

# RJP65S04DWT/RJP65S04DWA

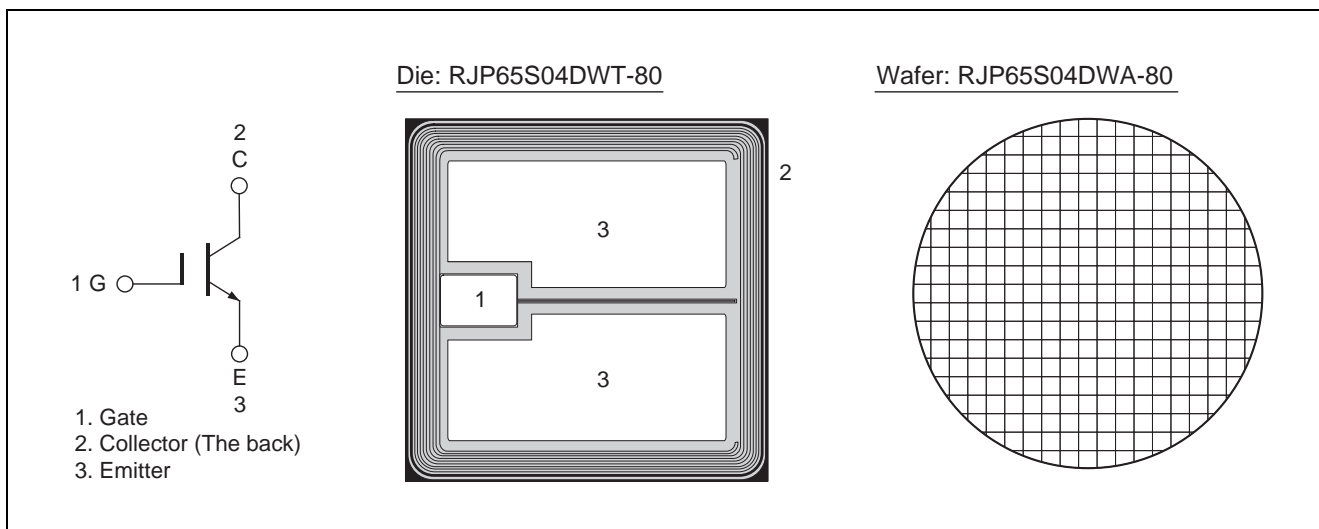
650V - 50A - IGBT  
Application: Inverter

R07DS0821EJ0002  
Rev.0.02  
Aug 09, 2012

## Features

- Low collector to emitter saturation voltage  
 $V_{CE(sat)} = 1.6 \text{ V typ. (at } I_C = 50 \text{ A, } V_{GE} = 15 \text{ V, } T_a = 25^\circ\text{C)}$
- High speed Switching
- Short circuit withstands time (10  $\mu\text{s min.}$ )

## Outline



## Absolute Maximum Ratings

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

Item	Symbol	Ratings	Unit	
Collector to emitter voltage	$V_{CES}$	650	V	
Gate to emitter voltage	$V_{GES}$	$\pm 30$	V	
Collector current	$T_c = 25^\circ\text{C}$	$I_C$ <sup>Note1</sup>	100	A
	$T_c = 100^\circ\text{C}$	$I_C$ <sup>Note1</sup>	50	A
Junction temperature	$T_j$	150	$^\circ\text{C}$	

Notes: 1. This data is a regulated value in evaluation package.

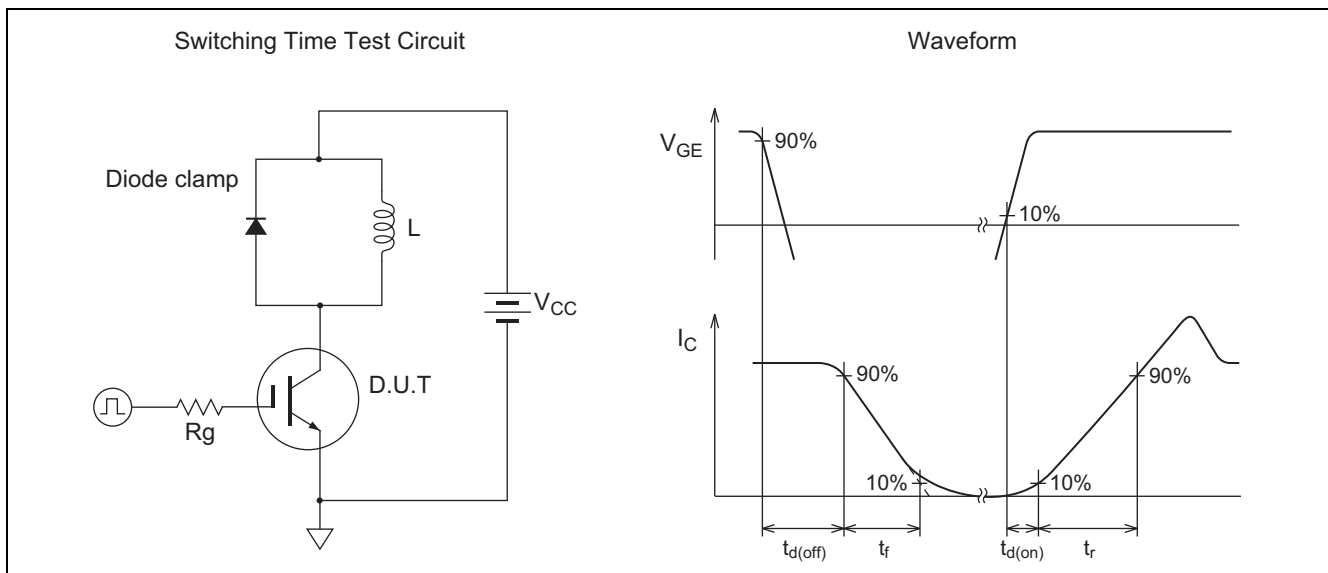
**Electrical Characteristics** (These data are an actual measurement value in evaluation package.)

