

## DUAL COMMON CATHODE SCHOTTKY RECTIFIER

### Features

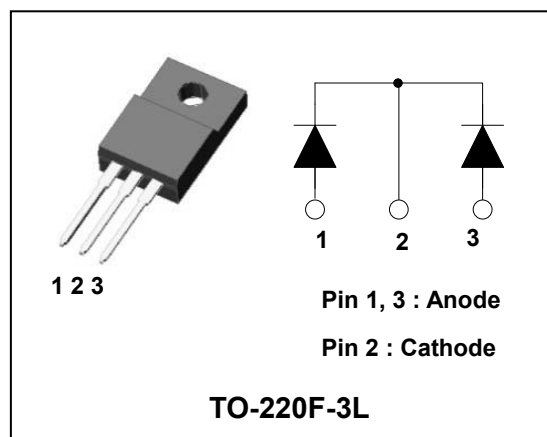
- Low forward voltage drop and leakage current
- Low power loss and High efficiency
- High surge capacity
- Dual common cathode rectifier
- Full lead (Pb)-free and RoHS compliant device

### Applications

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

### Description

The SDB2080PI 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.



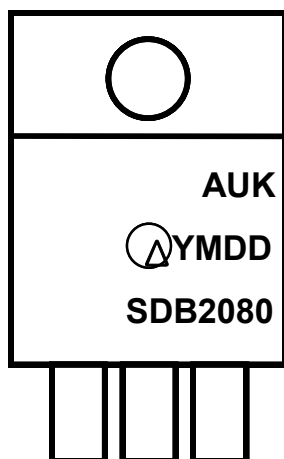
### Product Characteristics

|                   |              |
|-------------------|--------------|
| $I_{F(AV)}$       | 2 X 10A      |
| $V_{RRM}$         | 80V          |
| $V_{FM}$ at 125°C | 0.65V (Typ.) |
| $I_{FSM}$         | 150A         |

### Ordering Information

| Device    | Marking Code | Package    | Packaging |
|-----------|--------------|------------|-----------|
| SDB2080PI | SDB2080      | TO-220F-3L | Tube      |

### Marking Information



**AUK = Manufacture Logo**

**Δ = Control Code of Manufacture**

**YMDD = Date Code Marking**

- Y = Year Code

- M = Monthly Code

- D = Daily Code

**SDB2080 = Specific Device Code**

## Absolute Maximum Ratings (Limiting Values, Per diode)

| 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>$V_R$ | 80              | V    |
| Maximum average forward rectified current                                                                 | per diode    | $I_{F(AV)}$                     | 10              | A    |
|                                                                                                           | total device |                                 | 20              |      |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per diode               |              | $I_{FSM}$                       | 150             | A    |
| Storage temperature range                                                                                 |              | $T_{stg}$                       | -45°C to +150°C | °C   |
| Maximum operating junction temperature                                                                    |              | $T_j$                           | 150             | °C   |

## Thermal Characteristics

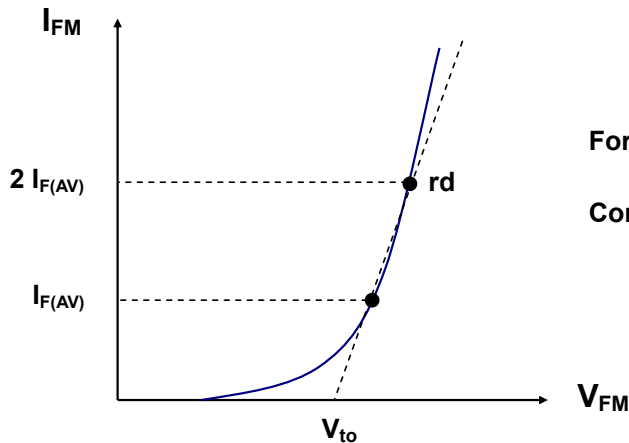
| Characteristic                              |              | Symbol        | Value | Unit |
|---------------------------------------------|--------------|---------------|-------|------|
| Maximum thermal resistance junction to case | per diode    | $R_{th(j-c)}$ | 4.0   | °C/W |
|                                             | total device |               | 3.6   |      |

