

|           |     |   |
|-----------|-----|---|
| $V_R$     | 65  | V |
| $I_o$     | 20  | A |
| $I_{FSM}$ | 100 | A |

### ● Features

- High reliability
- Power mold type
- Cathode common dual type
- Low  $I_R$

### ● Application

- Switching power supply

### ● Structure

- Silicon epitaxial planar

### ● Absolute Maximum Ratings ( $T_c=25^\circ\text{C}$ unless otherwise specified)

| Parameter                           | Symbol    | Conditions   | Limits    | Unit             |
|-------------------------------------|-----------|--|-----------|------------------|
| Repetitive peak reverse voltage     | $V_{RM}$  | Duty $\leq 0.5$  | 65        | V                |
| Reverse voltage                     | $V_R$     | Reverse direct voltage   | 65        | V                |
| Average rectified forward current   | $I_o$     | 60Hz half sin waveform, resistive load, $I_o/2$ per diode, $T_c=115^\circ\text{CMax.}$ | 20        | A                |
| Peak forward surge current          | $I_{FSM}$ | 60Hz half sin waveform, non-repetitive, per diode, $T_a=25^\circ\text{C}$              | 100       | A                |
| Junction temperature <sup>(1)</sup> | $T_j$     | -  | 150       | $^\circ\text{C}$ |
| Storage temperature                 | $T_{stg}$ | -  | -55 ~ 150 | $^\circ\text{C}$ |

Note(1) To avoid occurrence of thermal runaway, actual board is to be designed to fulfill  $dP_j/dT_j < 1/R_{\theta JA}$ .

### Attention

Compared with PN junction diodes, Schottky Barrier Diode is generally high reverse current ( $I_R$ ). The reverse loss of the diode might increase as temperature increasing that causes heat-up and further  $I_R$ . This phenomenon might end up the thermal destruction(thermal runaway). Therefore please give consideration to the reverse loss and the ambient temperature when using this product.

### ● Outline



### ● Inner Circuit



### ● Packaging Specifications

| Packing          | Embossed Tape |
|------------------|---------------|
| Reel Size(mm)    | 330           |
| Taping Width(mm) | 24            |
| Quantity(pcs)    | 1000          |
| Taping Code      | TL            |
| Marking          | BQ20NS65A     |

● Electrical Characteristics (T<sub>j</sub>=25°C unless otherwise specified)

| Parameter                      | Symbol          | Conditions          | Min. | Typ. | Max. | Unit |
|--------------------------------|-----------------|---------------------|------|------|------|------|
| Forward voltage <sup>(1)</sup> | V <sub>F</sub>  | I <sub>F</sub> =10A | -    | 0.61 | 0.69 | V    |
| Reverse current <sup>(1)</sup> | I <sub>R1</sub> | V <sub>R</sub> =60V | -    | 20   | 80   | μA   |
|                                | I <sub>R2</sub> | V <sub>R</sub> =65V | -    | 30   | 140  | μA   |

Note (1) Value per diode

● Thermal Characteristics

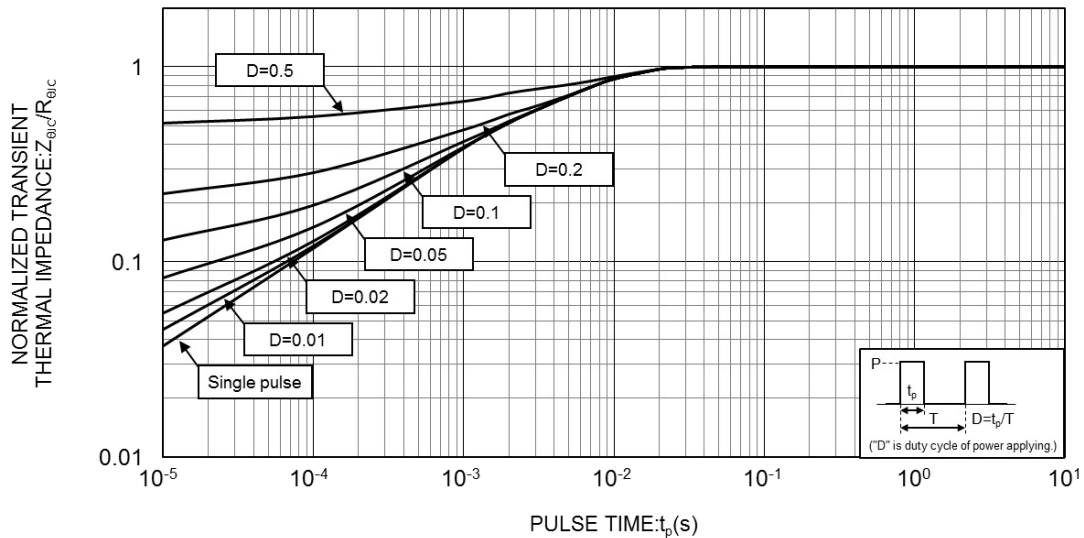
| Parameter   | Symbol           | Min.       | Typ. | Max. | Unit     |
|---|------------------|------------|------|------|----------|
| Thermal Resistance (Junction to case) <sup>(1) (2)</sup>    | R <sub>θJC</sub> | Per diode  | -    | -    | 1.6 °C/W |
|   |                  | Per device | -    | -    | 1.0 °C/W |
| Thermal Resistance (Junction to ambient) <sup>(1) (3)</sup> | R <sub>θJA</sub> | -          | -    | 55   | °C/W     |