(Ta = 25°C)

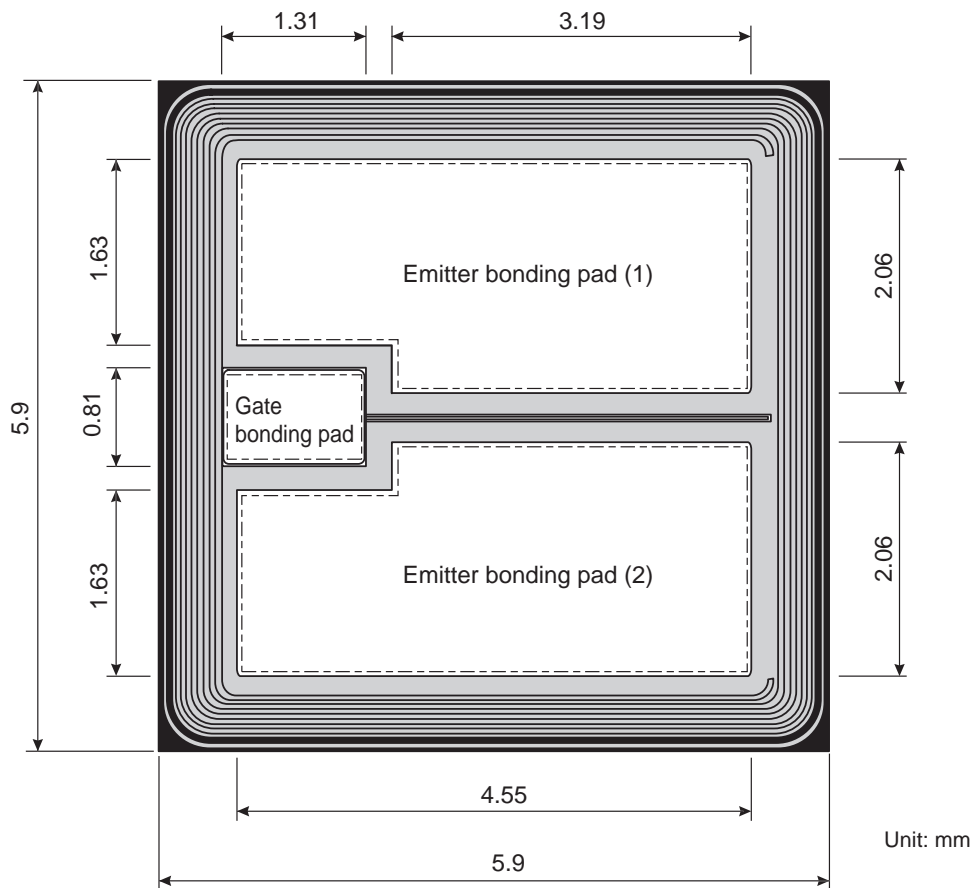
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	$I_{CES}$	—	—	1	$\mu\text{A}$	$V_{CE} = 650 \text{ V}, V_{GE} = 0$
Gate to emitter leak current	$I_{GES}$	—	—	$\pm 1$	$\mu\text{A}$	$V_{GE} = \pm 30 \text{ V}, V_{CE} = 0$
Gate to emitter cutoff voltage	$V_{GE(off)}$	5.0	—	6.8	V	$V_{CE} = 10 \text{ V}, I_C = 1.0 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	1.60	1.95	V	$I_C = 50 \text{ A}, V_{GE} = 15 \text{ V}$ <sup>Note2</sup>
Input capacitance	$C_{ies}$	—	4.5	—	nF	$V_{CE} = 25 \text{ V}$
Output capacitance	$C_{oes}$	—	0.2	—	nF	$V_{GE} = 0$
Reveres transfer capacitance	$C_{res}$	—	0.15	—	nF	$f = 1 \text{ MHz}$
Switching time	$t_{d(on)}$	—	30	—	ns	$V_{CC} = 300 \text{ V}$ <sup>Note3</sup> $I_C = 50 \text{ A}$ $V_{GE} = \pm 15 \text{ V}$ $R_g = 10 \Omega, T_j = 125 \text{ }^\circ\text{C}$ Inductive load
	$t_r$	—	30	—	ns	
	$t_{d(off)}$	—	200	—	ns	
	$t_f$	—	80	—	ns	
Short circuit withstand time	$t_{sc}$	10	—	—	$\mu\text{s}$	$V_{CC} \leq 360 \text{ V}, V_{GE} = 15 \text{ V}$ $T_j = 150 \text{ }^\circ\text{C}$

Notes: 2. Pulse test.

3. Switching time test circuit and waveform are shown below.



Die Dimension



Note 1.

Illustration	Definition
Part of white	Al pattern
Part of dotted line	Bonding area
Part of gray	Final passivation

Note 2. The back of the chip is processed with Au evaporation.

Note 3. Recognition, target and any other patterns which are not related to Diode operation, may be changed without notice.

Ordering Information

Orderable Part Number
RJP65S04DWA-80#W0
RJP65S04DWT-80#X0

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