

# RJP1CS06DWA / RJP1CS06DWS

1250V - 100A - IGBT

R07DS0829EJ0400

Application: Inverter

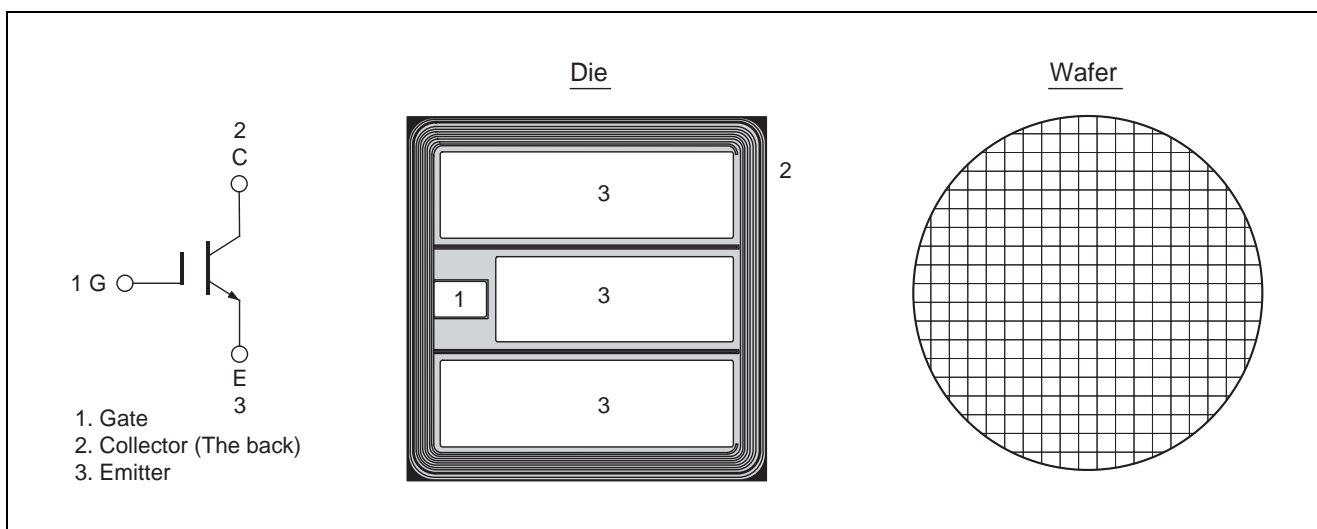
Rev.4.00

Sep 30, 2015

## Features

- Low collector to emitter saturation voltage  
 $V_{CE(sat)} = 1.8 \text{ V typ. (at } I_C = 100 \text{ A, } V_{GE} = 15 \text{ V, } T_C = 25^\circ\text{C)}$
- High speed switching
- Short circuit withstands time (10  $\mu\text{s min.}$ )

## Outline



## Absolute Maximum Ratings

(  $T_C = 25^\circ\text{C}$  unless otherwise noted )

Item	Symbol	Ratings	Unit	
Collector to emitter voltage	$V_{CES}$	1250	V	
Gate to emitter voltage	$V_{GES}$	$\pm 30$	V	
Collector current	$T_C = 25^\circ\text{C}$	$I_C$	200	A
	$T_C = 100^\circ\text{C}$	$I_C$	100	A
Junction temperature	$T_j$	175 <sup>Note1</sup>	$^\circ\text{C}$	

Notes: 1. Please use this device in the thermal conditions where the junction temperature does not exceed 175 $^\circ\text{C}$ .  
 IGBT Application Note is disclosed about reliability test and application condition up to  $T_j = 175^\circ\text{C}$ .