## Electrical Characteristics (Per Diode)

| Characteristic            | Symbol         | Test Condition          |                     | Min. | Typ. | Max. | Unit |
|---------------------------|----------------|-------------------------|---------------------|------|------|------|------|
| Peak forward voltage drop | $V_{FM}^{(1)}$ | $I_{FM} = 10A$          | $T_j = 25^\circ C$  | -    | 0.70 | 0.80 | V    |
|                           |                |                         | $T_j = 125^\circ C$ | -    | 0.65 | 0.72 | V    |
| Reverse leakage current   | $I_{RM}^{(1)}$ | $V_R = V_{RRM}$         | $T_j = 25^\circ C$  | -    | -    | 0.6  | mA   |
|                           |                |                         | $T_j = 125^\circ C$ | -    | -    | 100  | mA   |
| Junction capacitance      | $C_j$          | $V_R = 1V_{DC}, f=1MHz$ |                     | -    | 550  | -    | pF   |

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

To evaluate the conduction losses use the following equation:  $P_F = 0.36 \times I_{F(AV)} + 0.0335 I_{F(RMS)}^2$



**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)**

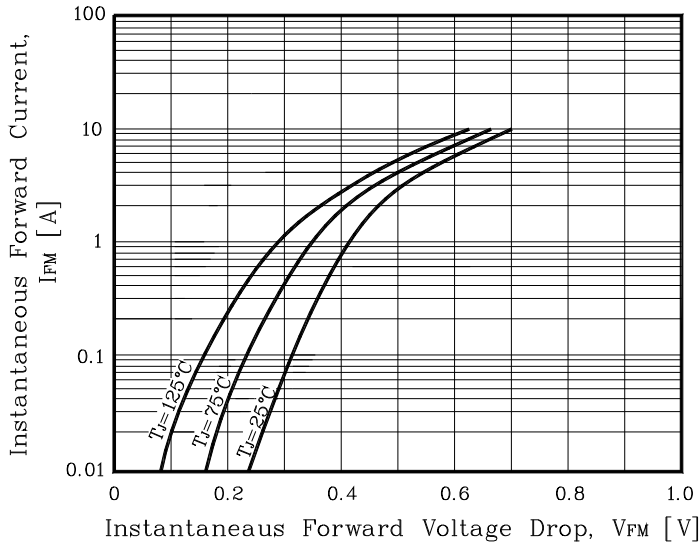


**Fig. 2) Typical Reverse Characteristics (Per diode)**

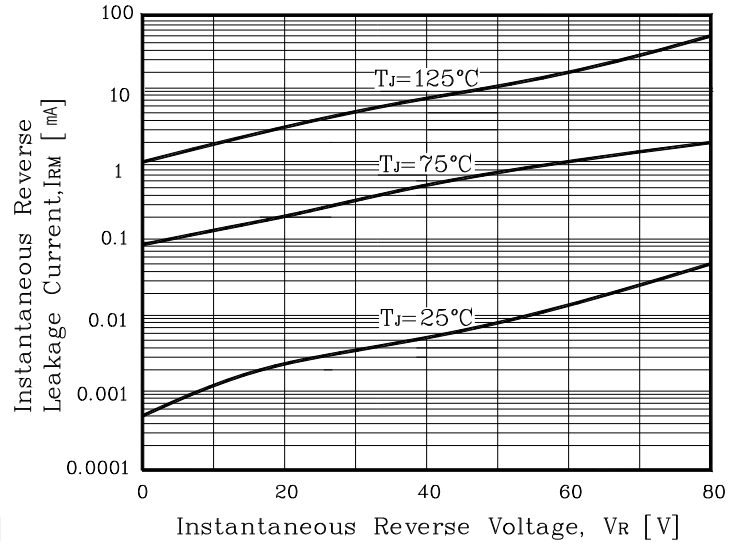


**Fig. 3) Maximum Forward Derivative Curve**

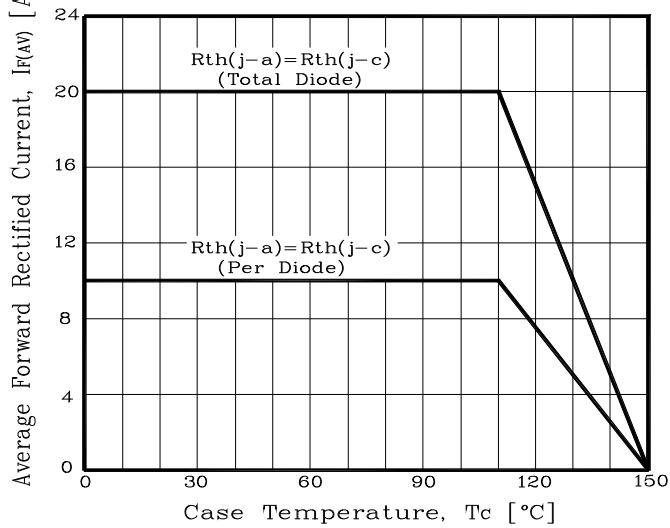


**Fig. 4) Forward Power Dissipation (Per diode)**

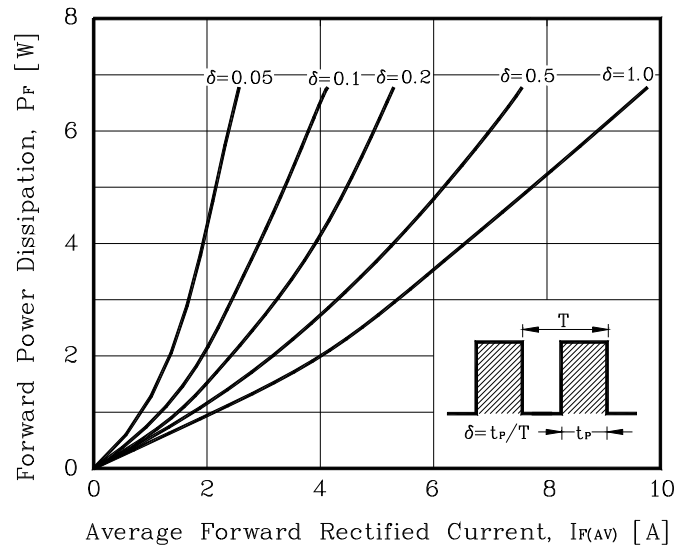


**Fig. 5) Maximum Non-Repetitive Peak Forward Surge Current (Per diode)**

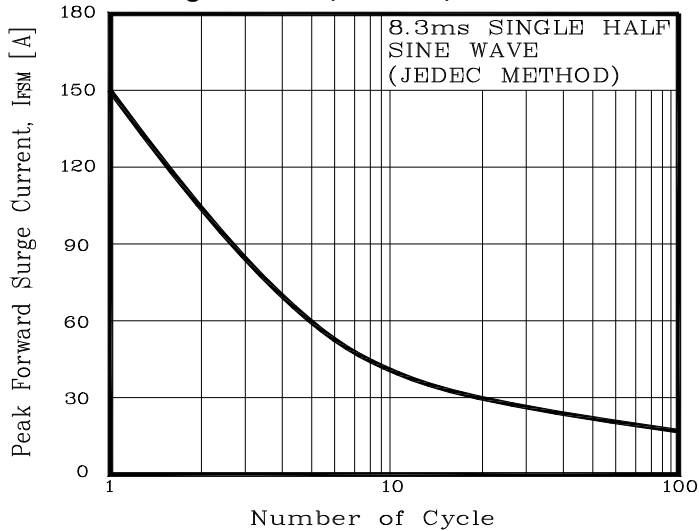
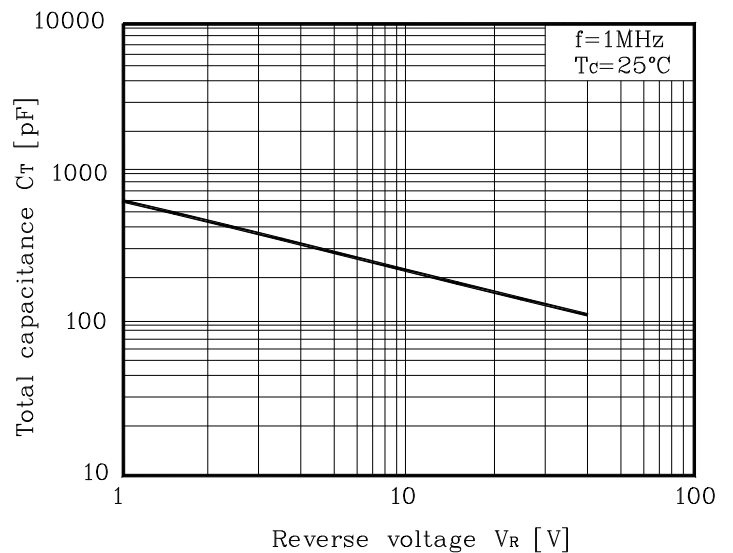
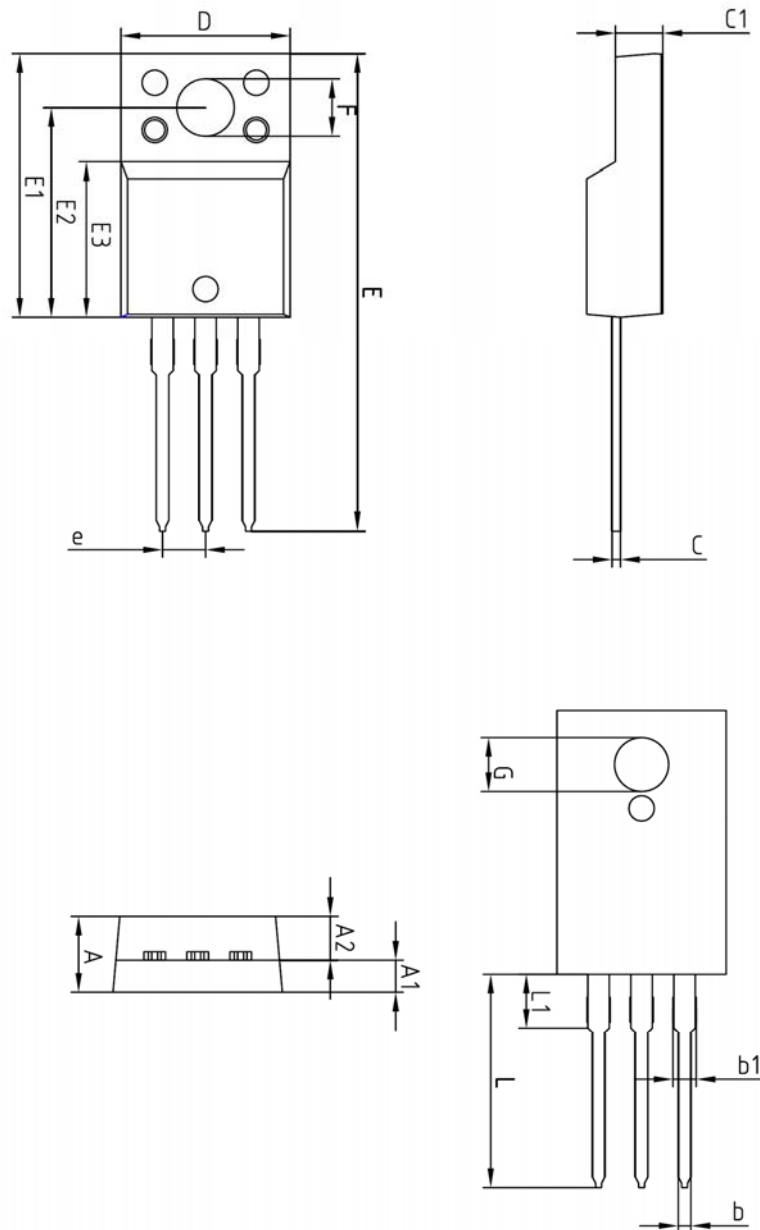


**Fig. 6) Typical Junction Capacitance (Per diode)**



## Package Outline Dimension



| SYMBOL | MILLIMETERS |         |         | NOTE |
|--------|-------------|---------|---------|------|
|        | MINIMUM     | NOMINAL | MAXIMUM |      |
| A      | —           | —       | 4.60    |      |
| A1     | 2.45        | 2.50    | 2.55    |      |
| A2     | 1.95        | 2.00    | 2.05    |      |
| b      | 0.65        | 0.75    | 0.85    |      |
| b1     | 1.07        | 1.27    | 1.47    |      |
| C      | 0.40        | 0.50    | 0.60    |      |
| C1     | 2.70        | 2.80    | 2.90    |      |
| D      | 9.90        | 10.00   | 10.10   |      |
| E      | 28.00       | —       | 28.60   |      |
| E1     | 15.50       | 15.60   | 15.70   |      |
| E2     | 12.30       | 12.40   | 12.50   |      |
| E3     | 9.15        | 9.20    | 9.25    |      |
| F      | 3.30        | 3.40    | 3.50    |      |
| G      | 3.10        | 3.20    | 3.30    |      |
| e      | 2.54 BSC    |         |         |      |
| L      | 12.40       | —       | 13.00   |      |
| L1     | 3.46 BSC    |         |         |      |

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