

# RJP1CS05DWA / RJP1CS05DWS

1250V - 75A - IGBT

Application: Inverter

R07DS0828EJ0400

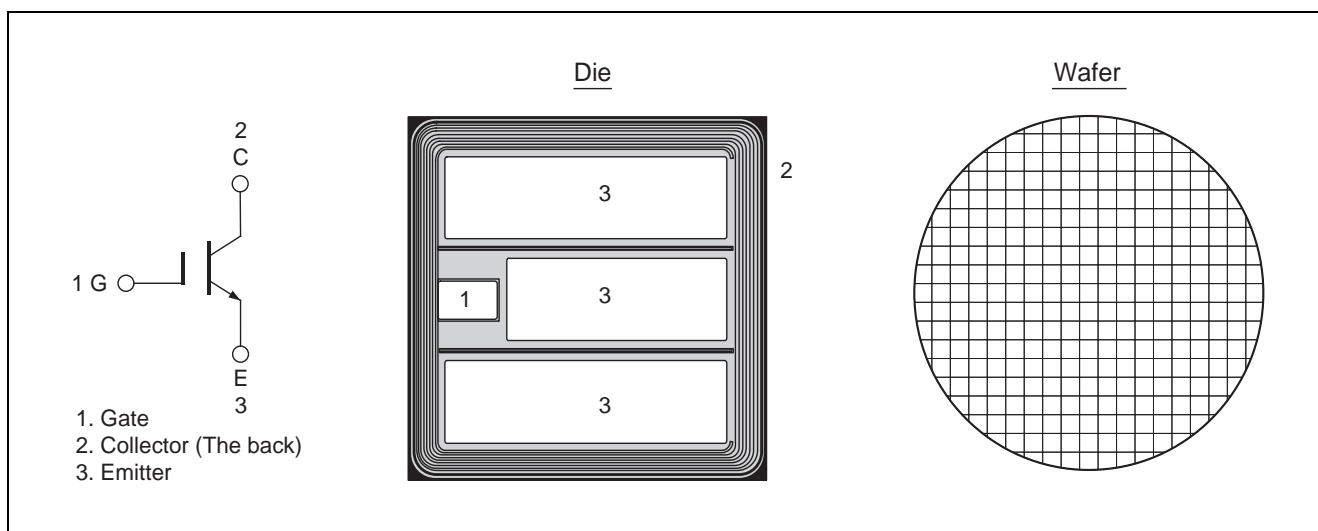
Rev.4.00

Sep 30, 2015

## Features

- Low collector to emitter saturation voltage  
 $V_{CE(sat)} = 1.8 \text{ V typ. (at } I_C = 75 \text{ A, } V_{GE} = 15 \text{ V, } T_C = 25^\circ\text{C)}$
- High speed switching
- Short circuit withstands time (10  $\mu\text{s}$  min.)

## Outline



## Absolute Maximum Ratings

(  $T_C = 25^\circ\text{C}$  unless otherwise noted )

Item	Symbol	Ratings	Unit	
Collector to emitter voltage	$V_{CES}$	1250	V	
Gate to emitter voltage	$V_{GES}$	$\pm 30$	V	
Collector current	$T_C = 25^\circ\text{C}$	$I_C$	150	A
	$T_C = 100^\circ\text{C}$	$I_C$	75	A
Junction temperature	$T_j$	175 <sup>Note1</sup>	$^\circ\text{C}$	

Notes 1. Please use this device in the thermal conditions where the junction temperature does not exceed 175 $^\circ\text{C}$ .

