

RJK2017DPP

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G1797-0200

Rev.2.00

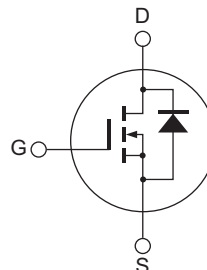
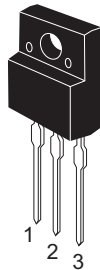
Aug 26, 2009

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}	200	V
Gate to source voltage	V_{GSS}	±30	V
Drain current	I_D ^{Note4}	45	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	135	A
Body-drain diode reverse drain current	I_{DR}	45	A
Avalanche current	I_{AP} ^{Note3}	12	A
Avalanche energy	E_{AR} ^{Note3}	9.6	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. $ST_{ch} = 25^\circ C$, $T_{ch} \leq 150^\circ C$
 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	$V_{(BR)DSS}$	200	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 200 \text{ V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 1	μA	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2	—	4	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.036	0.047	Ω	$I_D = 22.5 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note5}
Input capacitance	C_{iss}	—	4800	—	pF	$V_{DS} = 25 \text{ V}$ $V_{GS} = 0$ $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	290	—	pF	
Reverse transfer capacitance	C_{rss}	—	90	—	pF	
Turn-on delay time	$t_{d(on)}$	—	50	—	ns	$I_D = 22.5 \text{ A}$ $V_{GS} = 10 \text{ V}$ $R_L = 4.5 \Omega$ $R_g = 10 \Omega$
Rise time	t_r	—	40	—	ns	
Turn-off delay time	$t_{d(off)}$	—	95	—	ns	
Fall time	t_f	—	40	—	ns	
Total gate charge	Q_g	—	66	—	nC	$V_{DD} = 160 \text{ V}$ $V_{GS} = 10 \text{ V}$ $I_D = 45 \text{ A}$
Gate to source charge	Q_{gs}	—	26	—	nC	
Gate to drain charge	Q_{gd}	—	16	—	nC	
Body-drain diode forward voltage	V_{DF}	—	0.88	1.35	V	$I_F = 45 \text{ A}$, $V_{GS} = 0$ ^{Note5}
Body-drain diode reverse recovery time	t_{rr}	—	150	—	ns	$I_F = 45 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

Notes: 5. Pulse test

Notes:

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