

RJH1CM6DPQ-E0

1200V - 20A - IGBT

Application: Inverter

R07DS0521EJ0300

Rev.3.00

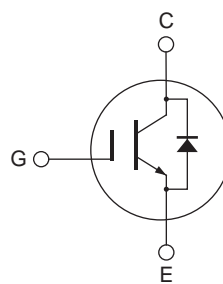
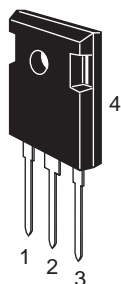
Jan 19, 2012

Features

- Short circuit withstand time (10 μ s typ.)
- Low collector to emitter saturation voltage
 $V_{CE(sat)} = 2.1$ V typ. (at $I_C = 20$ A, $V_{GE} = 15$ V, $T_a = 25^\circ\text{C}$)
- Built-in fast recovery diode ($t_{rr} = 200$ 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, $I_C = 20$ 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

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

Item		Symbol	Ratings	Unit
Collector to emitter voltage / diode reverse voltage		V_{CES} / V_R	1200	V
Gate to emitter voltage		V_{GES}	± 30	V
Collector current	$T_c = 25^\circ\text{C}$	I_C	40	A
	$T_c = 100^\circ\text{C}$	I_C	20	A
Collector peak current		$i_{c(peak)}$ ^{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)		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)

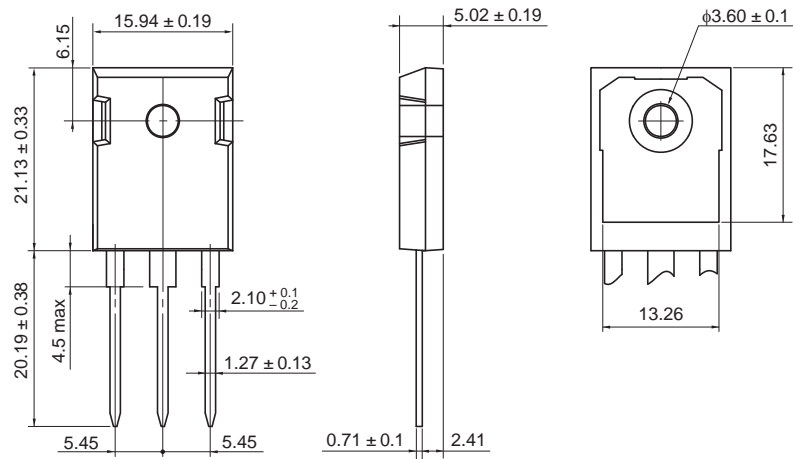
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current / Diode reverse current	I_{CES}/I_R	—	—	5	μA	$V_{CE} = 1200 V, V_{GE} = 0$
Gate to emitter leak current	I_{GES}	—	—	± 1	μA	$V_{GE} = \pm 30 V, V_{CE} = 0$
Gate to emitter cutoff voltage	$V_{GE(off)}$	4	—	8	V	$V_{CE} = 10 V, I_C = 1 mA$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	2.1	—	V	$I_C = 20 A, V_{GE} = 15 V$ ^{Note3}
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	$V_{CC} = 600 V, V_{GE} = 15 V$ $I_C = 20 A$ $R_g = 5 \Omega$ Inductive load
	t_r	—	15	—	ns	
	$t_{d(off)}$	—	100	—	ns	
	t_f	—	100	—	ns	
Short circuit withstand time	t_{sc}	—	10	—	μs	$V_{CC} \leq 720 V, V_{GE} = 15 V$ $T_C \leq 125^\circ C$
FRD forward voltage	V_F	—	1.7	—	V	$I_F = 20 A$ ^{Note3}
FRD reverse recovery time	t_{rr}	—	200	—	ns	$I_F = 20 A$ $di_F/dt = 100 A/\mu s$

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
RJH1CM6DPQ-E0#T2	450 pcs	Box (Tube)

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