

RJP1CS04DWT/RJP1CS04DWA

1250V - 50A - IGBT

Application: Inverter

R07DS0827EJ0004

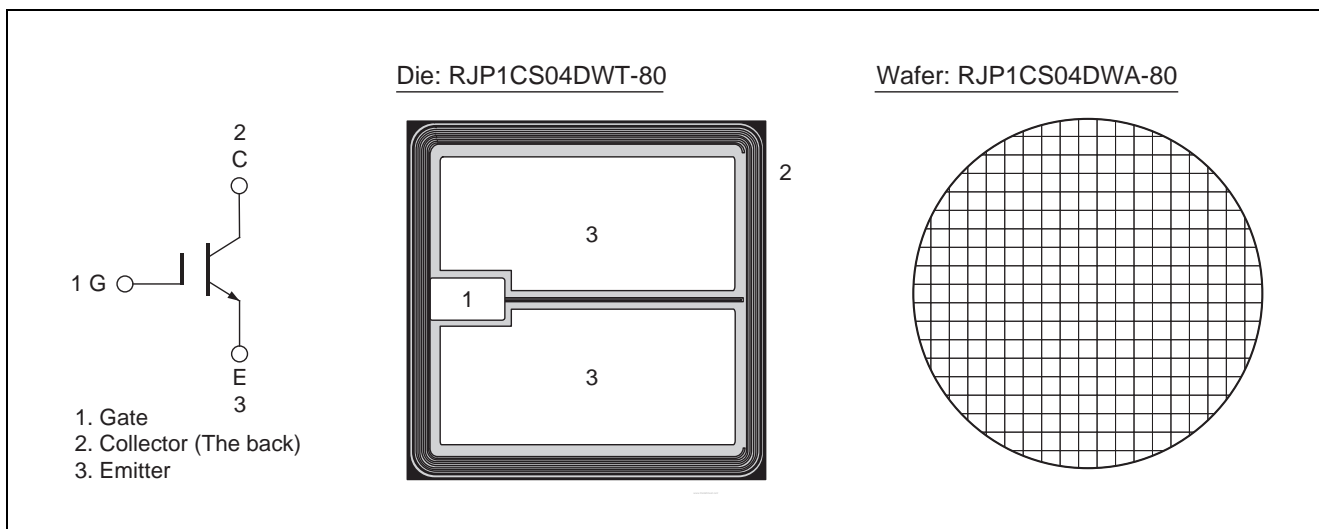
Rev.0.04

Jun 05, 2012

Features

- Low collector to emitter saturation voltage
 $V_{CE(sat)} = 1.8 \text{ V typ. (at } I_C = 50 \text{ A, } V_{GE} = 15 \text{ V, } T_a = 25^\circ\text{C)}$
- High speed switching
- Short circuit withstands time (10 $\mu\text{s min.}$)

Outline



Absolute Maximum Ratings

($T_a = 25^\circ\text{C}$)

Item	Symbol	Ratings	Unit	
Collector to emitter voltage	V_{CES}	1250	V	
Gate to emitter voltage	V_{GES}	± 30	V	
Collector current	$T_c = 25^\circ\text{C}$	I_C ^{Note1}	100	A
	$T_c = 100^\circ\text{C}$	I_C ^{Note1}	50	A
Junction temperature	T_j	150	$^\circ\text{C}$	

Notes: 1. This data is a regulated value in evaluation package.