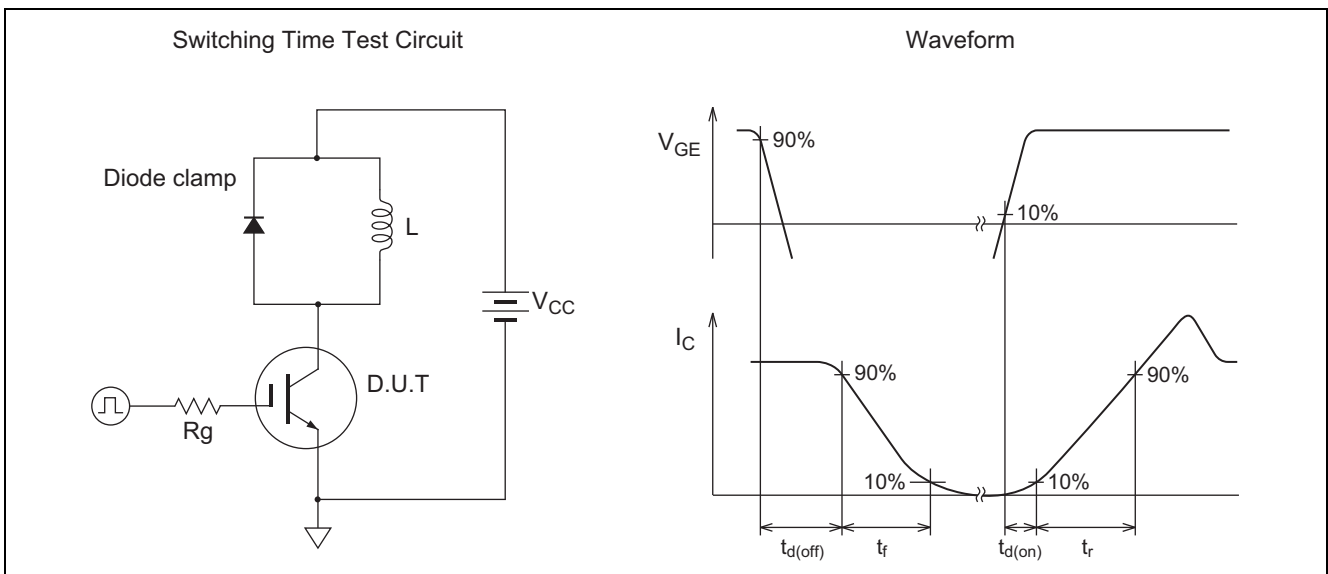
IGBT Application Note is disclosed about reliability test and application condition up to  $T_j = 175^\circ\text{C}$

