

RJP1CS04DWT/RJP1CS04DWA

1250V - 50A - IGBT

Application: Inverter

R07DS0827EJ0100

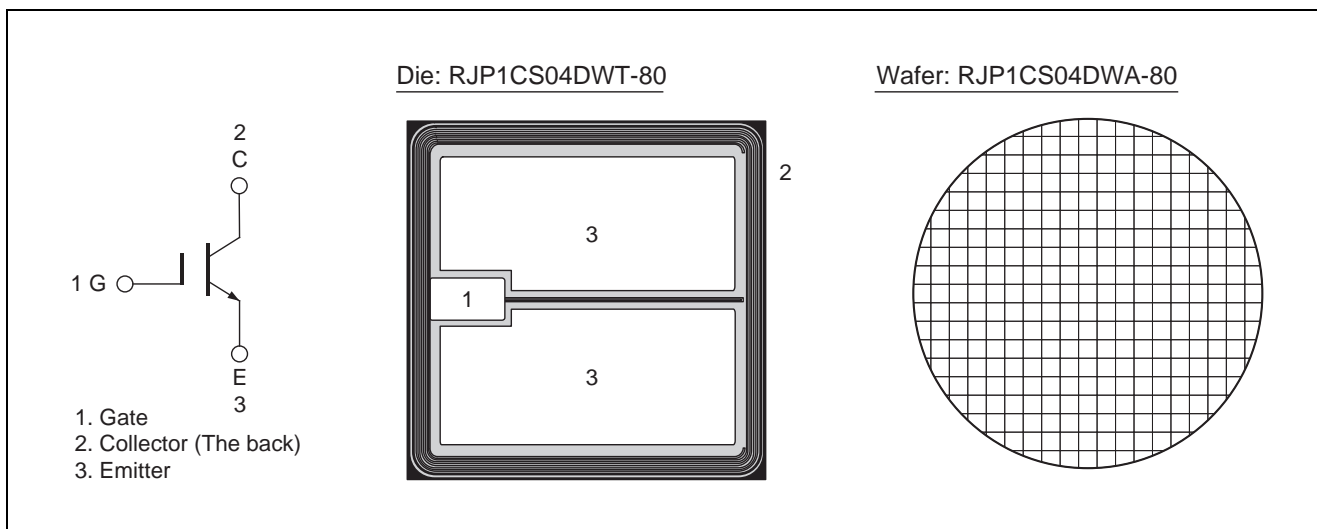
Rev.1.00

Jan 23, 2013

Features

- Low collector to emitter saturation voltage
 $V_{CE(sat)} = 1.8 \text{ V typ. (at } I_C = 50 \text{ A, } V_{GE} = 15 \text{ V, } T_a = 25^\circ\text{C)}$
- 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}	1250	V	
Gate to emitter voltage	V_{GES}	± 30	V	
Collector current	$T_c = 25^\circ\text{C}$	I_c	100	A
	$T_c = 100^\circ\text{C}$	I_c	50	A
Junction temperature	T_j	150	$^\circ\text{C}$	

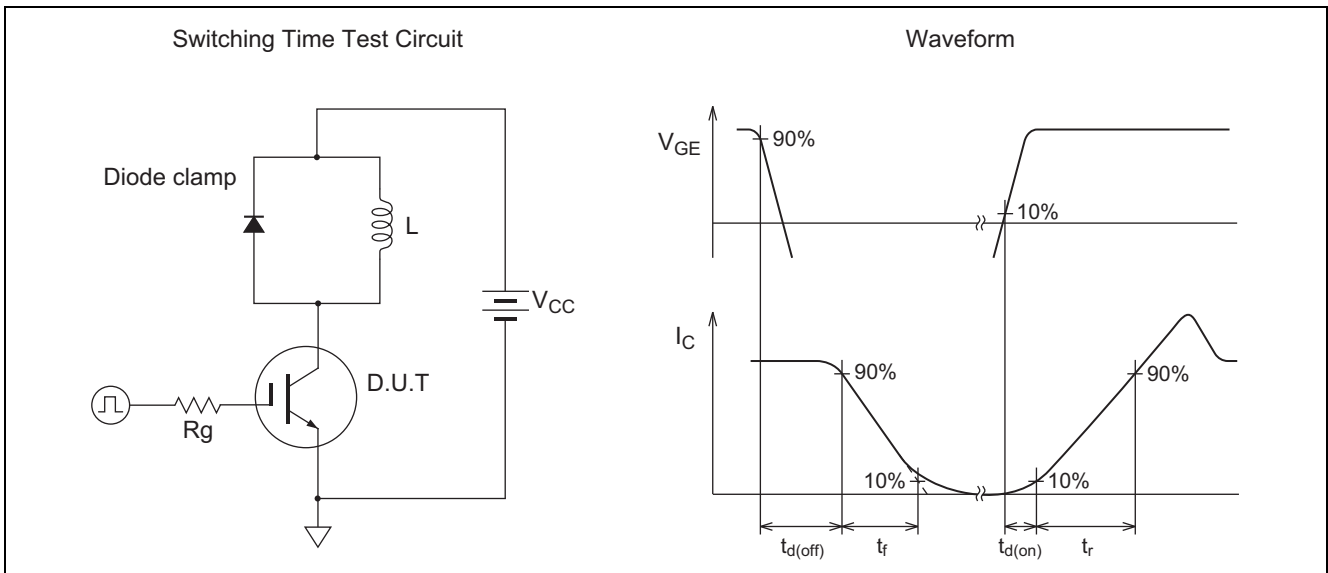
Electrical Characteristics (These data are an actual measurement value in a package.)

