

# RJK5031DPD

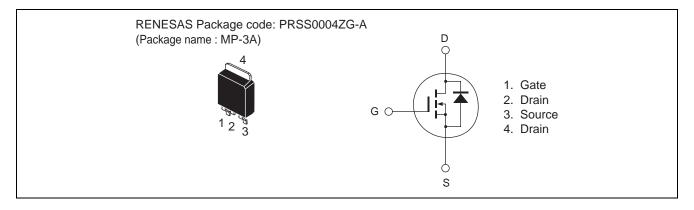
# Silicon N Channel MOS FET High Speed Power Switching

R07DS0417EJ0200 Rev.2.00 Feb 24, 2012

#### **Features**

- Low on-state resistance  $R_{DS(on)}=2.4~\Omega~typ.~(at~I_D=1.5~A,~V_{GS}=10~V,~Ta=25^{\circ}C)$
- High speed switching

#### **Outline**



### **Absolute Maximum Ratings**

 $(Ta = 25^{\circ}C)$ 

Item	Symbol	Value	Unit
Drain to source voltage	V <sub>DSS</sub>	500	V
Gate to source voltage	V <sub>GSS</sub>	±30	V
Drain current	I <sub>D</sub>	3	А
Drain peak current	I <sub>D (pulse)</sub> Note1	12	А
Avalanche current	I <sub>AP</sub> Note3	3	А
Channel dissipation	Pch Note 2	40.3	W
Channel to case thermal Impedance	θch-c	3.1	°C/W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

Notes: 1. Pulse width limited by safe operating area.

