

To our customers,

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## 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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# RJH60C9DPD

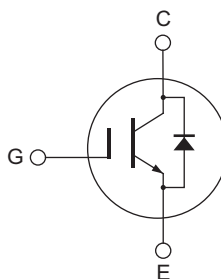
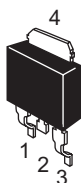
Silicon N Channel IGBT  
Application: Inverter

REJ03G1838-0100  
Rev.1.00  
Oct 14, 2009

## Features

- High breakdown-voltage
- Low on-voltage
- Built-in diode

RENESAS Package code: PRSS0004ZD-C  
(Package name: DPAK (S) )



1. Gate
2. Collector
3. Emitter
4. Collector

## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to emitter voltage / diode reverse voltage	$V_{CES} / V_R$	600	V
Gate to emitter voltage	$V_{GES}$	±30	V
Collector current	$T_c = 25^\circ\text{C}$	$I_c$	10
	$T_c = 100^\circ\text{C}$	$I_c$	5
Collector peak current	$I_{c(\text{peak})}$ <sup>Note1</sup>	20	A
Collector to emitter diode forward current	$i_{DF}$	5	A
Collector to emitter diode forward peak current	$i_{DF(\text{peak})}$ <sup>Note1</sup>	20	A
Collector dissipation	$P_C$ <sup>Note2</sup>	45	W
Junction to case thermal impedance	$\theta_{j-c}$ <sup>Note2</sup>	2.78	°C/ W
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

Notes: 1.  $PW \leq 10 \mu\text{s}$ , duty cycle  $\leq 1\%$   
2. Value at  $T_c = 25^\circ\text{C}$

