RJH1CD6DPQ-A0

1200 V - 20 A - IGBT
Application: Inverter

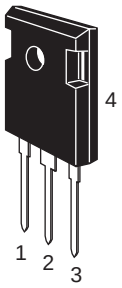
R07DS0452EJ0100
Rev.1.00
Jul 22, 2011

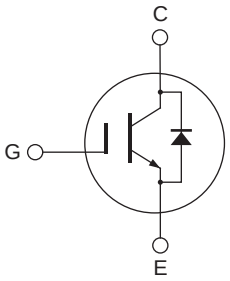
Features

- Short circuit withstand time (5 μs typ.)
- Low collector to emitter saturation voltage
  $V_{CE(sat)}$ = 2.2 V typ. (at I_C = 20 A, V_{GE} = 15 V, Ta = 25°C)
- Built in fast recovery diode (t_{rr} = 100 ns typ.) in one package
- Trench gate and thin wafer technology
- High speed switching
  t_f = 100 ns typ. (at V_{CC} = 600 V, V_{GE} = 15 V, I_C = 20 A, Rg = 5 Ω, Ta = 25°C, inductive load)

Outline

RENESAS Package code: PRSS0003ZH-A
(Package name: TO-247A)





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	1200	V
Gate to emitter voltage		V_{GES}	±30	V
Collector current	Tc = 25°C	I_C	40	A
	Tc = 100°C	I_C	20	A
Collector peak current		ic(peak) Note1	80	A
Collector to emitter diode forward current		I_{DF}	20	A
Collector to emitter diode forward peak current		i_{DF}(peak) Note1	80	A
Collector dissipation		P_C Note2	297.6	W
Junction to case thermal resistance (IGBT)		θj-c Note2	0.42	°C/ W
Junction temperature		Tj	150	°C
Storage temperature		Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%
2. Value at Tc = 25°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	—	—	5	μA	V_{CE} = 1200 V, V_{GE} = 0
Gate to emitter leak current	I_{GES}	—	—	±1	μA	V_{GE} = ±30 V, V_{CE} = 0
Gate to emitter cutoff voltage	$V_{GE(off)}$	4	—	8	V	V_{CE} = 10 V, I_C = 1 mA
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	2.2	—	V	I_C = 20 A, V_{GE} = 15 V Note3
Input capacitance	Cies	—	1600	—	pF	V_{CE} = 25 V V_{GE} = 0 f = 1 MHz
Output capacitance	Coes	—	60	—	pF	
Reveres transfer capacitance	Cres	—	35	—	pF	
Switching time	$t_{d(on)}$	—	45	—	ns	V_{CC} = 600 V, V_{GE} = 15 V I_C = 20 A Rg = 5 Ω Inductive load
	t_r	—	15	—	ns	
	$t_{d(off)}$	—	100	—	ns	
	t_f	—	100	—	ns	
Short circuit withstand time	t_{sc}	—	5	—	μs	V_{CC} ≤ 720 V, V_{GE} = 15 V Tc ≤ 125°C

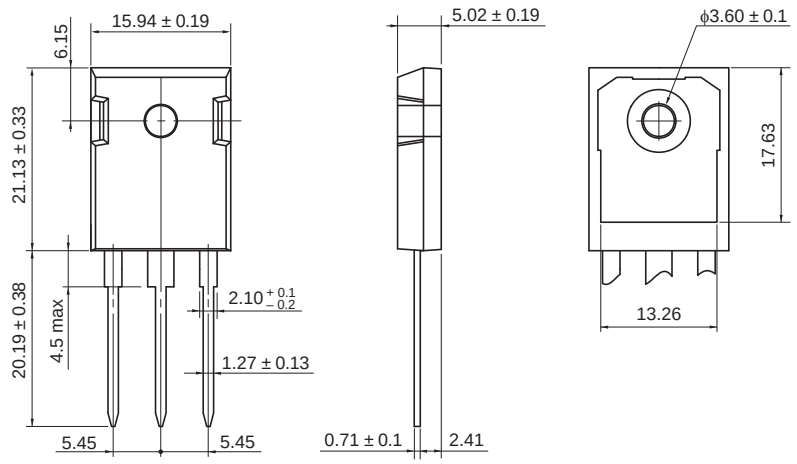
FRD forward voltage	V_F	—	1.7	—	V	I_F = 20 A Note3
FRD reverse recovery time	t_{rr}	—	100	—	ns	I_F = 20 A di_F/dt = 100 A/μs

Notes: 3. Pulse test.

Package Dimension

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-247A	—	PRSS0003ZH-A	—	6.14g

Unit: mm



Ordering Information

Orderable Part Number	Quantity	Shipping Container
RJH1CD6DPQ-A0-T0	240 pcs	Box (Tube)

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

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

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