

# RJH1CV6DPQ-E0

1200 V - 30 A - IGBT

Application: Inverter

R07DS0524EJ0300

Rev.3.00

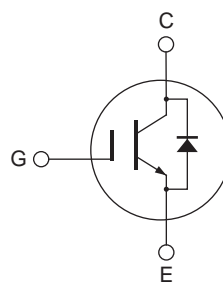
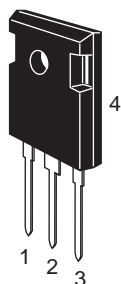
Nov 21, 2011

## Features

- Short circuit withstand time (5  $\mu$ s typ.)
- Low collector to emitter saturation voltage  
 $V_{CE(sat)} = 1.8$  V typ. (at  $I_C = 30$  A,  $V_{GE} = 15$  V,  $T_a = 25^\circ\text{C}$ )
- Built in fast recovery diode ( $t_{rr} = 100$  ns typ.) in one package
- Trench gate and thin wafer technology
- High speed switching  
 $t_f = 200$  ns typ. (at  $V_{CC} = 600$  V,  $V_{GE} = 15$  V,  $I_C = 30$  A,  $R_g = 5$   $\Omega$ ,  $T_a = 25^\circ\text{C}$ , inductive load)

## Outline

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



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

## Absolute Maximum Ratings

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

Item	Symbol	Ratings	Unit
Collector to emitter voltage / diode reverse voltage	$V_{CES} / V_R$	1200	V
Gate to emitter voltage	$V_{GES}$	$\pm 30$	V
Collector current	$T_C = 25^\circ\text{C}$	$I_C$	60
	$T_C = 100^\circ\text{C}$	$I_C$	30
Collector peak current	$i_{c(peak)}$ <sup>Note1</sup>	90	A
Collector to emitter diode forward current	$I_{DF}$	30	A
Collector to emitter diode forward peak current	$i_{DF(peak)}$ <sup>Note1</sup>	90	A
Collector dissipation	$P_C$ <sup>Note2</sup>	297.6	W
Junction to case thermal resistance (IGBT)	$\theta_{j-c}$ <sup>Note2</sup>	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.  $PW \leq 10$   $\mu$ s, duty cycle  $\leq 1\%$

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

## Electrical Characteristics

(Ta = 25°C)

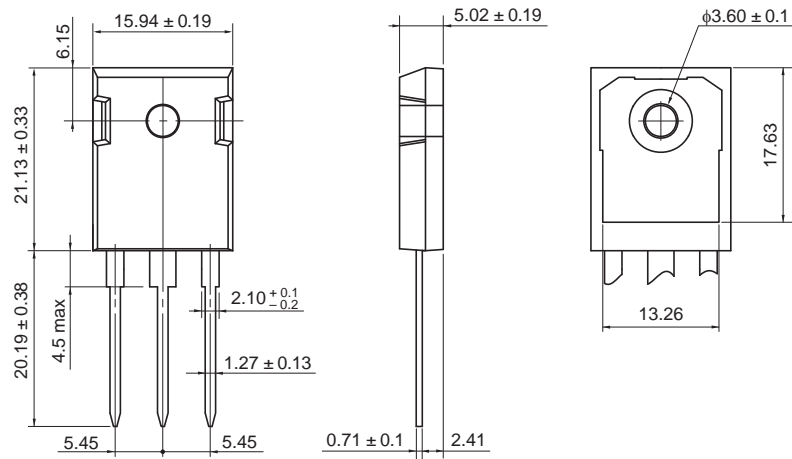
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current / Diode reverse current	$I_{CES}/I_R$	—	—	5	$\mu A$	$V_{CE} = 1200 V, V_{GE} = 0$
Gate to emitter leak current	$I_{GES}$	—	—	$\pm 1$	$\mu A$	$V_{GE} = \pm 30 V, V_{CE} = 0$
Gate to emitter cutoff voltage	$V_{GE(off)}$	4	—	8	V	$V_{CE} = 10 V, I_C = 1 mA$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	1.8	—	V	$I_C = 30 A, V_{GE} = 15 V$ <sup>Note3</sup>
Input capacitance	$C_{ies}$	—	1600	—	pF	$V_{CE} = 25 V$ $V_{GE} = 0$ $f = 1 MHz$
Output capacitance	$C_{oes}$	—	60	—	pF	
Reveres transfer capacitance	$C_{res}$	—	35	—	pF	
Switching time	$t_{d(on)}$	—	45	—	ns	$V_{CC} = 600 V, V_{GE} = 15 V$ $I_C = 30 A$ $R_g = 5 \Omega$ Inductive load
	$t_r$	—	15	—	ns	
	$t_{d(off)}$	—	100	—	ns	
	$t_f$	—	200	—	ns	
Short circuit withstand time	$t_{sc}$	—	5	—	$\mu s$	$V_{CC} \leq 720 V, V_{GE} = 15 V$ $T_C \leq 125^\circ C$
FRD forward voltage	$V_F$	—	1.7	—	V	$I_F = 30 A$ <sup>Note3</sup>
FRD reverse recovery time	$t_{rr}$	—	100	—	ns	$I_F = 30 A$ $di_F/dt = 100 A/\mu s$

Notes: 3. Pulse test.

## Package Dimension

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-247	—	PRSS0003ZE-A	—	6.0g

Unit: mm



## Ordering Information

Orderable Part Number	Quantity	Shipping Container
RJH1CV6DPQ-E0#T2	450 pcs	Box (Tube)

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