Notes (1) Value is guaranteed by design.

(2) Transient dual interface measurement (TDIM) method.

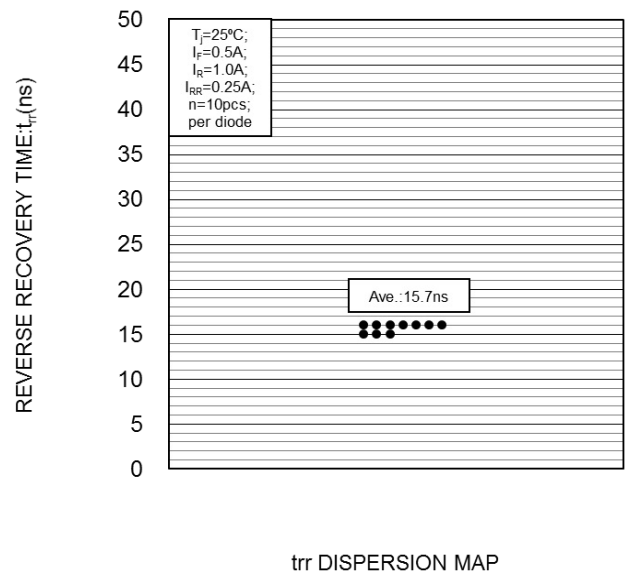
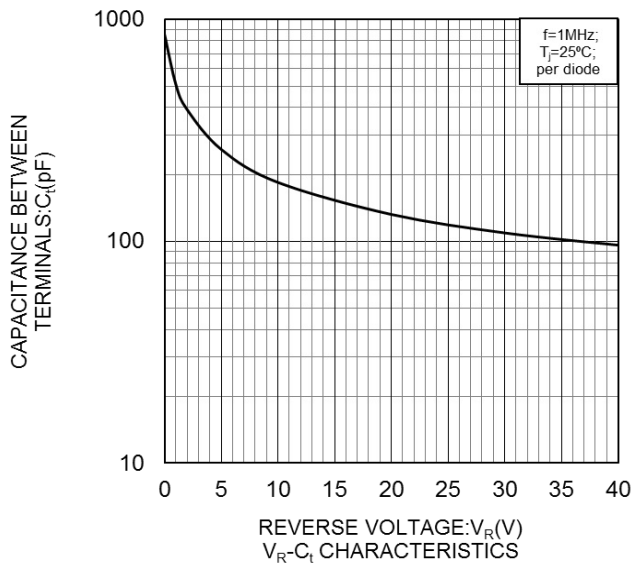
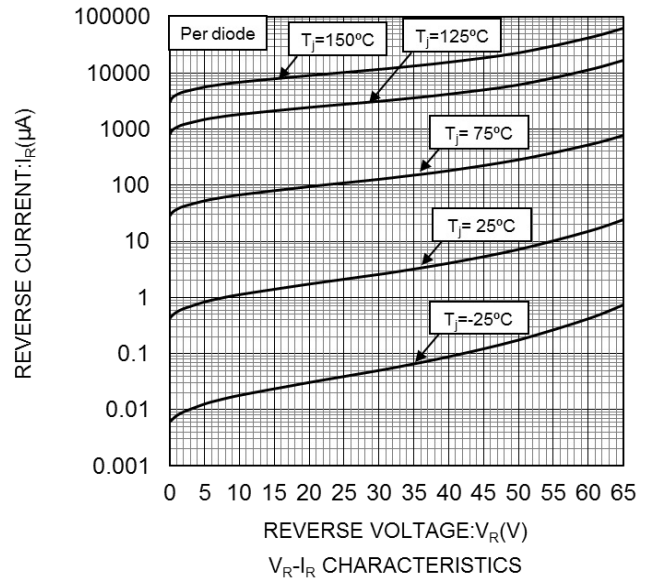
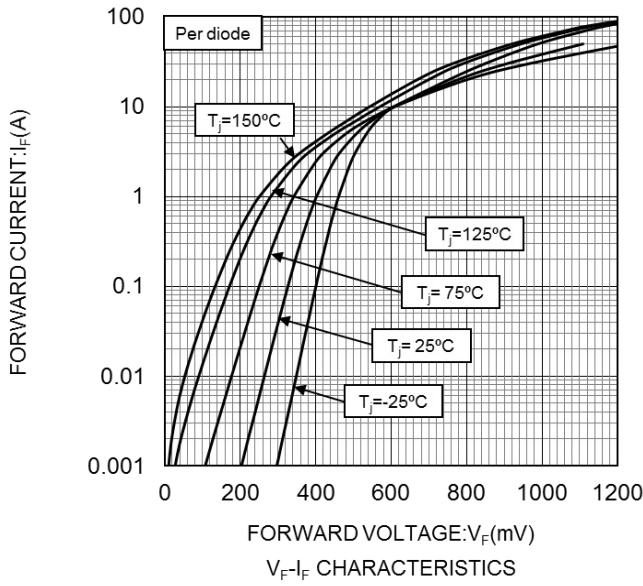
(3) Mounted on 50 x 50 x 1.6mm FR4 board, single-sided copper, 35μm thickness, reference footprint.

