

RBN200N180S2HFWA

1800V - 400A/200A - IGBT

R07DS1453EJ0110

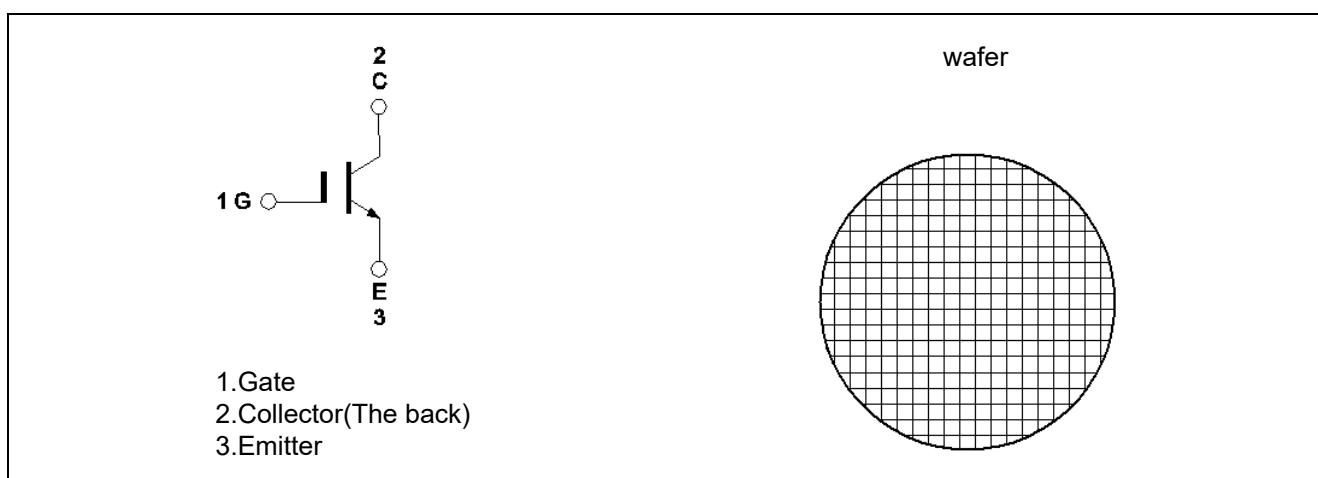
Rev.1.10

Apr 11th, 2023

Features

- Renesas generation 8th Trench IGBT
- Short circuit withstands time (10 μ s min.)
- Optimized for high power application
- Unseen wafer Wafer size = 200 mm
- Quality grade: Standard

Outline



Absolute Maximum Ratings

(T_j = 25°C unless otherwise noted)

Item		Symbol	Ratings	Unit
Collector to emitter voltage		V _{CES}	1800	V
Gate to emitter voltage		V _{GES}	±30	V
Collector current	T _c = 25°C	I _C	400 ^{Notes1}	A
	T _c = 100°C	I _C	200 ^{Notes1}	A
Junction temperature		T _j	175 ^{Notes2}	°C

Notes: 1. Depends on thermal properties of assembly.

2. Please use this device in the thermal conditions which the junction temperature does not exceed 175°C.

3. Continuous heavy condition (e.g. high temperature/voltage/current or high variation of temperature) may affect a reliability even if it is within the absolute maximum ratings. Please consider derating condition for appropriate reliability in reference Renesas Semiconductor Reliability Handbook (Recommendation for Handling and Usage of Semiconductor Devices) and individual reliability data.

Electrical Characteristics (Data below are measured values on a package configuration.)(T_j = 25 °C unless otherwise noted)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Zero gate voltage collector current	I _{CES}	—	—	4.0	μA	V _{CE} = 1800 V, V _{GE} = 0 V Notes4
Gate to emitter leak current	I _{GES}	—	—	±600	nA	V _{GE} = ±30 V, V _{CE} = 0 V Notes4
Gate to emitter threshold voltage	V _{GE(th)}	5.0	5.8	6.5	V	V _{CE} = 10 V, I _C = 8.0 mA Notes4
Collector to emitter saturation voltage	V _{CE(sat)}	—	1.60	1.90	V	I _C = 200 A, V _{GE} = 15 V Notes4, Notes5
Input capacitance	C _{ies}	—	16500	—	pF	V _{CE} = 25 V V _{GE} = 0 V f = 1 MHz Notes6
Output capacitance	C _{oes}	—	600	—	pF	
Reverse transfer capacitance	C _{res}	—	250	—	pF	
Short circuit withstand time	t _{sc}	10	—	—	μs	V _{CC} = 900 V, V _{GE} = 15 V T _j ≤ 150 °C Notes6
Short circuit collector saturation current	I _{C,sc}	600	—	—	A	V _{CC} = 900 V, V _{GE} = 15 V T _j ≤ 150 °C Notes6
Reverse bias safe operating area (RBSOA)	I _{C,max}	400	—	—	A	V _{CE,max} = 1700 V, T _j ≤ 175 °C Notes6
Chip gate resistor	R _{g_chip}	—	5	—	Ω	Notes6

