

# RJP65S06DWT/RJP65S06DWA

650V - 100A - IGBT

Application: Inverter

R07DS0823EJ0002

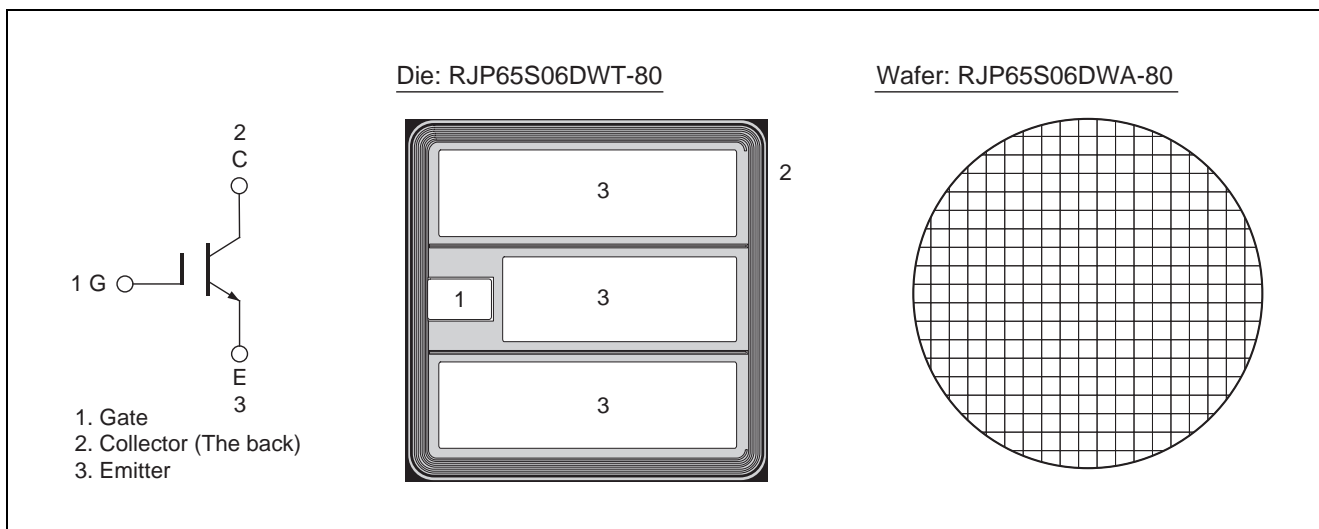
Rev.0.02

Aug 09, 2012

## Features

- Low collector to emitter saturation voltage  
 $V_{CE(sat)} = 1.6 \text{ V typ. (at } I_C = 100 \text{ A, } V_{GE} = 15 \text{ V, } T_a = 25^\circ\text{C)}$
- 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> | 200              | A |
|                              | $T_c = 100^\circ\text{C}$ | $I_C$ <sup>Note1</sup> | 100              | A |
| Junction temperature         | $T_j$                     | 150                    | $^\circ\text{C}$ |   |

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

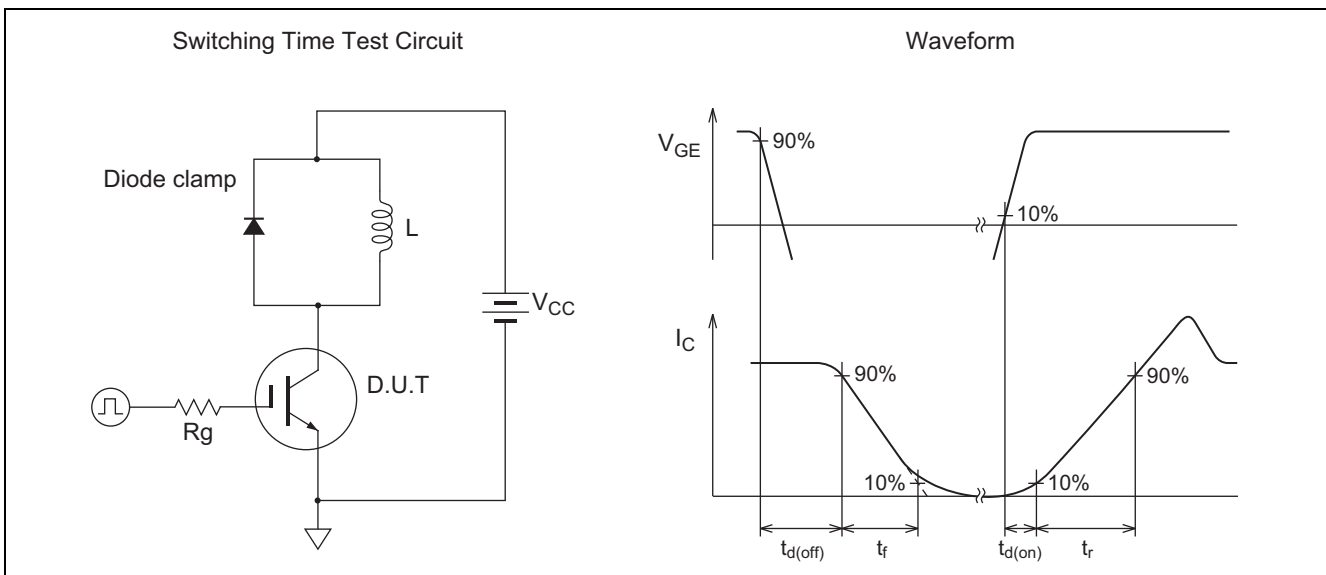
**Electrical Characteristics** (These data are an actual measurement value in evaluation package.)

