

## DUAL COMMON CATHODE SCHOTTKY RECTIFIER

### Features

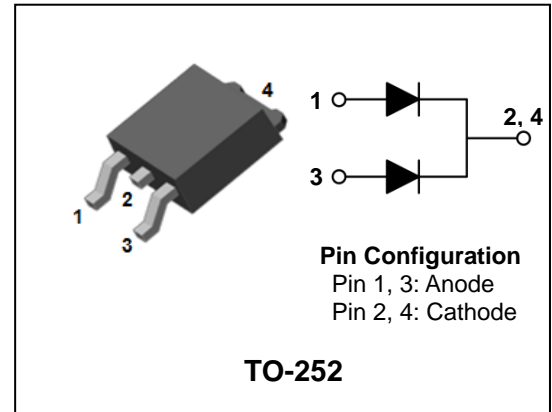
- Low forward voltage drop and leakage current
- Low power loss and High efficiency
- High surge capability
- Dual common cathode rectifier
- Halogen-free device and RoHS compliant device

### Applications

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

### Description

The SDB10200DI 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.



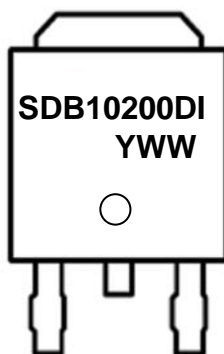
### Product Characteristics

|                   |              |
|-------------------|--------------|
| $I_{F(AV)}$       | 2 X 5A       |
| $V_{RRM}$         | 200V         |
| $V_{FM}$ at 125°C | 0.72V (Typ.) |
| $I_{FSM}$         | 120A         |

### Ordering Information

| Device     | Marking Code | Package | Packaging   |
|------------|--------------|---------|-------------|
| SDB10200DI | SDB10200DI   | TO-252  | Tape & Reel |

### Marking Information



SDB10200DI = 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>$V_R$ | 200             | V    |
| Maximum average forward rectified current   | per diode                       | 5               | A    |
|   | total device                    | 10              |      |
| 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

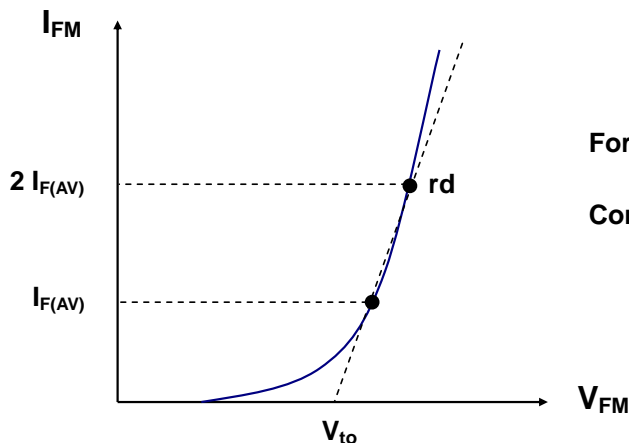
| Characteristic                              | Symbol       | Value | Unit |
|---|--------------|-------|------|
| Maximum thermal resistance junction to case | per diode    | 6.0   | °C/W |
|   | total device | 5.6   |      |

## Electrical Characteristics (Per Diode)

| Characteristic            | Symbol         | Test Condition          | Min.                | Typ. | Max. | Unit |    |
|---------------------------|----------------|-------------------------|---------------------|------|------|------|----|
| Peak forward voltage drop | $V_{FM}^{(1)}$ | $I_{FM} = 5A$           | $T_j = 25^\circ C$  | -    | 0.85 | 0.95 | V  |
|                           |                |                         | $T_j = 125^\circ C$ | -    | 0.72 | 0.76 | V  |
| Reverse leakage current   | $I_{RM}^{(1)}$ | $V_R = V_{RRM}$         | $T_j = 25^\circ C$  | -    | -    | 10   | uA |
|                           |                |                         | $T_j = 125^\circ C$ | -    | -    | 10   | mA |
| Junction capacitance      | $C_j$          | $V_R = 1V_{DC}, f=1MHz$ | -                   | 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:  $P_F = 0.68 I_{F(AV)} + 0.032 I_{F(RMS)}^2$