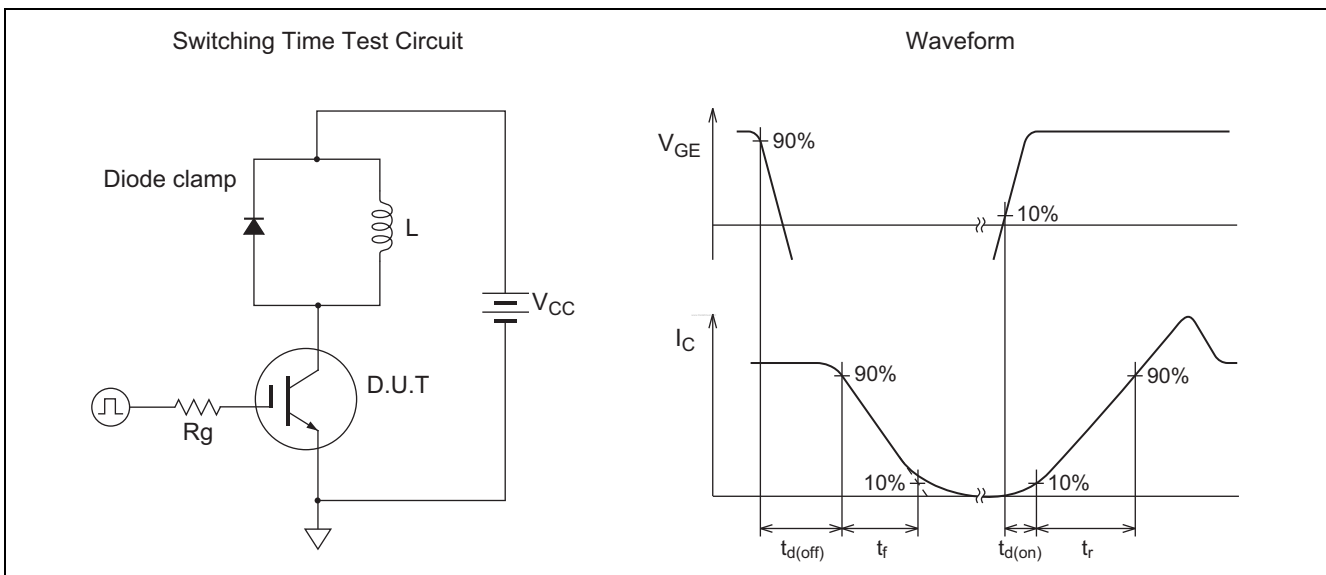
Electrical Characteristics (These data are an actual measurement value in evaluation package.)

(Ta = 25°C)