(Ta = 25°C)

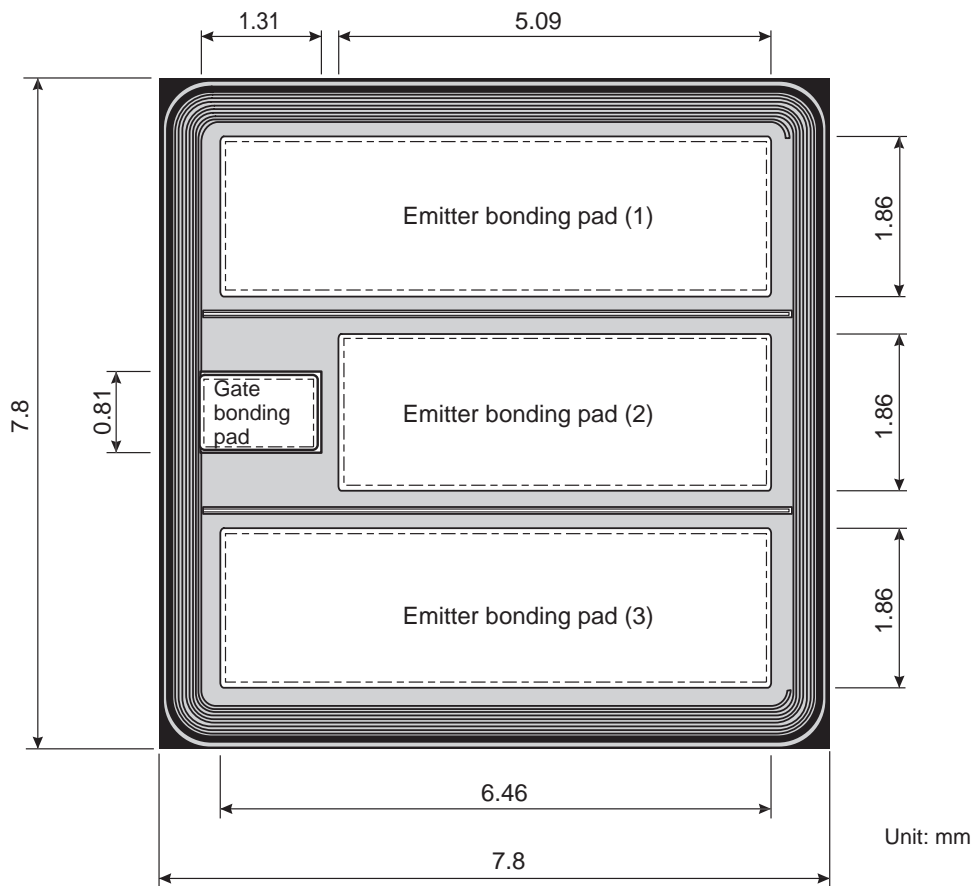
| Item                                    | Symbol        | Min | Typ  | Max     | Unit          | Test Conditions  |
|---|---------------|-----|------|---------|---------------|--|
| Zero gate voltage collector current     | $I_{CES}$     | —   | —    | 1       | $\mu\text{A}$ | $V_{CE} = 650 \text{ V}, V_{GE} = 0$   |
| 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             | $V_{CE} = 10 \text{ V}, I_C = 2 \text{ mA}$  |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | —   | 1.60 | 1.95    | V             | $I_C = 100 \text{ A}, V_{GE} = 15 \text{ V}$ <sup>Note2</sup>  |
| Input capacitance                       | $C_{ies}$     | —   | 8.5  | —       | nF            | $V_{CE} = 25 \text{ V}$  |
| Output capacitance                      | $C_{oes}$     | —   | 0.35 | —       | nF            | $V_{GE} = 0$   |
| Reveres transfer capacitance            | $C_{res}$     | —   | 0.28 | —       | nF            | $f = 1 \text{ MHz}$  |
| Switching time                          | $t_{d(on)}$   | —   | 60   | —       | ns            | $V_{CC} = 300 \text{ V}$ <sup>Note3</sup><br>$I_C = 100 \text{ A}$<br>$V_{GE} = \pm 15 \text{ V}$<br>$R_g = 10 \Omega, T_j = 125 \text{ }^\circ\text{C}$<br>Inductive load |
|   | $t_r$         | —   | 70   | —       | ns            |  |
|   | $t_{d(off)}$  | —   | 300  | —       | ns            |  |
|   | $t_f$         | —   | 80   | —       | ns            |  |
| Short circuit withstand time            | $t_{sc}$      | 10  | —    | —       | $\mu\text{s}$ | $V_{CC} \leq 360 \text{ V}, V_{GE} = 15 \text{ V}$<br>$T_j = 150 \text{ }^\circ\text{C}$   |

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 |
|-----------------------|
| RJP65S06DWA-80#W0     |
| RJP65S06DWT-80#X0     |

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