**Electrical Characteristics** (Datas below are measured values on a package configuration.)

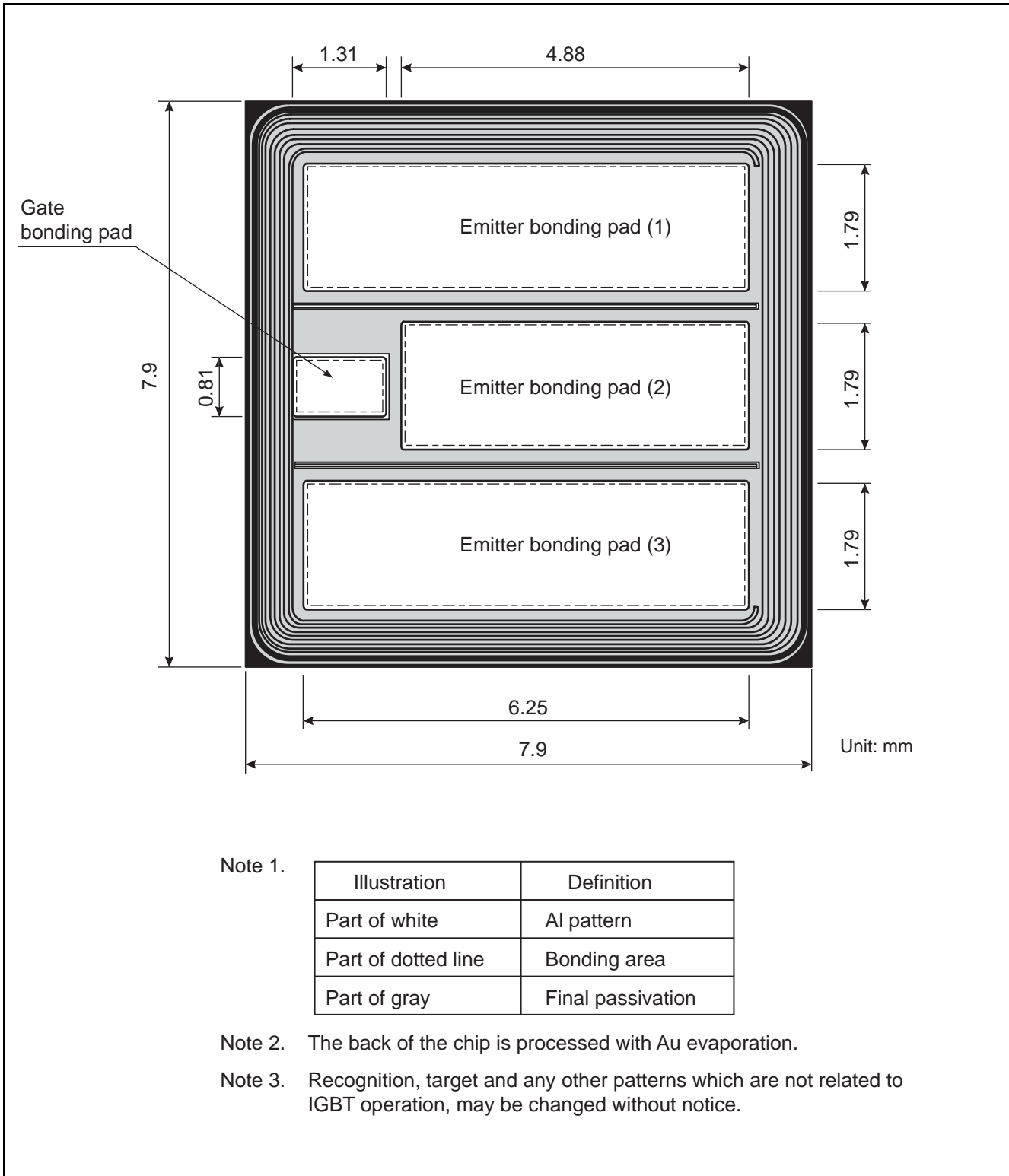
(Tc = 25°C unless otherwise noted)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	$I_{CES}$	—	—	1	$\mu A$	$V_{CE} = 1250 V, V_{GE} = 0$
Gate to emitter leak current	$I_{GES}$	—	—	$\pm 1$	$\mu A$	$V_{GE} = \pm 30 V, V_{CE} = 0$
Gate to emitter cutoff voltage	$V_{GE(off)}$	5.0	—	6.8	V	$V_{CE} = 10 V, I_C = 2.5 mA$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	1.80	2.25	V	$I_C = 75 A, V_{GE} = 15 V$ <sup>Note2</sup>
Input capacitance	$C_{ies}$	—	7.8	—	nF	$V_{CE} = 25 V$
Output capacitance	$C_{oes}$	—	0.23	—	nF	$V_{GE} = 0$
Reveres transfer capacitance	$C_{res}$	—	0.18	—	nF	$f = 1 MHz$
Total gate charge	$Q_g$	—	420	—	nC	$V_{GE} = 15 V$
Gate to emitter charge	$Q_{ge}$	—	70	—	nC	$V_{CE} = 600 V$
Gate to collector charge	$Q_{gc}$	—	225	—	nC	$I_C = 75 A$
Switching time <sup>Note3</sup>	$t_{d(on)}$	—	50	—	ns	$V_{CC} = 600 V$
	$t_r$	—	45	—	ns	$I_C = 75 A$
	$t_{d(off)}$	—	370	—	ns	$V_{GE} = \pm 15 V$
	$t_f$	—	170	—	ns	$R_g = 10 \Omega, T_c = 150^\circ C$ Inductive load
Short circuit withstand time <sup>Note4</sup>	$t_{sc}$	10	—	—	$\mu s$	$V_{CC} \leq 720 V, V_{GE} = 15 V$ $T_c = 150^\circ C$

- Notes: 2. Pulse test.  
 3. Switching time test circuit and waveform are shown below.  
 4. Verified by design.



**Die Dimension**



**Ordering Information**

Orderable Part Number	Shipment form
RJP1CS05DWA-80#W0	Unsaun wafer
RJP1CS05DWS-80#W0	Sawn wafer

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