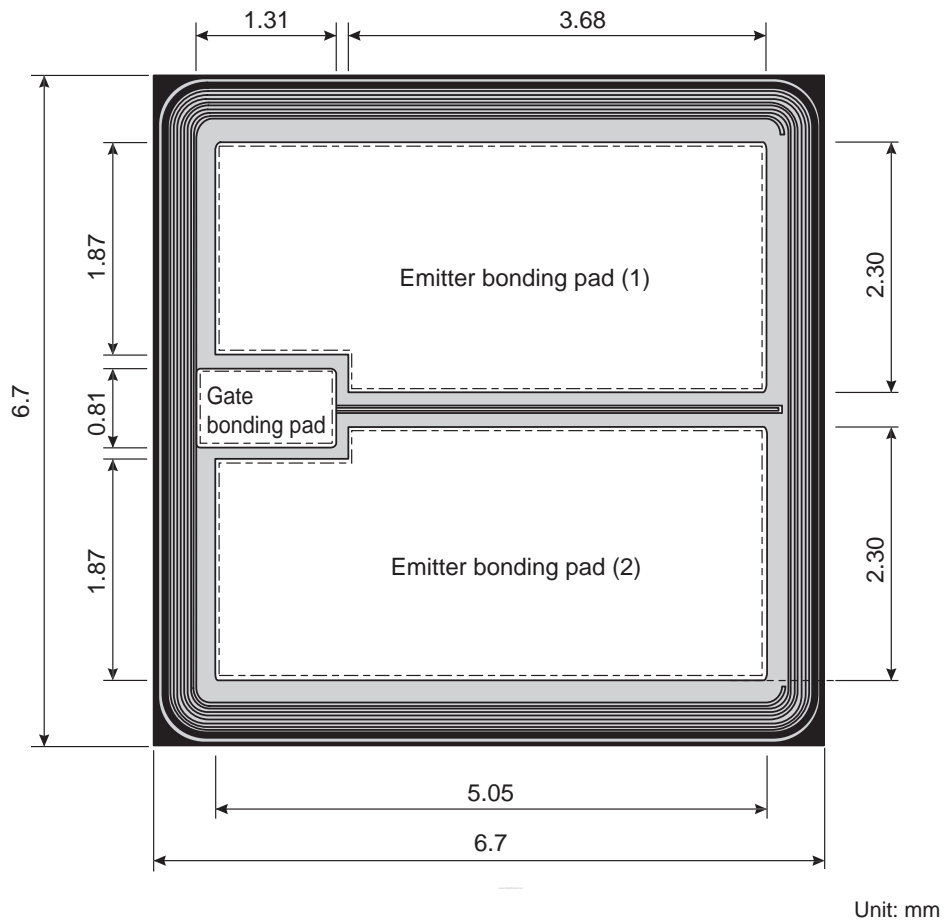
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	I_{CES}	—	—	1	μA	$V_{CE} = 1250 \text{ V}, V_{GE} = 0$
Gate to emitter leak current	I_{GES}	—	—	± 1	μA	$V_{GE} = \pm 30 \text{ V}, V_{CE} = 0$
Gate to emitter cutoff voltage	$V_{GE(off)}$	5.0	—	6.8	V	$V_{CE} = 10 \text{ V}, I_C = 1.7 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	1.8	—	V	$I_C = 50 \text{ A}, V_{GE} = 15 \text{ V}$ ^{Note2}
Input capacitance	C_{ies}	—	5.3	—	nF	$V_{CE} = 25 \text{ V}$
Output capacitance	C_{oes}	—	0.16	—	nF	$V_{GE} = 0$
Reverse transfer capacitance	C_{res}	—	0.12	—	nF	$f = 1 \text{ MHz}$
Switching time	$t_{d(on)}$	—	30	—	ns	$V_{CC} = 600 \text{ V}$ ^{Note3} $I_C = 50 \text{ A}$ $V_{GE} = \pm 15 \text{ V}$ $R_g = 10 \Omega, T_j = 125 \text{ }^\circ\text{C}$ Inductive load
	t_r	—	30	—	ns	
	$t_{d(off)}$	—	300	—	ns	
	t_f	—	130	—	ns	
Short circuit withstand time	t_{sc}	10	—	—	μs	$V_{CC} \leq 720 \text{ V}, V_{GE} = 15 \text{ V}$ $T_j = 150 \text{ }^\circ\text{C}$

Notes: 2. Pulse test.

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



Die Dimension



Note 1.

Illustration	Definition
Part of white	Al pattern
Part of dotted line	Bonding area
Part of hatching	Final passivation

Note 2. The back of the chip is processed with Au evaporation.

Note 3. Recognition, target and any other patterns which are not related to IGBT operation, may be changed without notice.

Ordering Information

Orderable Part Number
RJP1CS04DWA-80#W0
RJP1CS04DWT-80#X0

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Renesas Electronics America Inc.
2880 Scott Boulevard Santa Clara, CA 95050-2554, U.S.A.
Tel: +1-408-588-6000, Fax: +1-408-588-6130

Renesas Electronics Canada Limited
1101 Nicholson Road, Newmarket, Ontario L3Y 9C3, Canada
Tel: +1-905-898-5441, Fax: +1-905-898-3220

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: +49-211-65030, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.
7th Floor, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100083, P.R.China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.
Unit 204, 205, AZIA Center, No.1233 Lujiazui Ring Rd., Pudong District, Shanghai 200120, China
Tel: +86-21-5877-1818, Fax: +86-21-6887-7858 / -7898

Renesas Electronics Hong Kong Limited
Unit 1601-1613, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2886-9318, Fax: +852 2886-9022/9044

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

Renesas Electronics Singapore Pte. Ltd.
1 HarbourFront Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: +65-6213-0200, Fax: +65-6278-8001

Renesas Electronics 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: +60-3-7955-3390, Fax: +60-3-7955-9510

Renesas Electronics Korea Co., Ltd.
11F., Samik Laved' or Bldg., 720-2 Yeoksam-Dong, Kangnam-Ku, Seoul 135-080, Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5141