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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RJK5013DPP

Silicon N Channel MOS FET
High Speed Power Switching

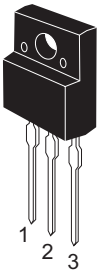
REJ03G1585-0100
Rev.1.00
Sep 28, 2007

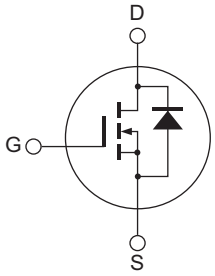
Features

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

Outline

RENESAS Package code: PRSS0003AB-A
(Package name: TO-220FN)





1. Gate
2. Drain
3. Source

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	500	V
Gate to source voltage	V_{GSS}	±30	V
Drain current	I_D Note4	14	A
Drain peak current	$I_{D\ (pulse)}$ Note1	42	A
Body-drain diode reverse drain current	I_{DR}	14	A
Body-drain diode reverse drain peak current	$I_{DR\ (pulse)}$ Note1	42	A
Avalanche current	I_{AP} Note3	4	A
Avalanche energy	E_{AR} Note3	0.88	mJ
Channel dissipation	Pch Note2	30	W
Channel to case thermal impedance	θch-c	4.17	°C/W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10 µs, duty cycle ≤ 1%
2. Value at Tc = 25°C
3. STch = 25°C, Tch ≤ 150°C
4. Limited by maximum safe operation area

Electrical Characteristics

(Ta = 25°C)

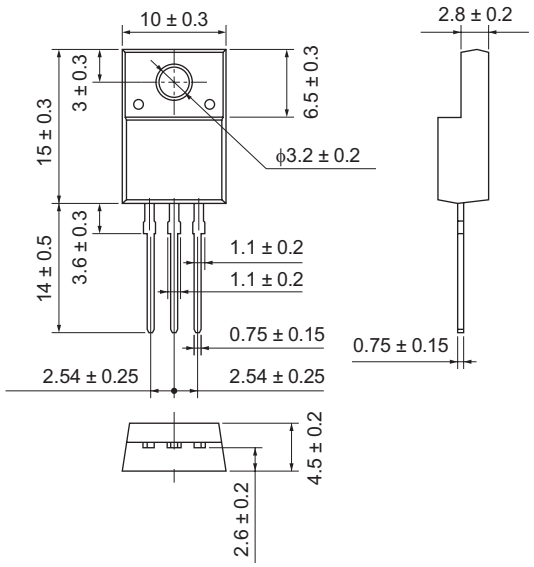
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	500	—	—	V	I_D = 10 mA, V_{GS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	1	µA	V_{DS} = 500 V, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±0.1	µA	V_{GS} = ±30 V, V_{DS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	3.0	—	4.5	V	V_{DS} = 10 V, I_D = 1 mA
Static drain to source on state resistance	$R_{DS(on)}$	—	0.385	0.465	Ω	I_D = 7 A, V_{GS} = 10 V Note5
Input capacitance	Ciss	—	1450	—	pF	V_{DS} = 25 V V_{GS} = 0 f = 1 MHz
Output capacitance	Coss	—	155	—	pF	
Reverse transfer capacitance	Crss	—	19	—	pF	
Turn-on delay time	$t_{d(on)}$	—	34	—	ns	I_D = 7 A V_{GS} = 10 V R_L = 35.7 Ω Rg = 10 Ω
Rise time	t_r	—	24	—	ns	
Turn-off delay time	$t_{d(off)}$	—	86	—	ns	
Fall time	t_f	—	16	—	ns	
Total gate charge	Qg	—	38	—	nC	V_{DD} = 400 V V_{GS} = 10 V I_D = 14 A
Gate to source charge	Qgs	—	8	—	nC	
Gate to drain charge	Qgd	—	17	—	nC	
Body-drain diode forward voltage	V_{DF}	—	0.9	1.5	V	I_F = 14 A, V_{GS} = 0 Note5
Body-drain diode reverse recovery time	t_{rr}	—	310	—	ns	I_F = 14 A, V_{GS} = 0 di_F/dt = 100 A/µs

Notes: 5. Pulse test

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-220FN	—	PRSS0003AB-A	—	2.0g

Unit: mm



Ordering Information

Part Name	Quantity	Shipping Container
RJK5013DPP-00-T2	1050 pcs	Box (Tube)

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