● Characteristic Curves

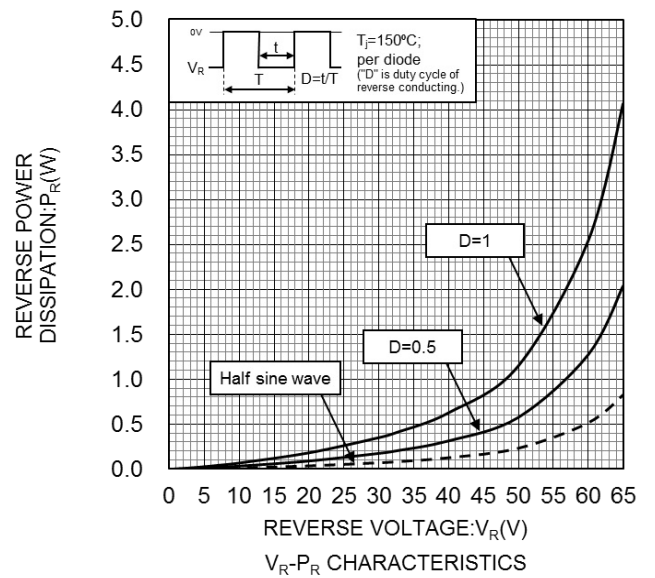
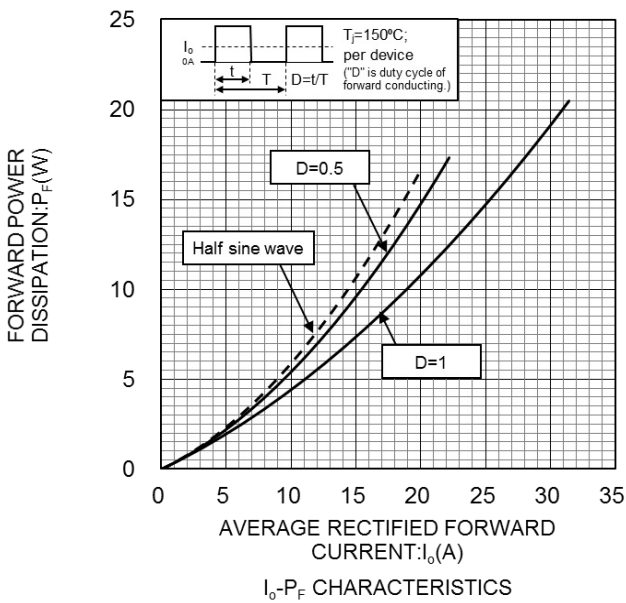
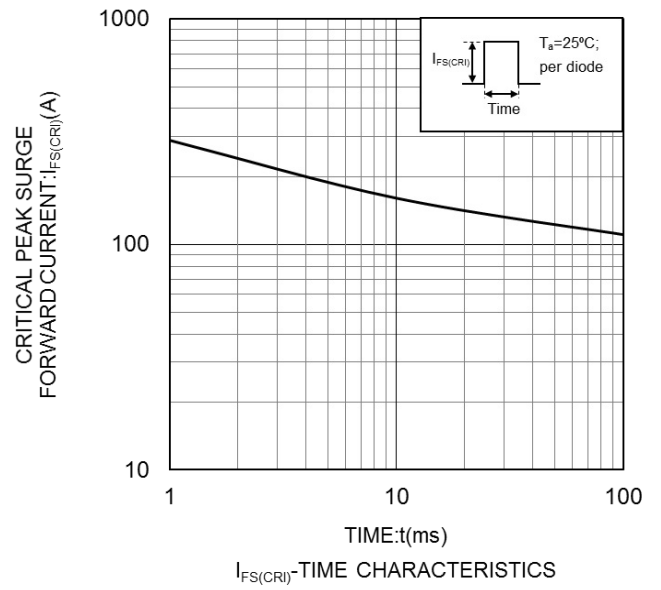
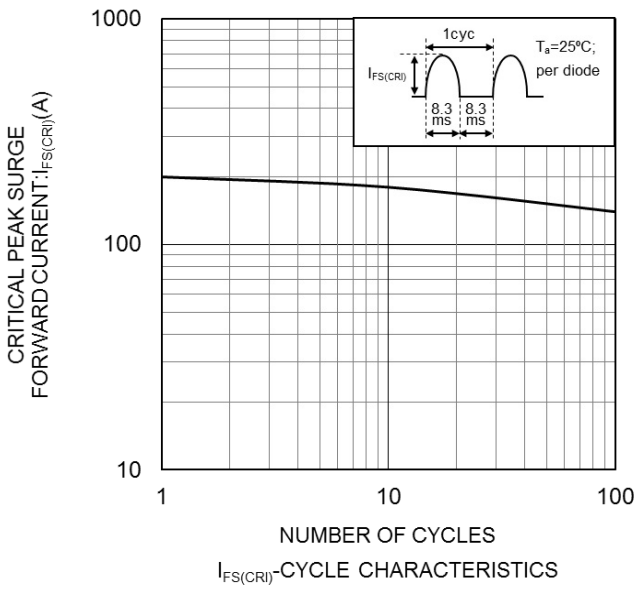


