RJQ6020DPM

600V - 20A - MOS FET
High Speed Power Switching

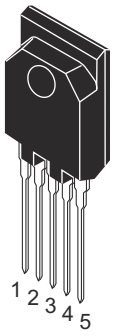
R07DS0649EJ0100
Rev.1.00
Jan 23, 2012

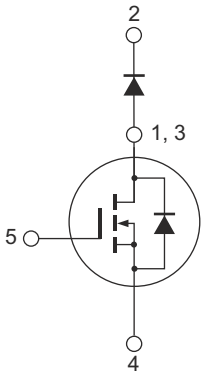
Features

- High speed switching
- Low on-state voltage
- Built in fast recovery diode in one package

Outline

RENESAS Package code: PRSS0005ZB-A)
(Package name: TO-3PFM)





1. Anode
2. Cathode
3. Anode, Drain
4. Source
5. Gate

Absolute Maximum Ratings

MOS FET (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	600	V
Gate to source voltage	V_{GSS}	+30, –20	V
Drain current	I_D Note2	20	A
Drain peak current	$I_{D(pulse)}$ Note1	40	A
Body-drain diode reverse drain current	I_{DR} Note2	20	A
Body-drain diode reverse drain peak current	$I_{DR(pulse)}$ Note1	40	A
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%
2. Limited by maximum safe operating area.

Diode (Ta = 25°C)

Item	Symbol	Ratings	Unit
Maximum reverse voltage	V_{RM}	600	V
Continuous forward current	I_F	10	A
Peak surge forward current	I_{FSM}	20	A
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Electrical Characteristics

MOS FET

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	600	—	—	V	I_D = 10 mA, V_{GS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	1	mA	V_{DS} = 600 V, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±0.1	μA	V_{GS} = +30V, –20 V, V_{DS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	3	—	5	V	V_{DS} = 10 V, I_D = 1 mA
Static drain to source on state resistance	$R_{DS(on)}$	—	0.100	0.125	Ω	I_D = 15 A, V_{GS} = 10 V Note3, 4
Input capacitance	Ciss	—	2900	—	pF	V_{DS} = 25 V V_{GS} = 0 f = 100 kHz
Output capacitance	Coss	—	3800	—	pF	
Reverse transfer capacitance	Crss	—	4	—	pF	
Body-drain diode forward voltage	V_{DF}	—	1.0	1.6	V	I_F = 30 A, V_{GS} = 0 Note3

Notes: 3. Pulse test
4. Value at pin 3 to pin 4.

Diode

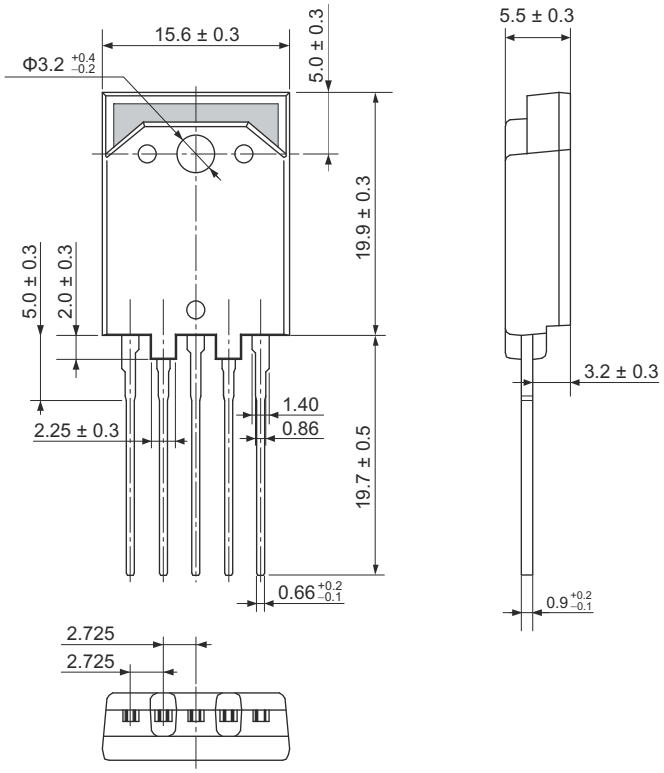
(Tj = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Forward voltage	V_F	—	1.5	2.0	V	I_F = 10 A
Reverse current	I_R	—	—	10	μA	V_R = 600 V
Reverse recovery time	t_{rr}	—	15	—	ns	I_F = 10 A, di/dt = –300A/μs

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-3PFM	SC-93	PRSS0005ZB-A	TO-3PFM / TO-3PFM-5	5.3g

Unit: mm



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