## Electrical Characteristics

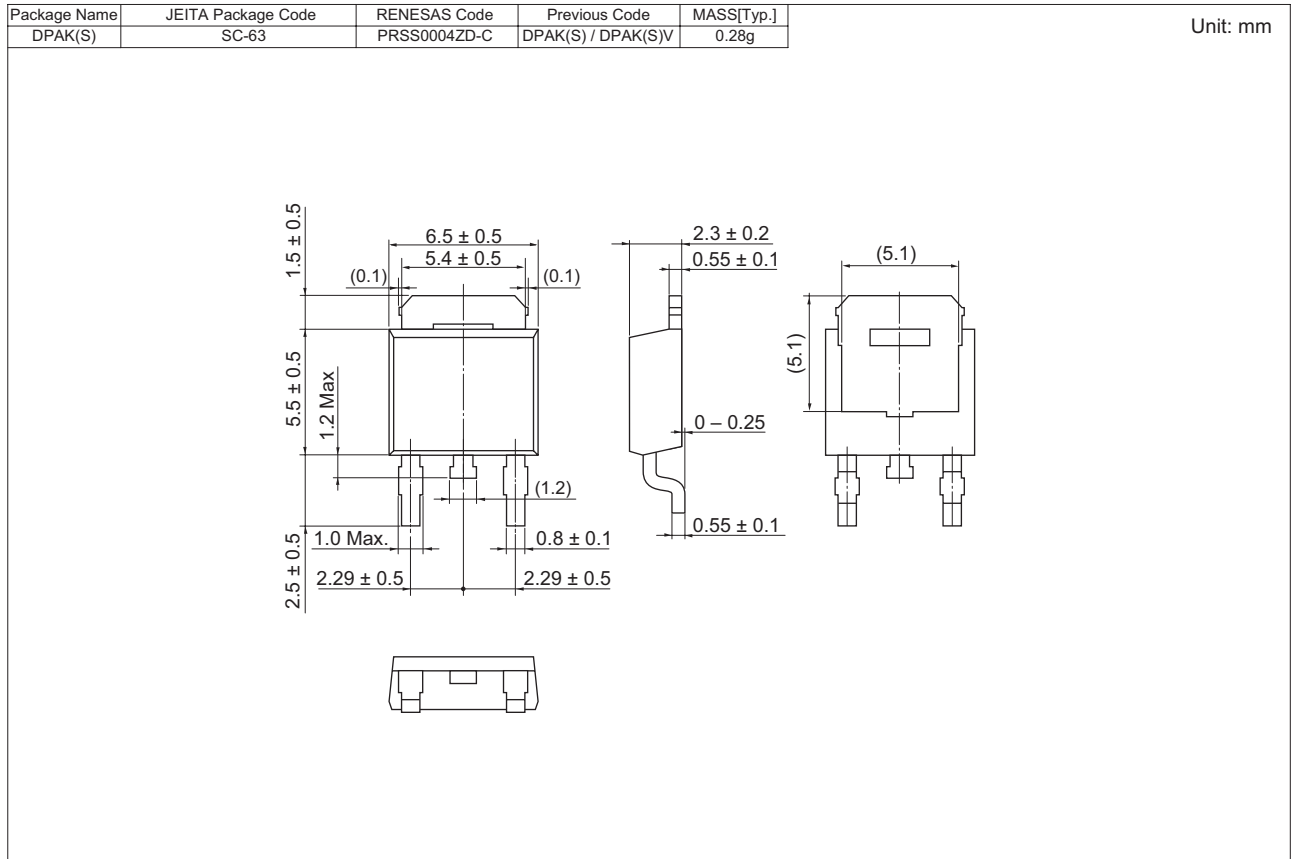
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current / diode reverse current	$I_{CES} / I_R$	—	—	1.0	$\mu\text{A}$	$V_{CE} = 600 \text{ V}, V_{GE} = 0 \text{ V}$
Gate to emitter leak current	$I_{GES}$	—	—	$\pm 100$	nA	$V_{GE} = \pm 30 \text{ V}, V_{CE} = 0 \text{ V}$
Gate to emitter cutoff voltage	$V_{GE(\text{off})}$	4.0	6.0	8.0	V	$V_{CE} = 10 \text{ V}, I_C = 1 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(\text{sat})}$	—	1.9	2.5	V	$T_C = 25^\circ\text{C}$ $I_C = 5 \text{ A}, V_{GE} = 15 \text{ V}^{\text{Note3}}$
	$V_{CE(\text{sat})}$	—	2.0		V	$T_C = 100^\circ\text{C}$ $I_C = 5 \text{ A}, V_{GE} = 15 \text{ V}^{\text{Note3}}$
Input capacitance	$C_{ies}$	—	180	—	pF	$V_{CE} = 25 \text{ V}$
Output capacitance	$C_{oes}$	—	19	—	pF	$V_{GE} = 0 \text{ V}$
Reveres transfer capacitance	$C_{res}$	—	7	—	pF	$f = 1 \text{ MHz}$
Total gate charge	$Q_g$	—	8.0	—	nC	$V_{GE} = 15 \text{ V}$
Gate to emitter charge	$Q_{ge}$	—	5.0	—	nC	$V_{CE} = 300 \text{ V}$
Gate to collector charge	$Q_{gc}$	—	2.5	—	nC	$I_C = 5 \text{ A}$
Switching time	$t_{d(\text{on})}$	—	25	—	ns	$I_C = 5 \text{ A}$
	$t_r$	—	50	—	ns	$R_L = 37.5 \Omega$
	$t_{d(\text{off})}$	—	40	—	ns	$V_{GE} = 15 \text{ V}$
	$t_f$	—	250	—	ns	$R_g = 5 \Omega$
FRD Forward voltage	$V_F$	—	1.8	2.3	V	$I_F = 5 \text{ A}^{\text{Note3}}$
FRD reverse recovery time	$t_{rr}$	—	100	—	ns	$I_F = 5 \text{ A}, di_F/dt = 100 \text{ A}/\mu\text{s}$

Notes: 3. Pulse test.

4. Under development. —The specifications potentially be changed without notice.

**Package Dimension**



**Ordering Information**

Part No.	Quantity	Shipping Container
RJH60C9DPD-00-J2	3000 pcs	Taping

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450 Holger Way, San Jose, CA 95134-1368, U.S.A  
Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

**Renesas Technology Europe Limited**  
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.  
Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

**Renesas Technology (Shanghai) Co., Ltd.**  
Unit 204, 205, AZIACenter, No.1233 Lujiazui Ring Rd, Pudong District, Shanghai, China 200120  
Tel: <86> (21) 5877-1818, Fax: <86> (21) 6887-7858/7898

**Renesas Technology Hong Kong Ltd.**  
7th Floor, North Tower, World Finance Centre, Harbour City, Canton Road, Tsimshatsui, Kowloon, Hong Kong  
Tel: <852> 2265-6688, Fax: <852> 2377-3473

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10th Floor, No.99, Fushing North Road, Taipei, Taiwan  
Tel: <886> (2) 2715-2888, Fax: <886> (2) 3518-3399

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1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632  
Tel: <65> 6213-0200, Fax: <65> 6278-8001

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Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea  
Tel: <82> (2) 796-3115, Fax: <82> (2) 796-2145

**Renesas Technology Malaysia Sdn. Bhd**  
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia  
Tel: <603> 7955-9390, Fax: <603> 7955-9510