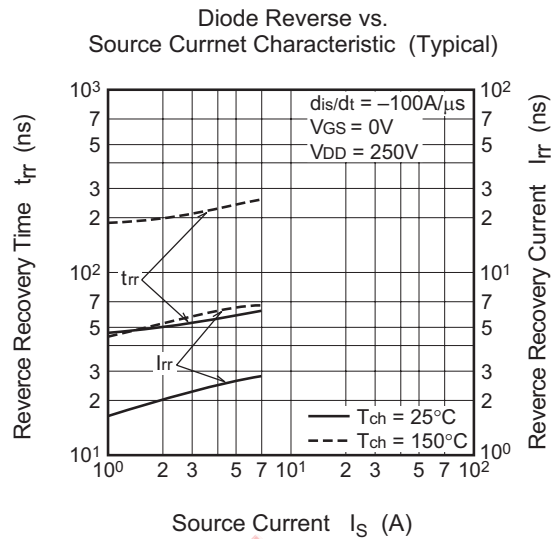
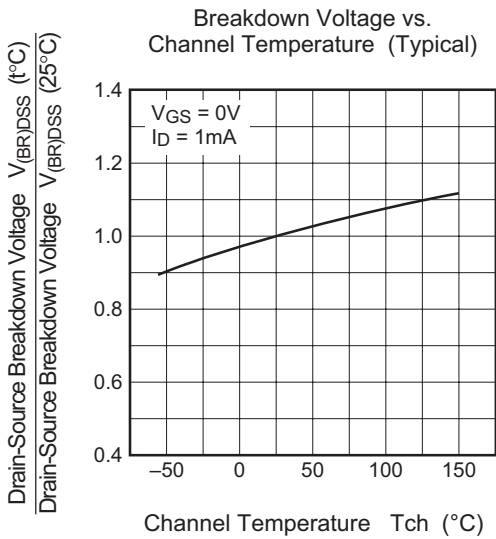
Transfer Characteristics (Typical)



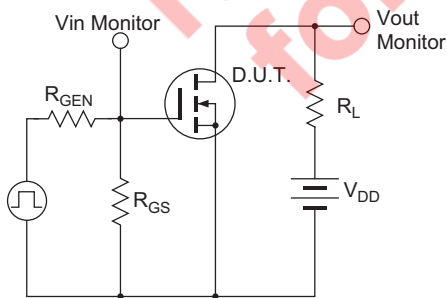
Forward Transfer Admittance vs. Drain Current (Typical)



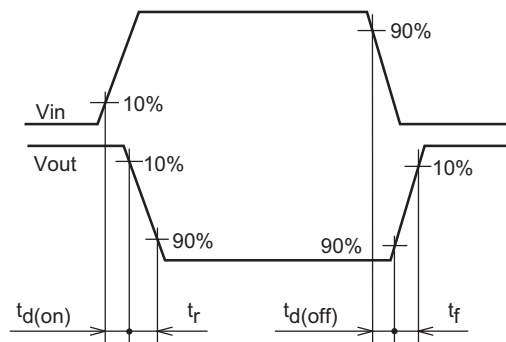




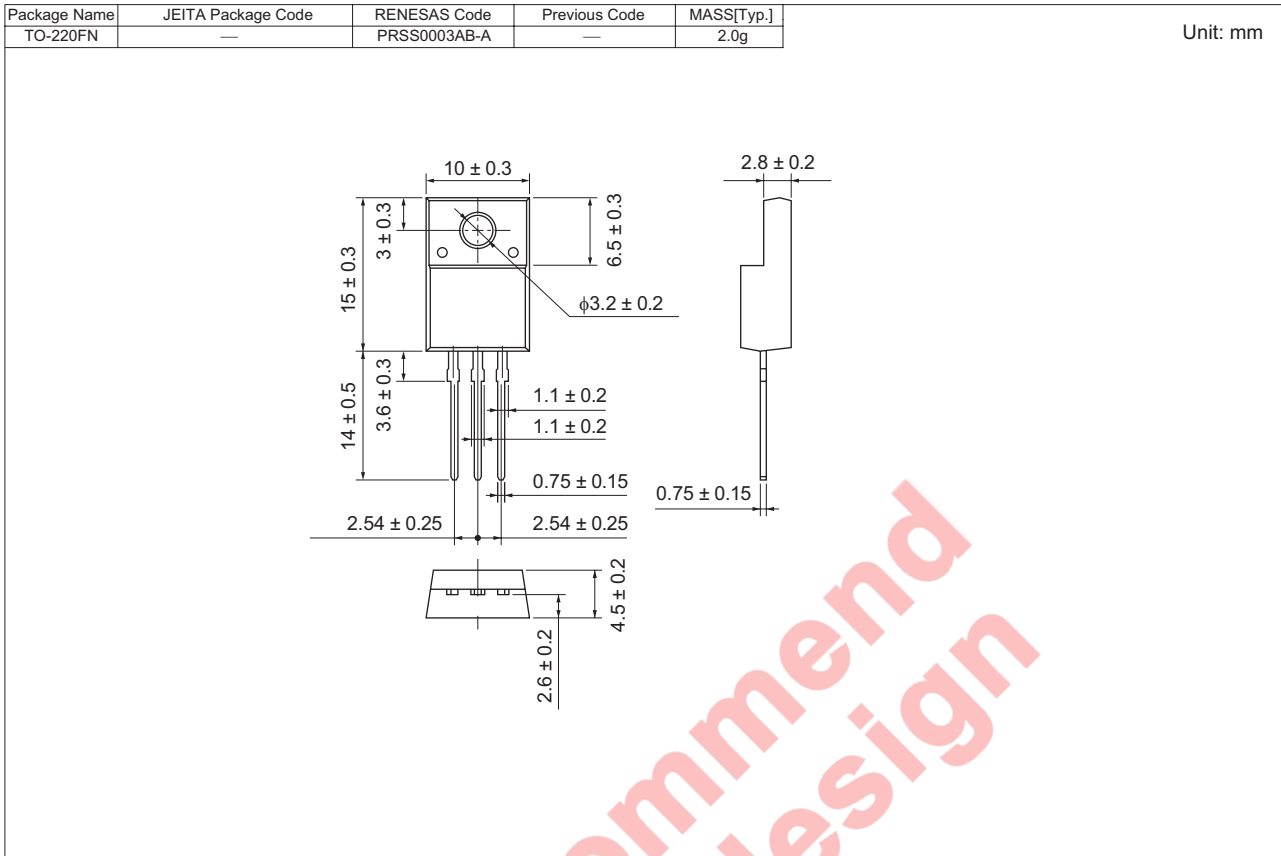
Switching Time Measurement Circuit



Switching Waveform



Package Dimensions



Ordering Information

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Straight type	Plastic Magazine (Tube)	1050	Type name	FK7KM-12

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

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