

RJH1CD6DPQ-E0

1200V - 25A - IGBT

Application: Inverter

R07DS0518EJ0400

Rev.4.00

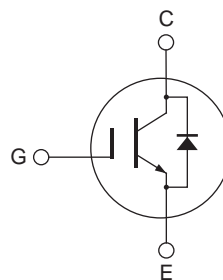
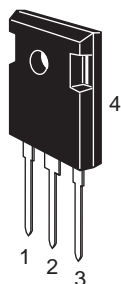
Jan 19, 2012

Features

- Short circuit withstand time (5 μ s typ.)
- Low collector to emitter saturation voltage
 $V_{CE(sat)} = 2.0$ V typ. (at $I_C = 25$ A, $V_{GE} = 15$ V, $T_a = 25^\circ\text{C}$)
- Built-in fast recovery diode ($t_{tr} = 200$ 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, $I_C = 25$ A, $R_g = 5$ Ω , $T_a = 25^\circ\text{C}$, inductive load)

Outline

RENESAS Package code: PRSS0003ZE-A
 (Package name: TO-247)



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	$T_C = 25^\circ\text{C}$	I_C	50	A
	$T_C = 100^\circ\text{C}$	I_C	25	A
Collector peak current	$i_{c(peak)}$ ^{Note1}	75	A	
Collector to emitter diode forward current	I_{DF}	25	A	
Collector to emitter diode forward peak current	$i_{DF(peak)}$ ^{Note1}	75	A	
Collector dissipation	P_C ^{Note2}	297.6	W	
Junction to case thermal resistance (IGBT)	θ_{j-c} ^{Note2}	0.42	$^\circ\text{C}/\text{W}$	
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$	

 Notes: 1. $PW \leq 10$ μ s, duty cycle $\leq 1\%$

 2. Value at $T_c = 25^\circ\text{C}$

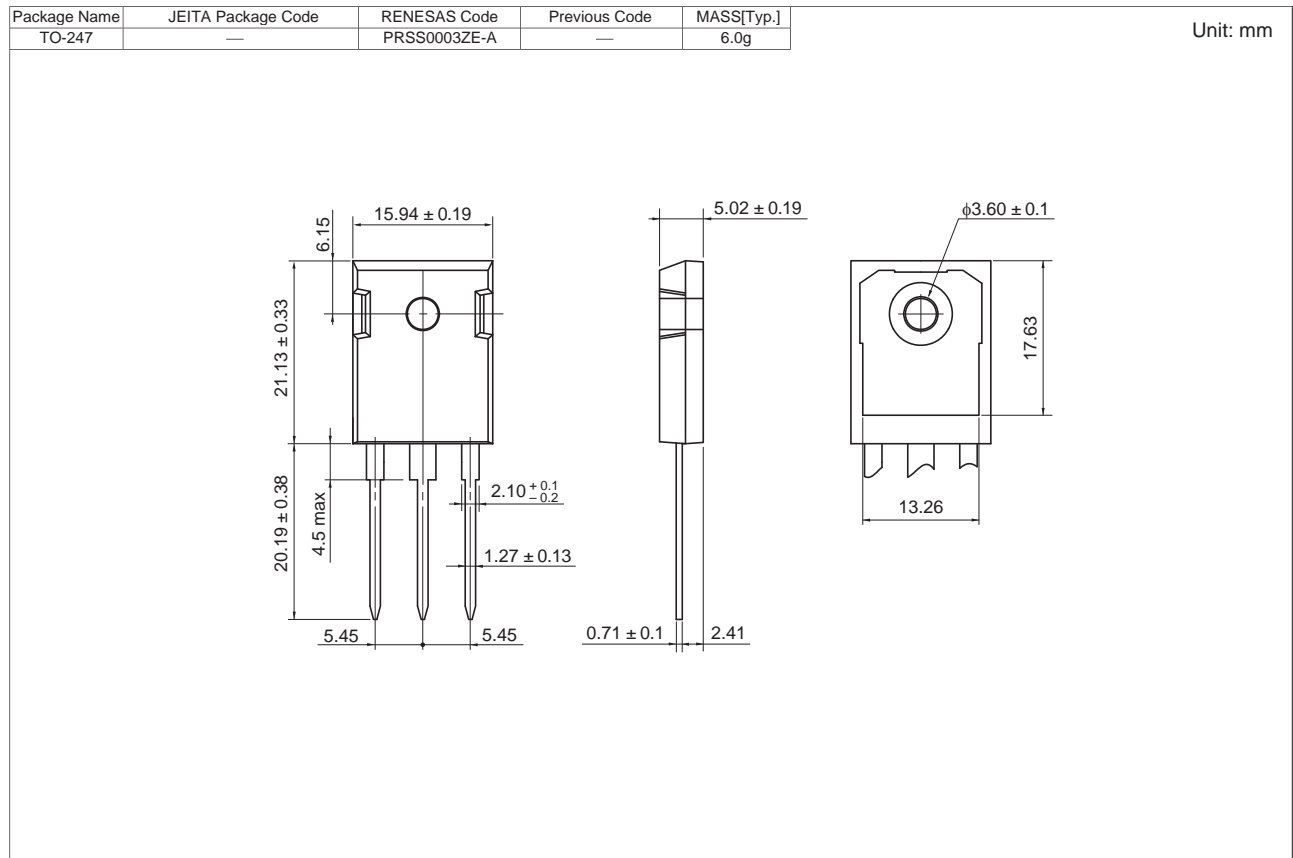
Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current / Diode reverse current	I_{CES}/I_R	—	—	5	μA	$V_{CE} = 1200\text{ V}, V_{GE} = 0$
Gate to emitter leak current	I_{GES}	—	—	± 1	μA	$V_{GE} = \pm 30\text{ V}, V_{CE} = 0$
Gate to emitter cutoff voltage	$V_{GE(off)}$	4	—	8	V	$V_{CE} = 10\text{ V}, I_C = 1\text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	2.0	—	V	$I_C = 25\text{ A}, V_{GE} = 15\text{ V}$ ^{Note3}
Input capacitance	C_{ies}	—	1600	—	pF	$V_{CE} = 25\text{ V}$
Output capacitance	C_{oes}	—	60	—	pF	$V_{GE} = 0$
Reveres transfer capacitance	C_{res}	—	35	—	pF	$f = 1\text{ MHz}$
Switching time	$t_{d(on)}$	—	45	—	ns	$V_{CC} = 600\text{ V}, V_{GE} = 15\text{ V}$
	t_r	—	15	—	ns	$I_C = 25\text{ A}$
	$t_{d(off)}$	—	100	—	ns	$R_g = 5\ \Omega$
	t_f	—	100	—	ns	Inductive load
Short circuit withstand time	t_{sc}	—	5	—	μs	$V_{CC} \leq 720\text{ V}, V_{GE} = 15\text{ V}$ $T_C \leq 125^\circ\text{C}$
FRD forward voltage	V_F	—	1.7	—	V	$I_F = 25\text{ A}$ ^{Note3}
FRD reverse recovery time	t_{rr}	—	200	—	ns	$I_F = 25\text{ A}$ $di_F/dt = 100\text{ A}/\mu\text{s}$

Notes: 3. Pulse test.

Package Dimension



Ordering Information

Orderable Part Number	Quantity	Shipping Container
RJH1CD6DPQ-E0#T2	450 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