(Ta = 25°C)

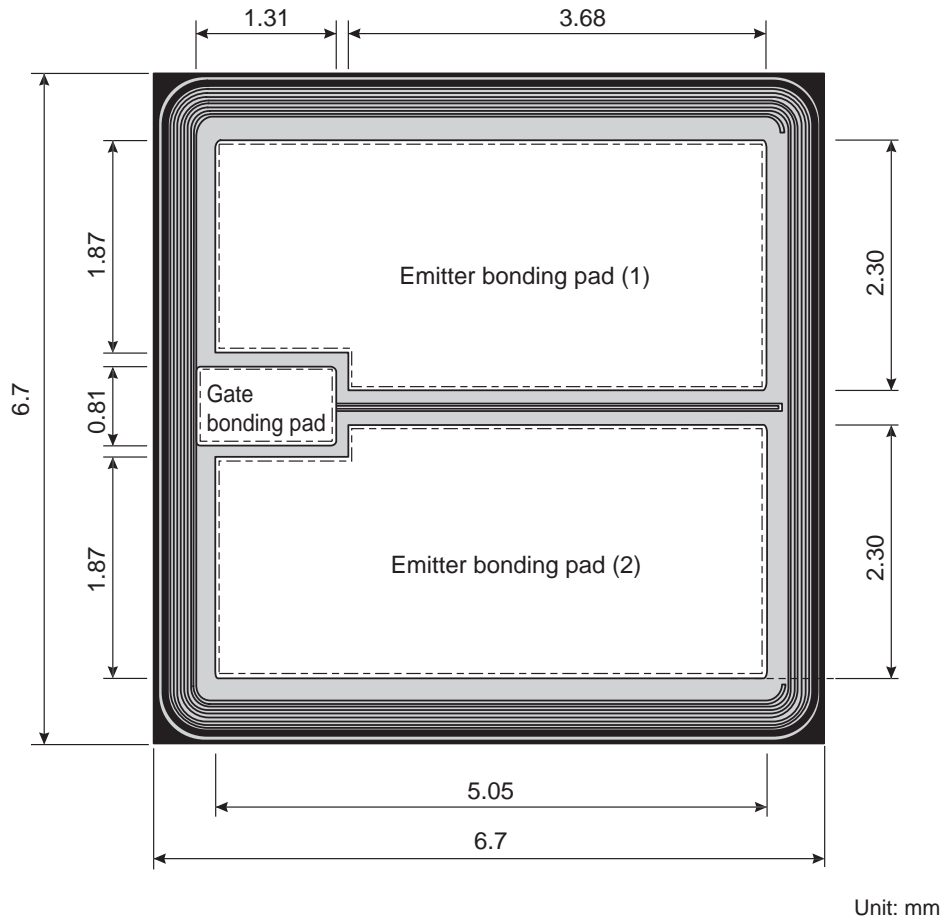
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	I_{CES}	—	—	1	μA	$V_{CE} = 1250 \text{ V}, V_{GE} = 0$
Gate to emitter leak current	I_{GES}	—	—	± 1	μA	$V_{GE} = \pm 30 \text{ V}, V_{CE} = 0$
Gate to emitter cutoff voltage	$V_{GE(off)}$	5.0	—	6.8	V	$V_{CE} = 10 \text{ V}, I_C = 1.7 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	1.80	2.25	V	$I_C = 50 \text{ A}, V_{GE} = 15 \text{ V}$ ^{Note1}
Input capacitance	C_{ies}	—	5.3	—	nF	$V_{CE} = 25 \text{ V}$
Output capacitance	C_{oes}	—	0.16	—	nF	$V_{GE} = 0$
Reveres transfer capacitance	C_{res}	—	0.12	—	nF	$f = 1 \text{ MHz}$
Switching time	$t_{d(on)}$	—	30	—	ns	$V_{CC} = 600 \text{ V}$ ^{Note2}
	t_r	—	30	—	ns	$I_C = 50 \text{ A}$
	$t_{d(off)}$	—	280	—	ns	$V_{GE} = \pm 15 \text{ V}$
	t_f	—	140	—	ns	$R_g = 10 \Omega, T_j = 125 \text{ }^\circ\text{C}$ Inductive load
Short circuit withstand time	t_{sc}	10	—	—	μs	$V_{CC} \leq 720 \text{ V}, V_{GE} = 15 \text{ V}$ $T_j = 150 \text{ }^\circ\text{C}$

Notes: 1. Pulse test.

2. 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 IGBT operation, may be changed without notice.

Ordering Information

Orderable Part Number
RJP1CS04DWA-80#W0
RJP1CS04DWT-80#X0

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