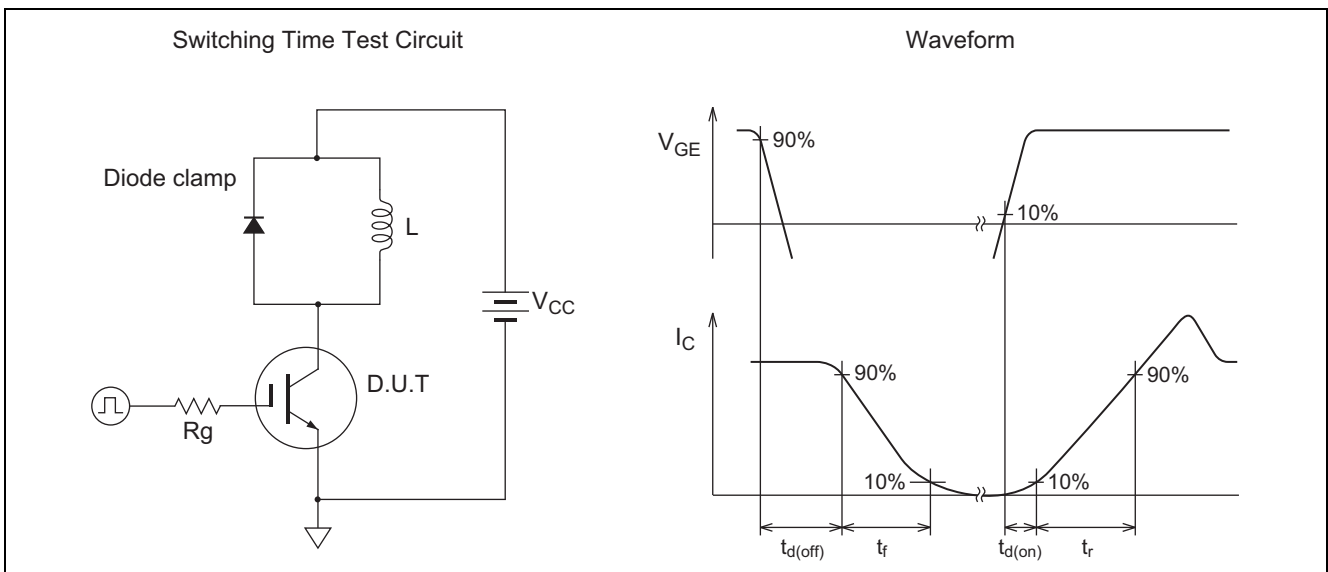
**Electrical Characteristics** (Datas below are measured values on a package configuration.)(T<sub>c</sub> = 25°C unless otherwise noted)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	I <sub>CES</sub>	—	—	1	μA	V <sub>CE</sub> = 1250 V, V <sub>GE</sub> = 0
Gate to emitter leak current	I <sub>GES</sub>	—	—	±1	μA	V <sub>GE</sub> = ±30 V, V <sub>CE</sub> = 0
Gate to emitter cutoff voltage	V <sub>GE(off)</sub>	5.0	—	6.8	V	V <sub>CE</sub> = 10 V, I <sub>C</sub> = 3.3mA
Collector to emitter saturation voltage	V <sub>CE(sat)</sub>	—	1.8	2.25	V	I <sub>C</sub> = 100 A, V <sub>GE</sub> = 15 V <sup>Note2</sup>
Input capacitance	C <sub>ies</sub>	—	10.0	—	nF	V <sub>CE</sub> = 25 V
Output capacitance	C <sub>oes</sub>	—	0.28	—	nF	V <sub>GE</sub> = 0
Reveres transfer capacitance	C <sub>res</sub>	—	0.23	—	nF	f = 1 MHz
Total gate charge	Q <sub>g</sub>	—	540	—	nC	V <sub>GE</sub> = 15 V
Gate to emitter charge	Q <sub>ge</sub>	—	85	—	nC	V <sub>CE</sub> = 600 V
Gate to collector charge	Q <sub>gc</sub>	—	290	—	nC	I <sub>C</sub> = 100 A
Switching time <sup>Note3</sup>	t <sub>d(on)</sub>	—	70	—	ns	V <sub>CC</sub> = 600 V
	t <sub>r</sub>	—	60	—	ns	I <sub>C</sub> = 100 A
	t <sub>d(off)</sub>	—	420	—	ns	V <sub>GE</sub> = ±15 V
	t <sub>f</sub>	—	160	—	ns	R <sub>g</sub> = 10 Ω, T <sub>c</sub> = 150 °C Inductive load
Short circuit withstand time <sup>Note4</sup>	t <sub>sc</sub>	10	—	—	μs	V <sub>CC</sub> ≤ 720 V, V <sub>GE</sub> = 15 V T <sub>c</sub> = 150 °C