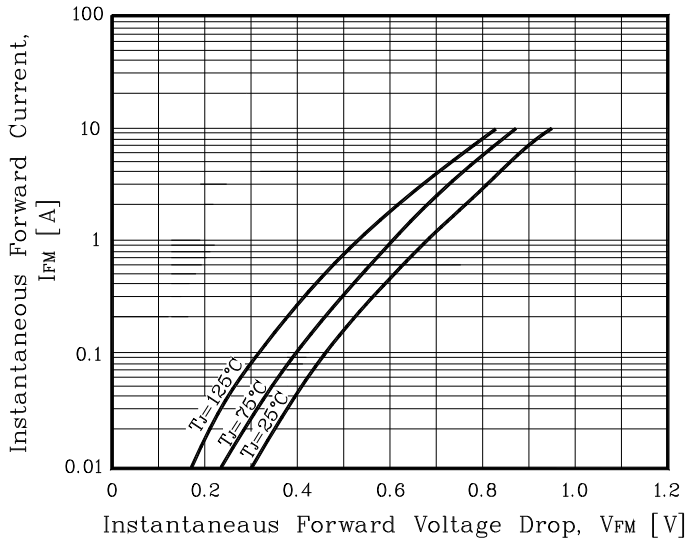


**Forward Voltage :**  $V_{FM} = V_{to} + rd I_{FM}$

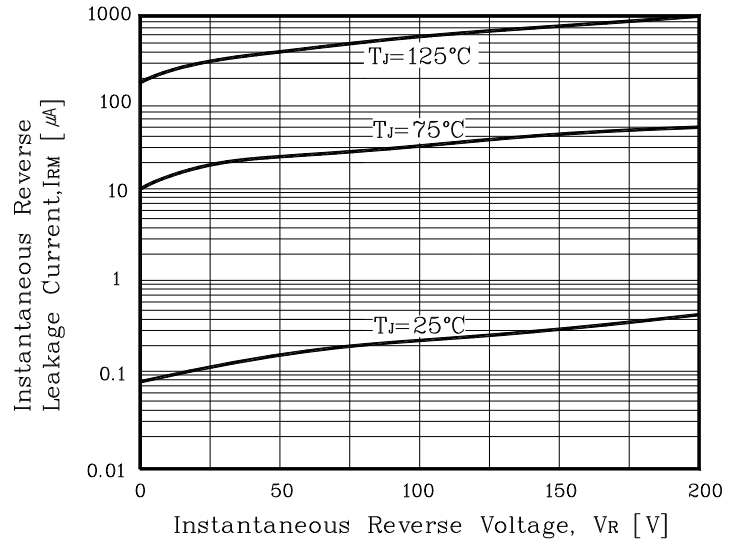
**Conduction Loss :**  $P_F = V_{to} I_{F(AV)} + rd I_{F(RMS)}^2$

## Rating and Characteristic Curves

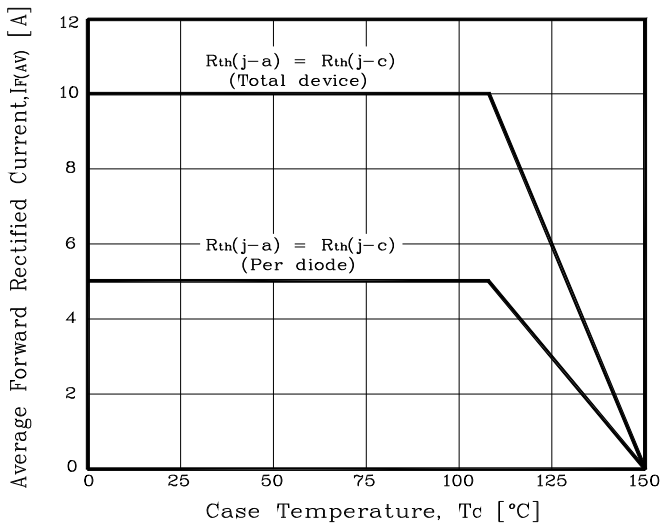
**Fig. 1) Typical Forward Characteristics (Per diode)**



