

## DUAL COMMON CATHODE SCHOTTKY RECTIFIER

### Features

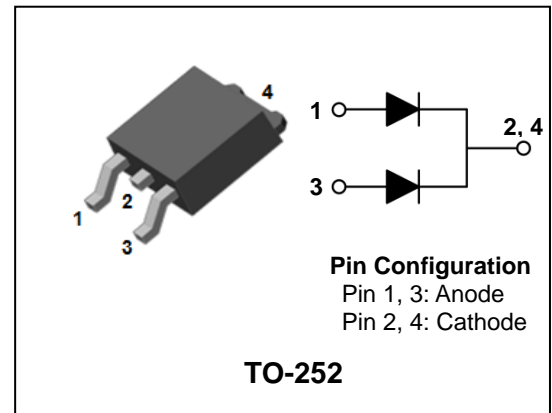
- Low forward voltage drop and leakage current
- Low power loss and High efficiency
- High surge capability
- Dual common cathode rectifier
- Halogen-free component and RoHS compliant device

### Applications

- Power supply - Output rectification
- Converter
- Free-wheeling diode
- Reverse battery protection
- Power inverters

### Description

The SDB20100DI has two schottky barriers arranged in a common cathode configuration. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.



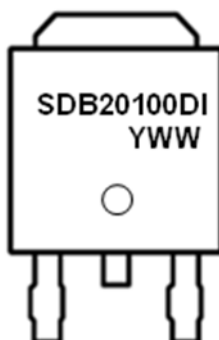
### Product Characteristics

|                   |         |
|-------------------|---------|
| $I_{F(AV)}$       | 2 x 10A |
| $V_{RRM}$         | 100V    |
| $V_{FM}$ at 125°C | 0.72V   |
| $I_{FSM}$         | 120A    |

### Ordering Information

| Device     | Marking Code | Package | Packaging   |
|------------|--------------|---------|-------------|
| SDB20100DI | SDB20100DI   | TO-252  | Tape & Reel |

### Marking Information



SDB20100DI = Specific Device Code

YWW = Year & Week Code Marking

- . Y = Year Code

- . WW = Week Code

## Absolute Maximum Ratings (Limiting Values)

| Characteristic  | Symbol                          | Value           | Unit |
|---|---------------------------------|-----------------|------|
| Maximum repetitive reverse voltage<br>Maximum working peak reverse voltage<br>Maximum DC blocking voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 100             | V    |
| Maximum average forward rectified current   | per diode                       | 10              | A    |
|   | total device                    | 20              |      |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per diode               | $I_{FSM}$                       | 120             | A    |
| Storage temperature range   | $T_{stg}$                       | -45°C to +150°C | °C   |
| Maximum operating junction temperature  | $T_J$                           | 150             | °C   |

## Thermal Characteristics

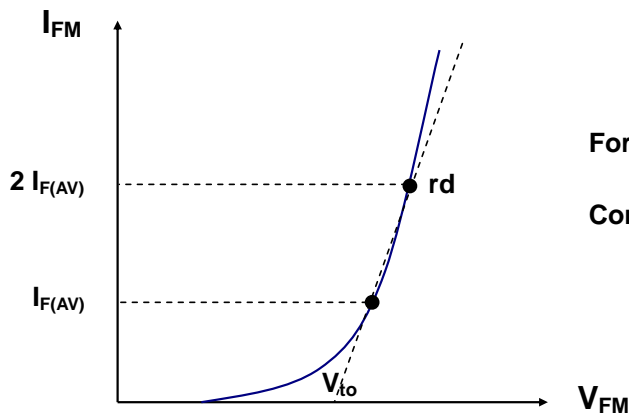
| Characteristic                              | Symbol       | Value | Unit |
|---|--------------|-------|------|
| Maximum thermal resistance junction to case | per diode    | 4.0   | °C/W |
|   | total device | 3.6   |      |