- 2. Value at Tc = 25°C
- 3. STch =  $25^{\circ}$ C, Tch  $\leq 150^{\circ}$ C

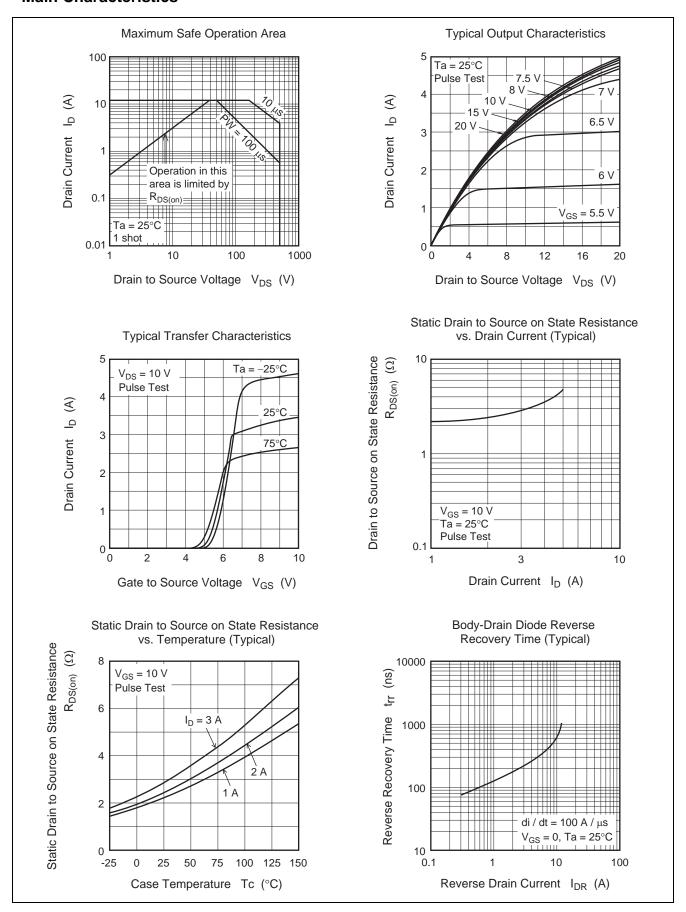
# **Electrical Characteristics**

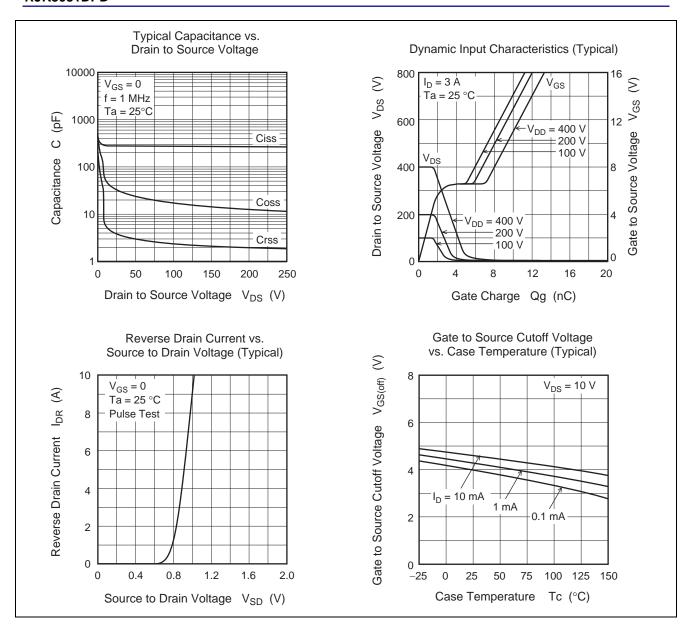
 $(Ta = 25^{\circ}C)$ 

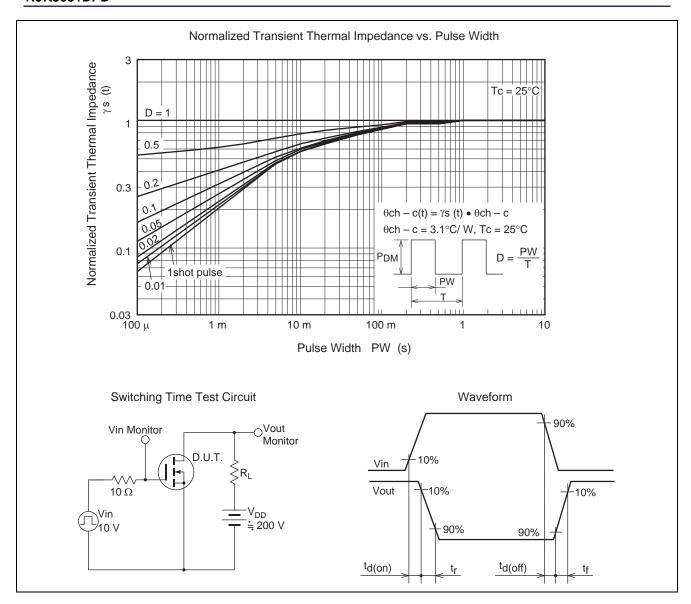
Item	Symbol	Min	Тур	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	500	_	_	V	$I_D = 1 \text{ mA}, V_{GS} = 0$
Zero gate voltage drain current	I <sub>DSS</sub>	_	_	1	μΑ	$V_{DS} = 500 \text{ V}, V_{GS} = 0$
Gate to source leak current	I <sub>GSS</sub>	_	_	±0.1	μА	$V_{GS} = \pm 30 \text{ V}, V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	3.5	4.0	4.5	V	$V_{DS} = 10 \text{ V}, I_{D} = 1 \text{ mA}$
Static drain to source on state resistance	R <sub>DS(on)</sub>	_	2.4	3.2	Ω	$I_D = 1.5 \text{ A}, V_{GS} = 10 \text{ V}^{\text{Note 4}}$
Input capacitance	Ciss	_	280	_	pF	V <sub>DS</sub> = 25 V
Output capacitance	Coss	_	35	_	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	_	5	_	pF	f = 1 MHz
Turn-on delay time	t <sub>d (on)</sub>	_	15	_	ns	V <sub>DD</sub> = 200 V
Rise time	t <sub>r</sub>	_	20	_	ns	I <sub>D</sub> = 1.5 A
Turn-off delay time	t <sub>d (off)</sub>	_	90	_	ns	$V_{GS} = 10 \text{ V}$
Fall time	t <sub>f</sub>	_	30	_	ns	$Rg = 25 \Omega$
Body-drain diode forward voltage	$V_{DF}$	_	0.9	1.5	V	$I_F = 3 \text{ A}, V_{GS} = 0^{\text{Note 4}}$
Body-drain diode reverse recovery time	t <sub>rr</sub>	_	250	_	ns	$I_F = 3 A, V_{GS} = 0$
						V <sub>DD</sub> = 250 V
						di <sub>F</sub> /dt = 100 A/μs

Note: 4. Pulse test

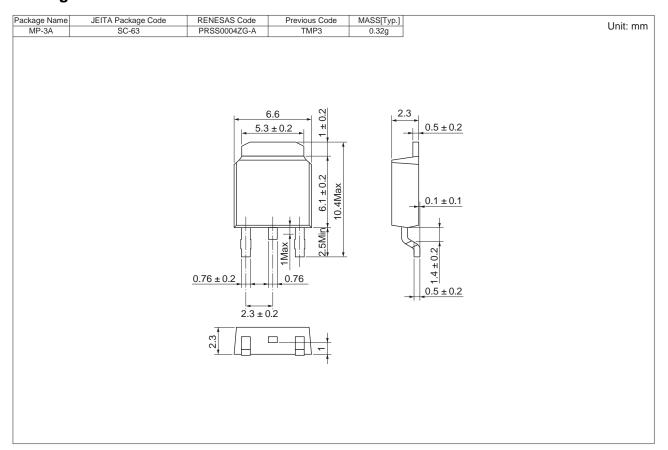
#### **Main Characteristics**







# **Package Dimensions**



# **Ordering Information**

Orderable Part No.	Quantity	Shipping Container
RJK5031DPD-00#J2	3000 pcs	Taping

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