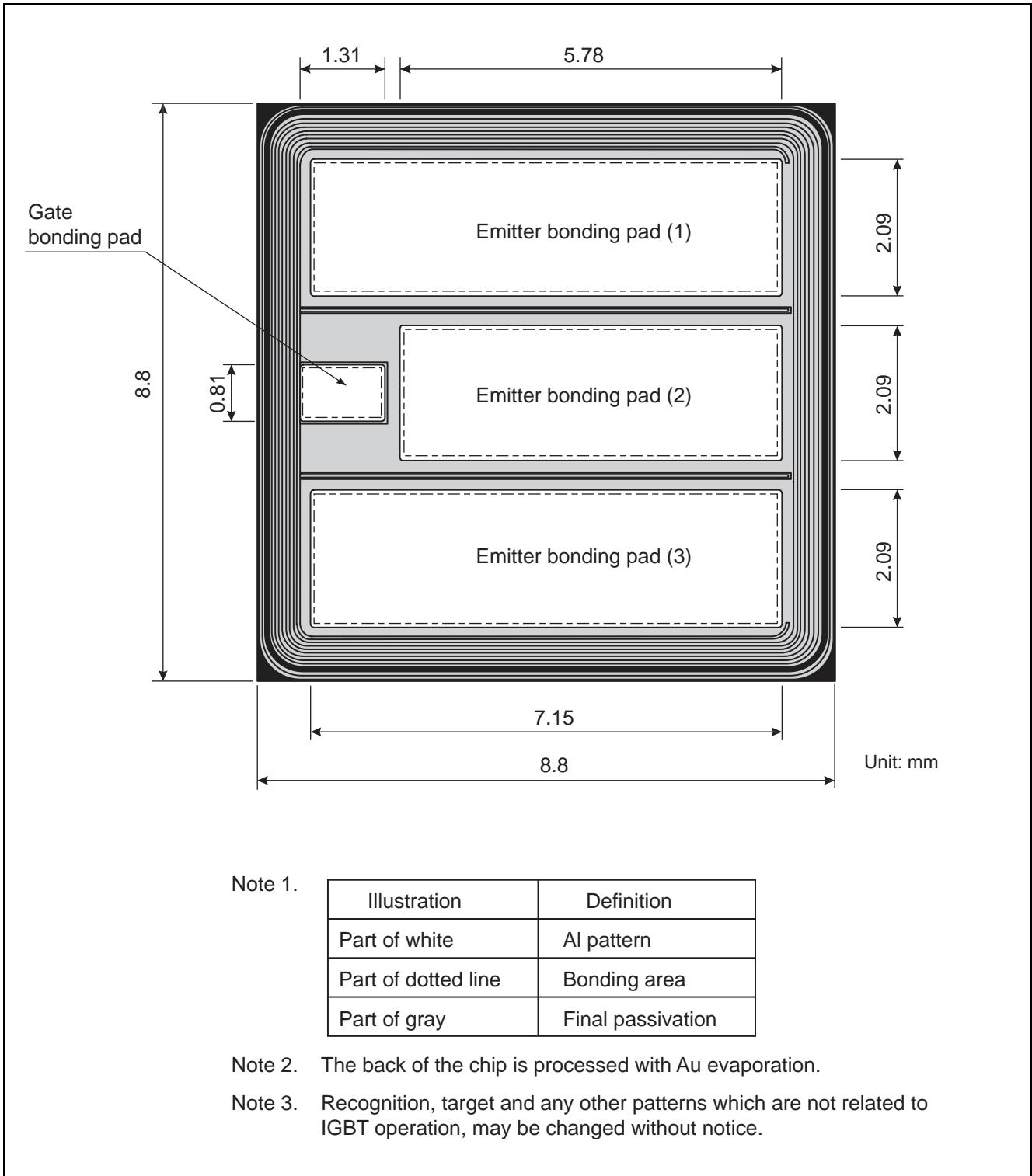
Notes: 2. Pulse test.

3. Switching time test circuit and waveform are shown below.

4. Verified by design.



**Die Dimension**



**Ordering Information**

Orderable Part Number	Shipment form
RJP1CS06DWA-80#W0	Unsaun wafer
RJP1CS06DWS-80#W0	Sawn wafer

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2801 Scott Boulevard Santa Clara, CA 95050-2549, U.S.A.  
Tel: +1-408-588-6000, Fax: +1-408-588-6130

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9251 Yonge Street, Suite 8309 Richmond Hill, Ontario Canada L4C 9T3  
Tel: +1-905-237-2004

**Renesas Electronics Europe Limited**  
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K  
Tel: +44-1628-585-100, Fax: +44-1628-585-900

**Renesas Electronics Europe GmbH**  
Arcadiastrasse 10, 40472 Düsseldorf, Germany  
Tel: +49-211-6503-0, Fax: +49-211-6503-1327

**Renesas Electronics (China) Co., Ltd.**  
Room 1709, Quantum Plaza, No.27 ZhichunLu Haidian District, Beijing 100191, P.R.China  
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

**Renesas Electronics (Shanghai) Co., Ltd.**  
Unit 301, Tower A, Central Towers, 555 Langao Road, Putuo District, Shanghai, P. R. China 200333  
Tel: +86-21-2226-0888, Fax: +86-21-2226-0899

**Renesas Electronics Hong Kong Limited**  
Unit 1601-1611, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong  
Tel: +852-2265-8688, Fax: +852-2886-9022

**Renesas Electronics Taiwan Co., Ltd.**  
13F, No. 363, Fu Shing North Road, Taipei 10543, Taiwan  
Tel: +886-2-8175-9600, Fax: +886-2-8175-9670

**Renesas Electronics Singapore Pte. Ltd.**  
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Tel: +65-6213-0200, Fax: +65-6213-0300

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Tel: +60-3-7955-9390, Fax: +60-3-7955-9510

**Renesas Electronics India Pvt. Ltd.**  
No.777C, 100 Feet Road, HAL II Stage, Indiranagar, Bangalore, India  
Tel: +91-80-67208700, Fax: +91-80-67208777

**Renesas Electronics Korea Co., Ltd.**  
12F., 234 Teheran-ro, Gangnam-Gu, Seoul, 135-080, Korea  
Tel: +82-2-558-3737, Fax: +82-2-558-5141