## Electrical Characteristics

| Characteristic            | Symbol         | Test Condition           | Min.                | Typ. | Max. | Unit |    |
|---------------------------|----------------|--------------------------|---------------------|------|------|------|----|
| Peak forward voltage drop | $V_{FM}^{(1)}$ | $I_{FM} = 10A$           | $T_j = 25^\circ C$  | -    | -    | 0.85 | V  |
|                           |                |                          | $T_j = 125^\circ C$ | -    | -    | 0.72 | V  |
| Reverse leakage current   | $I_{RM}^{(1)}$ | $V_R = V_{RRM}$          | $T_j = 25^\circ C$  | -    | -    | 20   | uA |
|                           |                |                          | $T_j = 125^\circ C$ | -    | -    | 20   | mA |
| Junction capacitance      | $C_j$          | $V_R = 10V_{DC}, f=1MHz$ | -                   | 150  | -    | pF   |    |

**Note :** (1) Pulse test :  $t_p \leq 380 \mu s$ , Duty cycle  $\leq 2\%$

To evaluate the conduction losses use the following equation:  $P_F = 0.62 I_{F(AV)} + 0.042 I_{F(RMS)}^2$



**Forward Voltage :**  $V_{FM} = V_{to} + rd I_{FM}$

**Conduction Loss :**  $P_F = V_{to} I_{F(AV)} + rd I_{F(RMS)}^2$

## Rating and Characteristic Curves

Fig. 1) Typical Forward Characteristics (Per Diode)

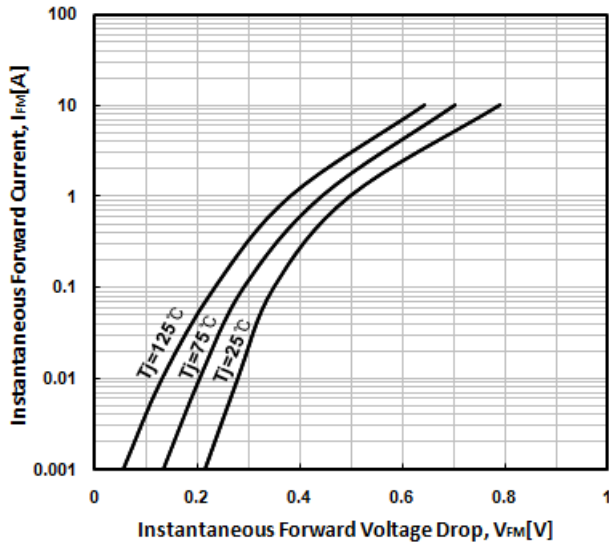


Fig. 2) Typical Reverse Characteristics (Per Diode)