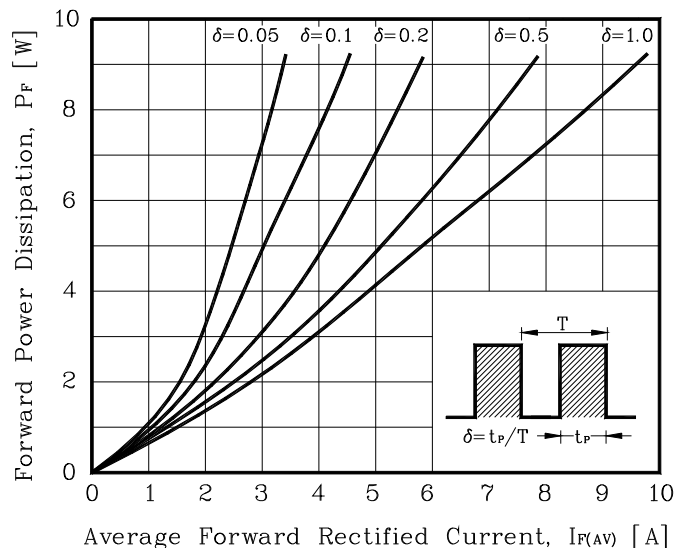
**Fig. 2) Typical Reverse Characteristics (Per diode)**



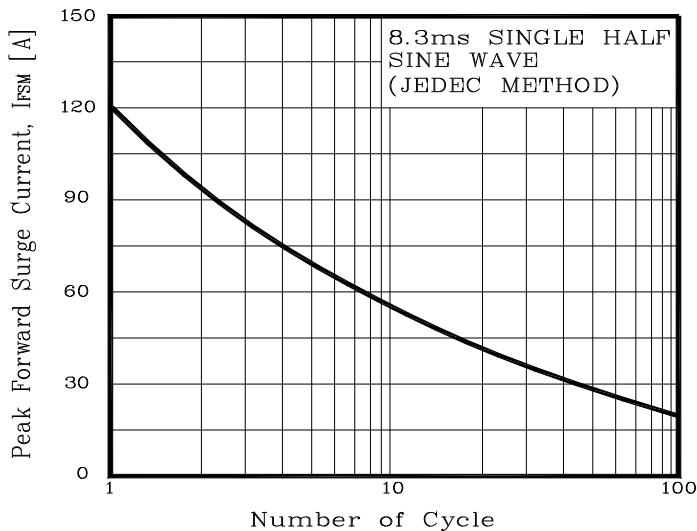
**Fig. 3) Maximum Forward Derivative Curve**



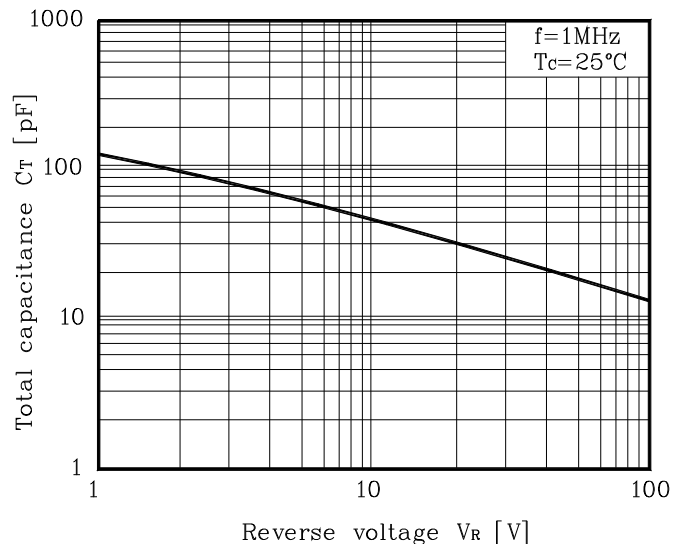
**Fig. 4) Forward Power Dissipation (Per diode)**