NORMALIZED TRANSIENT THERMAL IMPEDANCE FROM JUNCTION TO CASE (PER DEVICE)

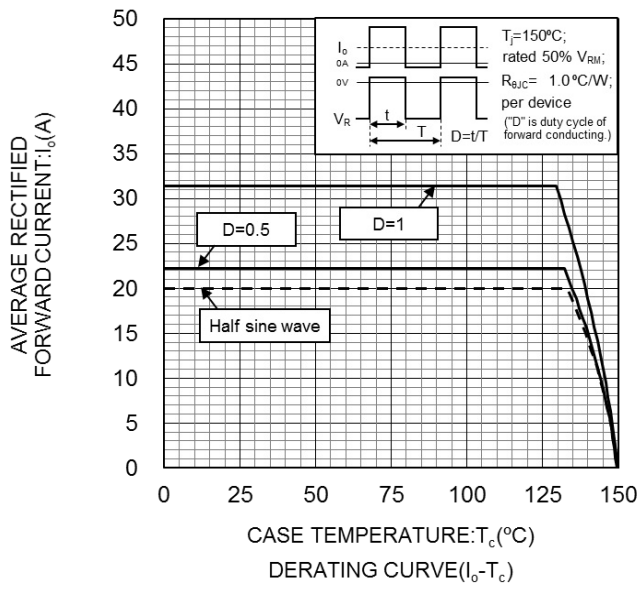
● Characteristic Curves



● Characteristic Curves



● Characteristic Curves



● Dimensions

TO-263S, [SC-83], (TO-263S)