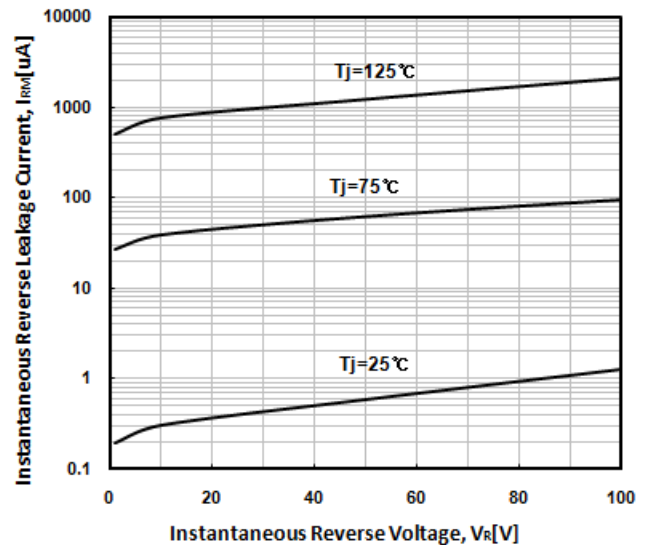


Fig. 3) Maximum Forward Derivative Curve

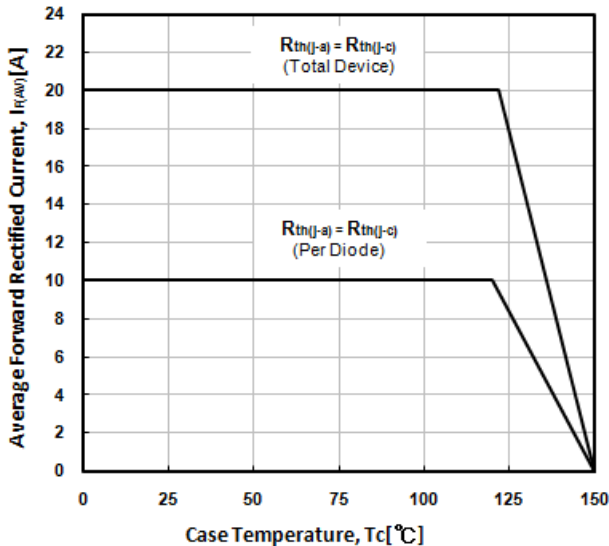


Fig. 4) Forward Power Dissipation (Per Diode)

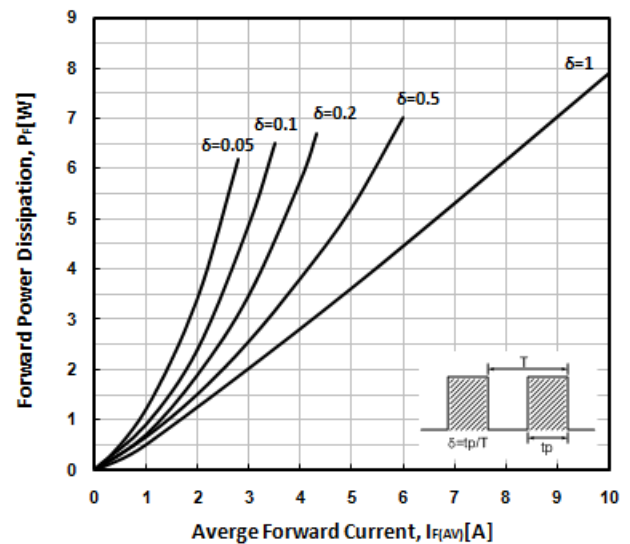


Fig. 5) Maximum Non-Repetitive Peak Forward Surge Current (Per Diode)

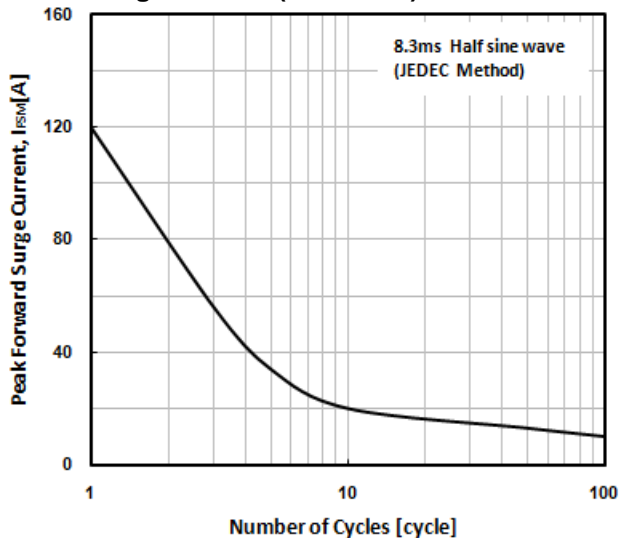
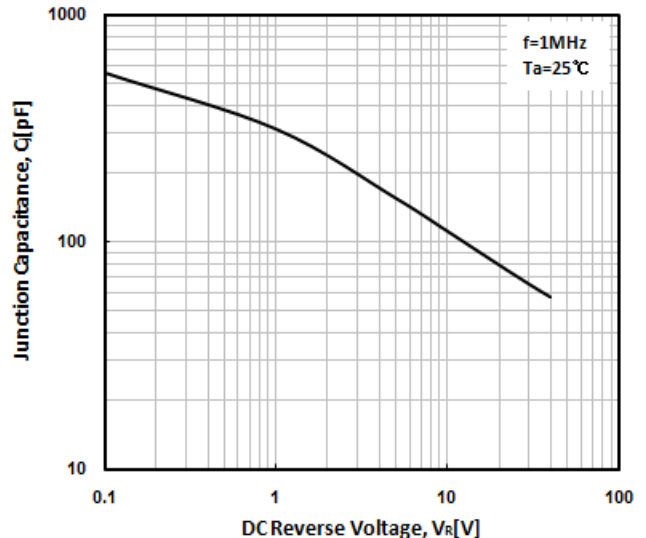
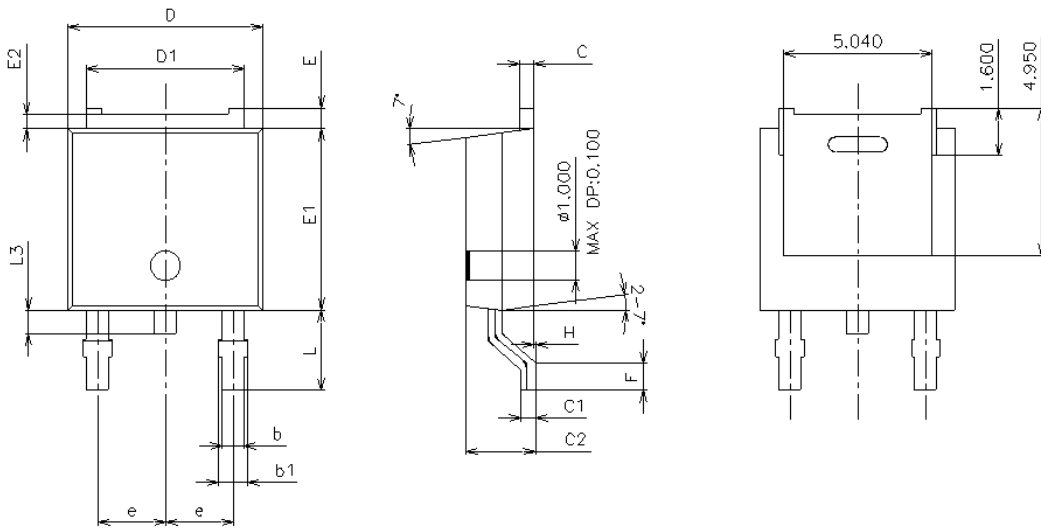