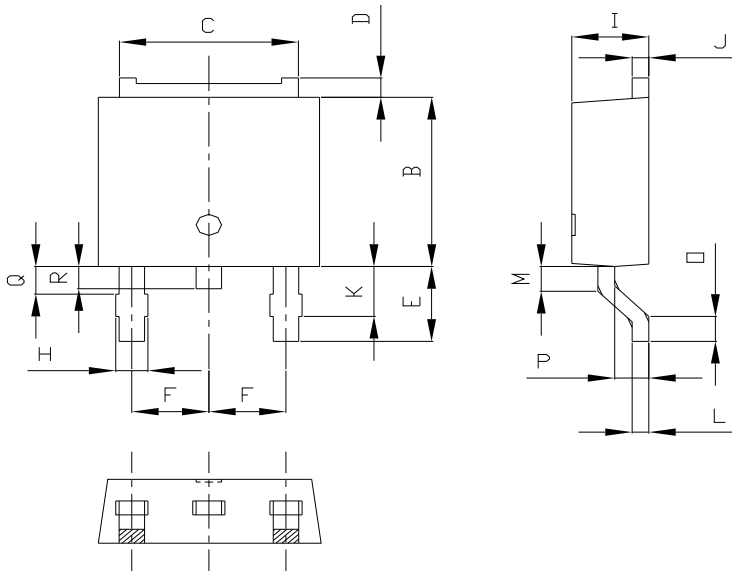
**Fig. 5) Maximum Non-Repetitive Peak Forward Surge Current (Per diode)**



**Fig. 6) Typical Junction Capacitance (Per diode)**

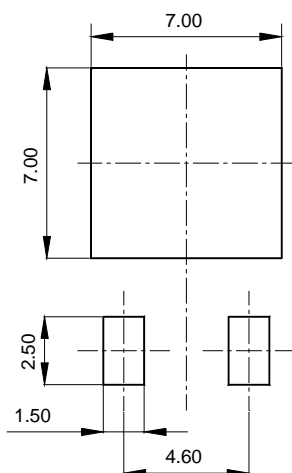


## Package Outline Dimension



| SYMBOL | MILLIMETERS |         |         | NOTE |
|--------|-------------|---------|---------|------|
|        | MINIMUM     | NOMINAL | MAXIMUM |      |
| A      | 6.40        | 6.60    | 6.80    |      |
| B      | 5.90        | 6.10    | 6.30    |      |
| C      | 5.04        | 5.34    | 5.64    |      |
| D      | 0.50        | 0.70    | 0.90    |      |
| E      | 2.50        | 2.70    | 2.90    |      |
| F      | 2.10        | 2.30    | 2.50    |      |
| H      | 0.96 MAX    |         |         |      |
| I      | 2.20        | 2.30    | 2.40    |      |
| J      | 0.40        | 0.50    | 0.60    |      |
| K      | 1.60        | 1.80    | 2.00    |      |
| L      | 0.40        | 0.50    | 0.60    |      |
| M      | 0.81        | 0.91    | 1.01    |      |
| O      | 0.80        | 0.90    | 1.00    |      |
| P      | 0.90        | 1.00    | 1.10    |      |
| Q      | 0.95 MAX    |         |         |      |
| R      | 0.60        | 0.80    | 1.00    |      |

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



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