# Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: http://www.renesas.com

April 1<sup>st</sup>, 2010 Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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# RENESAS

# RJL6020DPK

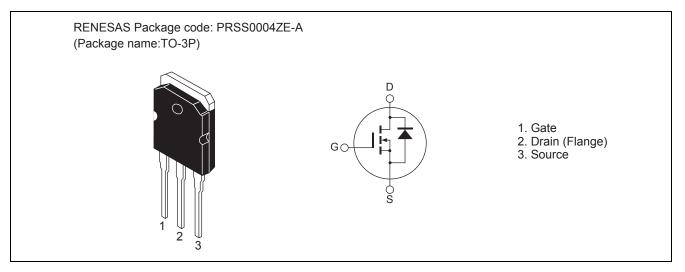
Silicon N Channel MOS FET High Speed Power Switching

REJ03G1618-0300 Rev.3.00 Jan 22, 2010

# Features

- Built-in fast recovery diode
- Low on-resistance  $R_{DS(on)} = 0.17 \Omega$  typ. (at  $I_D = 15$  A,  $V_{GS} = 10$  V,  $Ta = 25^{\circ}$ C)
- Low leakage current
- High speed switching

# Outline



# **Absolute Maximum Ratings**

			$(Ta = 25^{\circ}C)$
ltem	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	600	V
Gate to source voltage	V <sub>GSS</sub>	±30	V
Drain current	I <sub>D</sub>	30	А
Drain peak current	Note1 D (pulse)	90	А
Body-drain diode reverse drain current	I <sub>DR</sub>	30	А
Body-drain diode reverse drain peak current	Note1 I <sub>DR (pulse)</sub>	90	А
Avalanche current	I <sub>AP</sub> <sup>Note3</sup>	8.5	А
Avalanche energy	E <sub>AR</sub> <sup>Note3</sup>	3.9	mJ
Channel dissipation	Pch Note2	200	W
Channel to case thermal impedance	θch-c	0.625	°C/W
Channel temperature	Tch	150	٥C
Storage temperature	Tstg	-55 to +150	٥C
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Notes: 1.  $PW \le 10 \ \mu s$ , duty cycle  $\le 1\%$ 