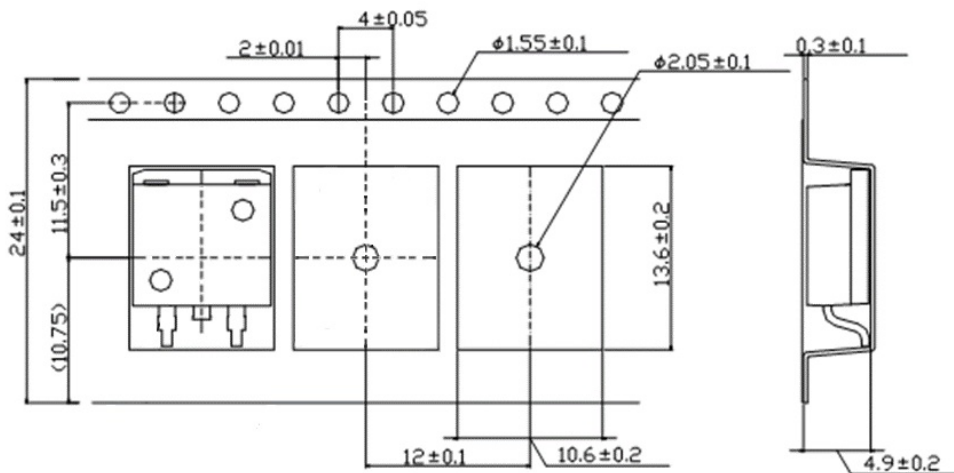


| DIM | Millimeters |         |       | Inches |         |       |
|-----|-------------|---------|-------|--------|---------|-------|
|     | Min.        | Average | Max.  | Min.   | Average | Max.  |
| A   | 4.30        | 4.50    | 4.70  | 0.169  | 0.177   | 0.185 |
| A1  | 0.00        | -       | 0.30  | 0.000  | -       | 0.012 |
| A2  | 2.50        | 2.70    | 2.90  | 0.098  | 0.106   | 0.114 |
| b   | 0.75        | 0.76    | 0.78  | 0.030  | 0.030   | 0.031 |
| b2  | 1.21        | 1.22    | 1.24  | 0.048  | 0.048   | 0.049 |
| b6  | -           | 1.30    | -     | -      | 0.051   | -     |
| c   | 0.52        | 0.62    | 0.82  | 0.020  | 0.024   | 0.032 |
| c2  | 1.10        | 1.30    | 1.50  | 0.043  | 0.051   | 0.059 |
| D   | 8.80        | 9.00    | 9.20  | 0.346  | 0.354   | 0.362 |
| D1  | -           | 7.25    | -     | -      | 0.285   | -     |
| E   | 9.80        | 10.10   | 10.40 | 0.386  | 0.398   | 0.409 |
| E1  | -           | 8.90    | -     | -      | 0.350   | -     |
| e   | -           | 2.54    | -     | -      | 0.100   | -     |
| H   | 12.80       | 13.10   | 13.40 | 0.504  | 0.516   | 0.528 |
| L   | -           | 1.20    | -     | -      | 0.047   | -     |
| L1  | -           | 1.10    | -     | -      | 0.043   | -     |
| L2  | 0.70        | 1.00    | 1.30  | 0.028  | 0.039   | 0.051 |
| L3  | 2.70        | 3.00    | 3.30  | 0.106  | 0.118   | 0.130 |

| DIM | Millimeters |         |      | Inches |         |      |
|-----|-------------|---------|------|--------|---------|------|
|     | Min.        | Average | Max. | Min.   | Average | Max. |
| b3  | -           | 2.50    | -    | -      | 0.098   | -    |
| b4  | -           | 9.90    | -    | -      | 0.390   | -    |
| b5  | -           | 11.00   | -    | -      | 0.433   | -    |
| I1  | -           | 2.50    | -    | -      | 0.098   | -    |
| I2  | -           | 8.50    | -    | -      | 0.335   | -    |
| I3  | -           | 14.00   | -    | -      | 0.551   | -    |
| I4  | -           | 2.50    | -    | -      | 0.098   | -    |

● Taping (Unit:mm)



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| JAPAN     | USA       | EU         | CHINA     |
|-----------|-----------|------------|-----------|
| CLASS III | CLASS III | CLASS II b | CLASS III |
| CLASS IV  |           | CLASS III  |           |

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  - Use of the Products in places subject to dew condensation
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- Confirm that operation temperature is within the specified range described in the product specification.
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  - [b] the temperature or humidity exceeds those recommended by ROHM
  - [c] the Products are exposed to direct sunshine or condensation
  - [d] the Products are exposed to high Electrostatic
2. Even under ROHM recommended storage condition, solderability of products out of recommended storage time period may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is exceeding the recommended storage time period.
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4. Use Products within the specified time after opening a humidity barrier bag. Baking is required before using Products of which storage time is exceeding the recommended storage time period.

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