Notes: 4. Tested on wafer.

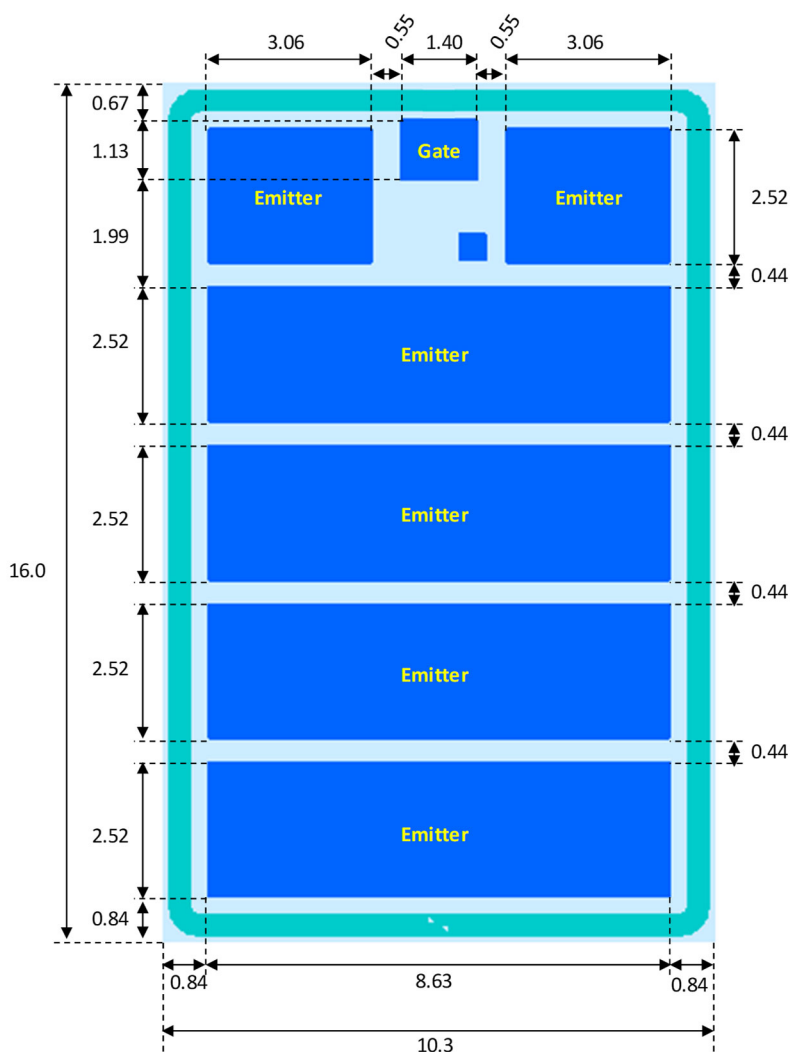
5. Pulse test.

6. Designed target value on Renesas measurement condition. (Not tested)

7. Characteristic items prescribed in this document will guarantee the electrical characteristics in chip state but not the characteristic fluctuations or characteristic defects that occur in the processes after assembling.

8. Switching characteristics is depending strongly on module design and mounting technology and can therefore not be specified for a bare die.

Die Dimension



Unit: mm

Ordering Information

Please contact your Renesas sales representative for sample requests.

Delivery form	Ordering Part Number	Ordering quantity unit
Unsawn wafer	RBN200N180S2HFWA-850#FF0	740 (5wafers)
Unsawn wafer	RBN200N180S2HFWA-8F0#FF0	3700 (25wafers)

Note. The order quantities indicate the maximum quantity of chips for each part number, and the actual quantity of chips shipped will be reduced due to yield. There is also a possibility that the number of wafers may decrease during the manufacturing process. The quantity shipped will be indicated on the label as the number of good chips.

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