2. Value at Tc = 25°C

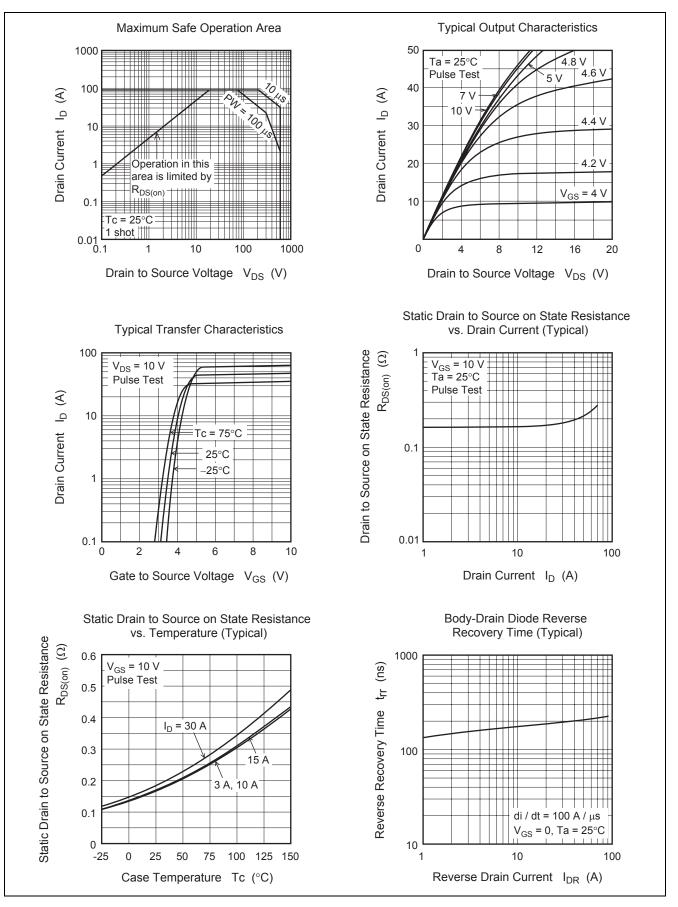
3. STch = 25°C, Tch  $\leq$  150°C

# **Electrical Characteristics**

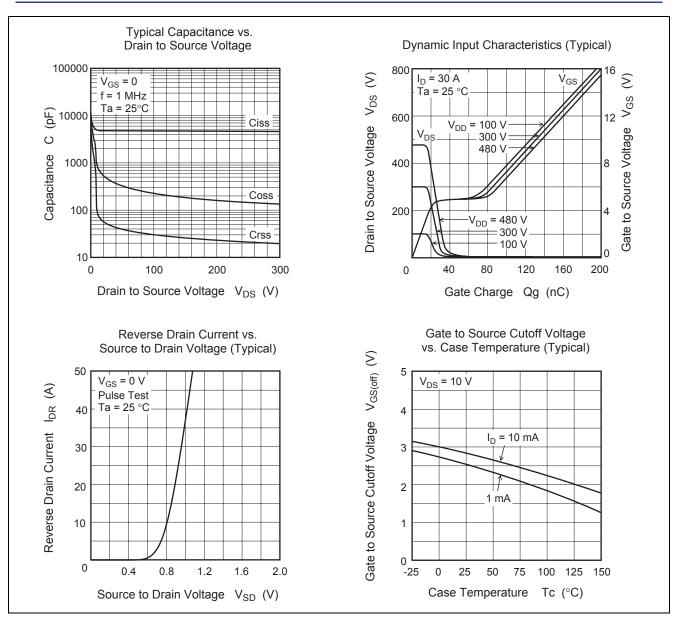
						$(Ta = 25^{\circ}C)$
Item	Symbol	Min	Тур	Мах	Unit	Test conditions
Drain to source breakdown voltage	V <sub>(BR)DSS</sub>	600		—	V	I <sub>D</sub> = 10 mA, V <sub>GS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>		_	10	μΑ	V <sub>DS</sub> = 600 V, V <sub>GS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>			±0.1	μΑ	$V_{GS}$ = ±30 V, $V_{DS}$ = 0
Gate to source cutoff voltage	V <sub>GS(off)</sub>	1.5		4.0	V	$V_{DS}$ = 10 V, $I_{D}$ = 1 mA
Static drain to source on state resistance	R <sub>DS(on)</sub>		0.17	0.21	Ω	$I_D$ = 15 A, $V_{GS}$ = 10 V <sup>Note4</sup>
Input capacitance	Ciss	_	4750	_	pF	V <sub>DS</sub> = 25 V
Output capacitance	Coss		465	—	рF	V <sub>GS</sub> = 0 f = 1 MHz
Reverse transfer capacitance	Crss		53	—	рF	
Turn-on delay time	t <sub>d(on)</sub>		44	—	ns	$I_{D} = 15 \text{ A} \\ V_{GS} = 10 \text{ V} \\ R_{L} = 20 \Omega \\ Rg = 10 \Omega$
Rise time	tr	_	64	—	ns	
Turn-off delay time	$t_{d(off)}$		206	—	ns	
Fall time	t <sub>f</sub>		121	—	ns	
Total gate charge	Qg		130	—	nC	V <sub>DD</sub> = 480 V V <sub>GS</sub> = 10 V I <sub>D</sub> = 30 A
Gate to source charge	Qgs	_	21	—	nC	
Gate to drain charge	Qgd	_	53	_	nC	
Body-drain diode forward voltage	$V_{DF}$	_	0.96	1.60	V	$I_{F} = 30 \text{ A}, V_{GS} = 0^{\text{Note4}}$
Body-drain diode reverse recovery time	t <sub>rr</sub>		180	_	ns	I <sub>F</sub> = 30 A, V <sub>GS</sub> = 0 di <sub>F</sub> /dt = 100 A/μs

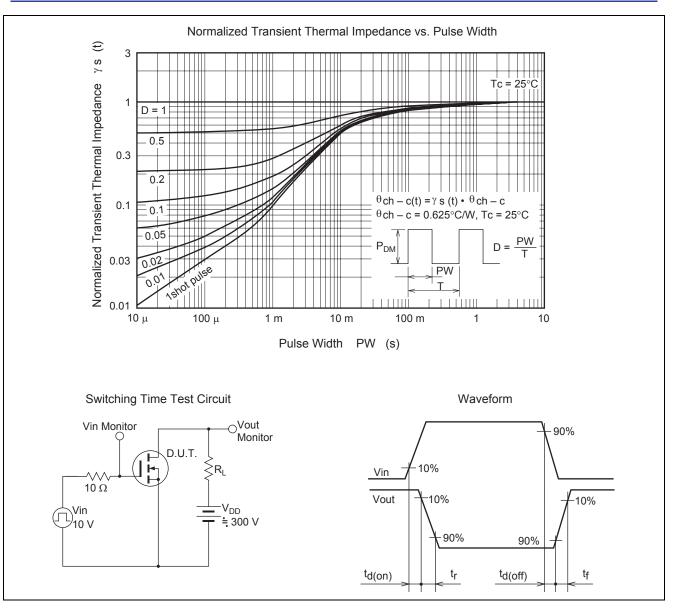
Notes: 4. Pulse test

### **Main Characteristics**

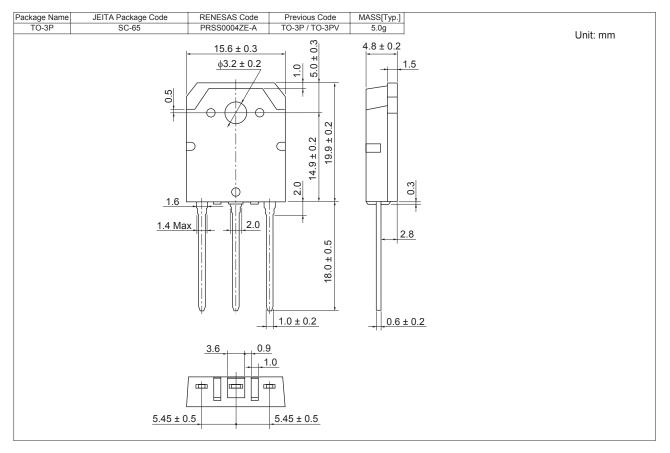


RENESAS





### **Package Dimensions**



# **Ordering Information**

Part No.	Quantity	Shipping Container
RJL6020DPK-00-T0	360 pcs	Box (Tube)

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