

RJQ6020DPM

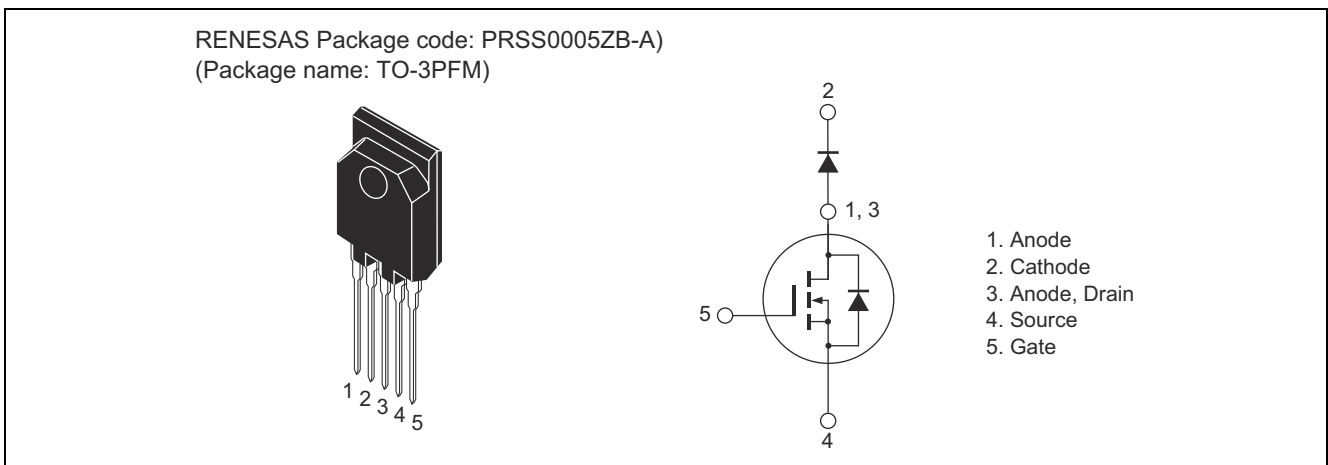
600V - 20A - MOS FET
High Speed Power Switching

R07DS0649EJ0100
Rev.1.00
Jan 23, 2012

Features

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

Outline



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. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$
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	T_j	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	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	mA	$V_{DS} = 600 \text{ V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = +30\text{V}$, -20 V , $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	3	—	5	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.100	0.125	Ω	$I_D = 15 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note3, 4}
Input capacitance	C_{iss}	—	2900	—	pF	$V_{DS} = 25 \text{ V}$
Output capacitance	C_{oss}	—	3800	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	4	—	pF	$f = 100 \text{ kHz}$
Body-drain diode forward voltage	V_{DF}	—	1.0	1.6	V	$I_F = 30 \text{ A}$, $V_{GS} = 0$ ^{Note3}

Notes: 3. Pulse test

4. Value at pin 3 to pin 4.

Diode

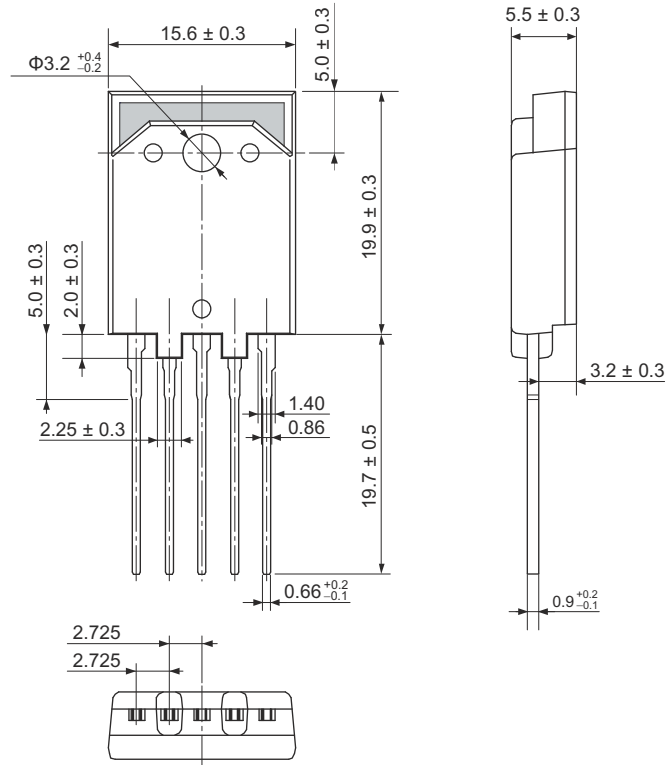
(Tj = 25°C)

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

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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