

# RJP65M05DWA / RJP65M05DWS

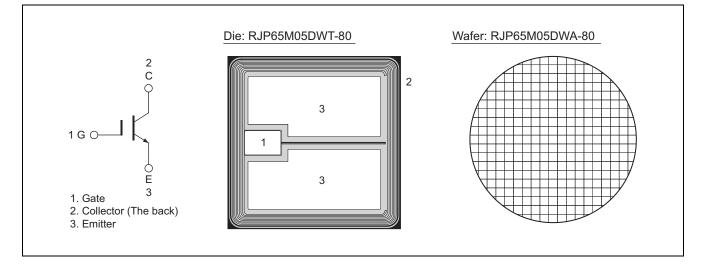
650V - 75A - IGBT Application: Inverter

R07DS1313EJ0100 Rev.1.00 Nov. 06, 2015

### Features

- Low collector to emitter saturation voltage  $V_{CE(sat)} = 1.55V$  typ. (at  $I_C = 75$  A,  $V_{GE} = 15$  V,  $Tc = 25^{\circ}C$ )
- High speed Switching
- Short circuit withstands time  $t_{sc}=5~\mu s~min.~(at~V_{CC}\leq 400~V~,~V_{GE}=15~V,~Tj=150~^\circ C)$

#### Outline



## **Absolute Maximum Ratings**

Item		Symbol	Ratings	Unit
Collector to emitter voltage		Vces	650	V
Gate to emitter voltage		Vges	±30	V
Collector current	Tc = 25°C	Ic Note1	150	A
	Tc = 100°C	Ic Note1	75	A
Junction temperature		Tj	175 <sup>NOTE1</sup>	°C

Note 1 : Please use this device in the thermal conditions where the junction temperature does not exceed 175°C. IGBT Application Note is disclosed about reliability test and application condition up to Tj=175°C.



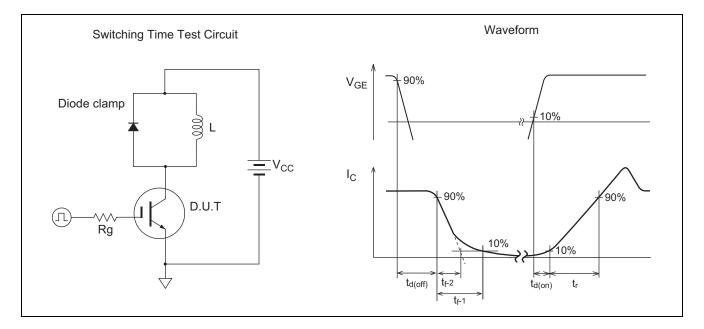
**Electrical Characteristics** (These data are actual measurement values in an evaluation package.)

				(	Tc = 25°C	C unless otherwise described )	
ltem	Symbol	Min	Тур	Max	Unit	Test Conditions	
Zero gate voltage collector current	ICES	_	_	1	μΑ	$V_{CE} = 650 \text{ V}, V_{GE} = 0$	
Gate to emitter leak current	I <sub>GES</sub>	_	_	±1	μΑ	$V_{GE} = \pm 30 \text{ V}, \text{ V}_{CE} = 0$	
Gate to emitter cutoff voltage	V <sub>GE(off)</sub>	4.5	_	6.8	V	$V_{CE} = 10 \text{ V}, \text{ Ic} = 1.5 \text{ mA}$	
Collector to emitter saturation voltage	V <sub>CE(sat)</sub>	_	1.55	2.05	V	$I_{C} = 75 \text{ A}, V_{GE} = 15 \text{ V}^{\text{Note2}}$	
Input capacitance	Cies	_	4400	_	pF	V <sub>CE</sub> = 25 V	
Output capacitance	Coes	_	180	_	pF	$V_{GE} = 0$	
Reverse transfer capacitance	Cres	—	140	_	pF	f = 1 MHz	
Total gate charge	Qg	—	250	_	nC	V <sub>GE</sub> = 15 V V <sub>CE</sub> = 400 V I <sub>C</sub> = 75 A	
Gate to emitter charge	Qge	_	40	_	nC		
Gate to collector charge	Qgc	_	130	_	nC		
Switching time Note3	t <sub>d(on)</sub>	_	25	—	ns	$V_{CC} = 400 V$ $I_C = 75A$ $V_{GE} = 15 V$ $Rg = 10 \Omega, Tj = 150 °C$ Inductive load	
	tr	—	50	—	ns		
	t <sub>d(off)</sub>	_	200	_	ns		
	t <sub>f-1</sub>	_	80	—	ns		
	t <sub>f-2</sub>	_	50	_	ns		
Short circuit withstand time Note4	tsc	5	—	—	μS	$\label{eq:VCC} \begin{array}{l} V_{CC} \leq 400 \ V \ , \ V_{GE} = 15 \ V \\ Tj = 150 \ ^{\circ}C \end{array}$	

Notes: 2. Pulse test.

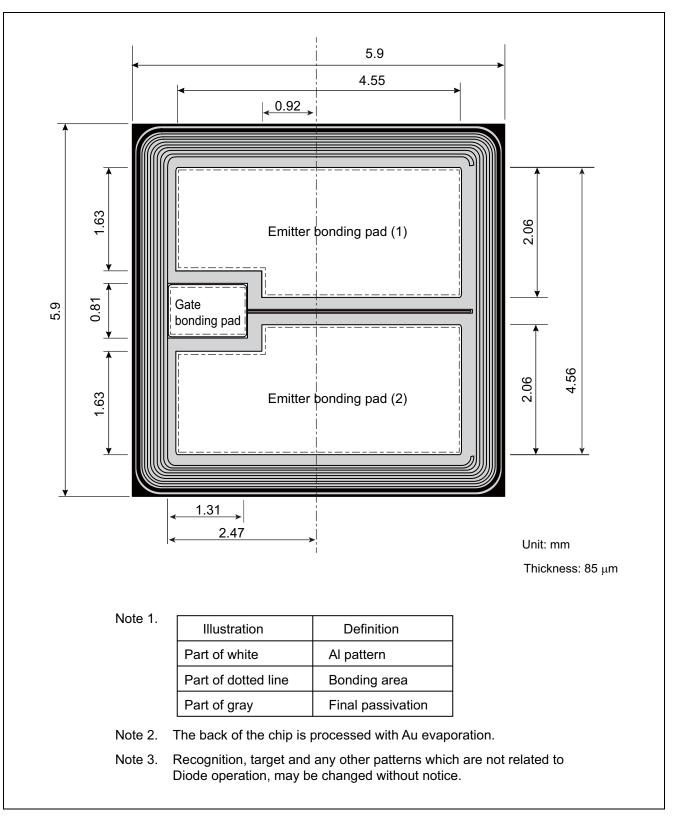
3. Switching time test circuit and symbol definitions of switching time are shown below.

4. Verified by design.





#### **Die Dimension**



## **Ordering Information**

Orderable Part Number	Shipment form			
RJP65M05DWA-80#W0	Unsawn wafer			
RJP65M05DWS-80#W0	Sawn wafer			



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