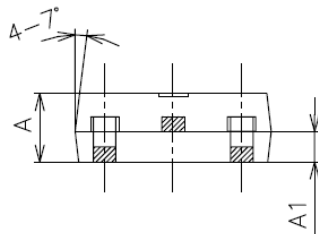
Fig. 6) Typical Junction Capacitance (Per Diode)



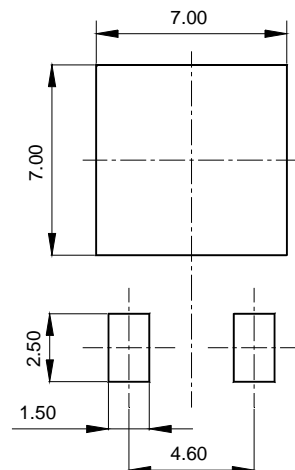
## Package Outline Dimension



| SYMBOL | MILLIMETERS |         |         | NOTE |
|--------|-------------|---------|---------|------|
|        | MINIMUM     | NOMINAL | MAXIMUM |      |
| D      | 6.40        | 6.60    | 6.80    |      |
| D1     | 5.14        | 5.34    | 5.54    |      |
| E      | 0.50        | 0.70    | 0.90    |      |
| E1     | 5.90        | 6.10    | 6.30    |      |
| E2     | 0.50 TYP    |         |         |      |
| A      | 2.20        | 2.30    | 2.40    |      |
| A1     | 0.87        | 1.07    | 1.27    |      |
| C      | 0.40        | 0.50    | 0.60    |      |
| C1     | 0.40        | 0.50    | 0.60    |      |
| C2     | 2.10        | 2.30    | 2.50    |      |
| L      | 2.50        | 2.70    | 2.90    |      |
| L3     | 0.60        | 0.80    | 1.00    |      |
| b      | 0.66        | 0.76    | 0.86    |      |
| b1     | 0.96 MAX    |         |         |      |
| e      | 2.10        | 2.30    | 2.50    |      |
| F      | 0.80 MIN    |         |         |      |
| H      | 0.00        | -       | 0.10    |      |



### ※ Recommended Land Pattern [unit: mm]



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