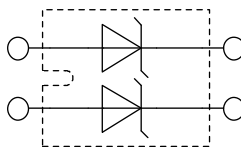


# Schottky Diode

High Performance Schottky Diode  
Low Loss and Soft Recovery  
Parallel legs

Part number

**DSS2x81-0045B**



Backside: isolated

**E72873**

## Features / Advantages:

- Very low  $V_f$
- Extremely low switching losses
- low  $I_{rm}$  values
- Improved thermal behaviour
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching

## Applications:

- Rectifiers in switch mode power supplies (SMPS)
- Free wheeling diode in low voltage converters

## Package:

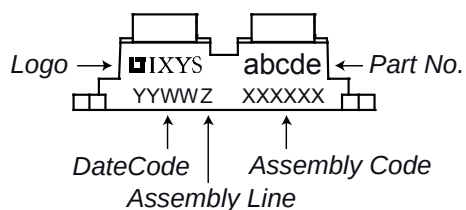
- Housing: SOT-227B (minibloc)
- Industry standard outline
- Cu base plate internal DCB isolated
- Isolation Voltage 3000 V
- Epoxy meets UL 94V-0
- RoHS compliant

## Ratings

| Symbol     | Definition                          | Conditions                           |                              | min.                         | typ. | max. | Unit |
|------------|-------------------------------------|--------------------------------------|------------------------------|------------------------------|------|------|------|
| $V_{RRM}$  | max. repetitive reverse voltage     |                                      | $T_{VJ} = 25^\circ\text{C}$  |                              |      | 45   | V    |
| $I_R$      | reverse current                     | $V_R = 45\text{ V}$                  | $T_{VJ} = 25^\circ\text{C}$  |                              |      | 60   | mA   |
|            |                                     | $V_R = 45\text{ V}$                  | $T_{VJ} = 100^\circ\text{C}$ |                              |      | 250  | mA   |
| $V_F$      | forward voltage                     | $I_F = 80\text{ A}$                  | $T_{VJ} = 25^\circ\text{C}$  |                              |      | 0.65 | V    |
|            |                                     | $I_F = 160\text{ A}$                 |                              |                              |      | 0.96 | V    |
|            |                                     | $I_F = 80\text{ A}$                  | $T_{VJ} = 125^\circ\text{C}$ |                              |      | 0.63 | V    |
|            |                                     | $I_F = 160\text{ A}$                 |                              |                              |      | 0.96 | V    |
| $I_{FAV}$  | average forward current             | rectangular $d = 0.5$                | $T_C = 85^\circ\text{C}$     |                              |      | 80   | A    |
| $V_{F0}$   | threshold voltage                   | } for power loss calculation only    |                              | $T_{VJ} = 150^\circ\text{C}$ |      | 0.30 | V    |
| $r_F$      | slope resistance                    |                                      |                              |                              |      | 4    | mΩ   |
| $R_{thJC}$ | thermal resistance junction to case |                                      |                              |                              |      | 0.80 | K/W  |
| $T_{VJ}$   | virtual junction temperature        |                                      |                              | -40                          |      | 150  | °C   |
| $P_{tot}$  | total power dissipation             |                                      | $T_C = 25^\circ\text{C}$     |                              |      | 150  | W    |
| $I_{FSM}$  | max. forward surge current          | $t = 10\text{ ms (50 Hz), sine}$     | $T_{VJ} = 45^\circ\text{C}$  |                              |      | 800  | A    |
| $C_J$      | junction capacitance                | $V_R = 5\text{ V}; f = 1\text{ MHz}$ | $T_{VJ} = 25^\circ\text{C}$  |                              | 2.93 |      | nF   |

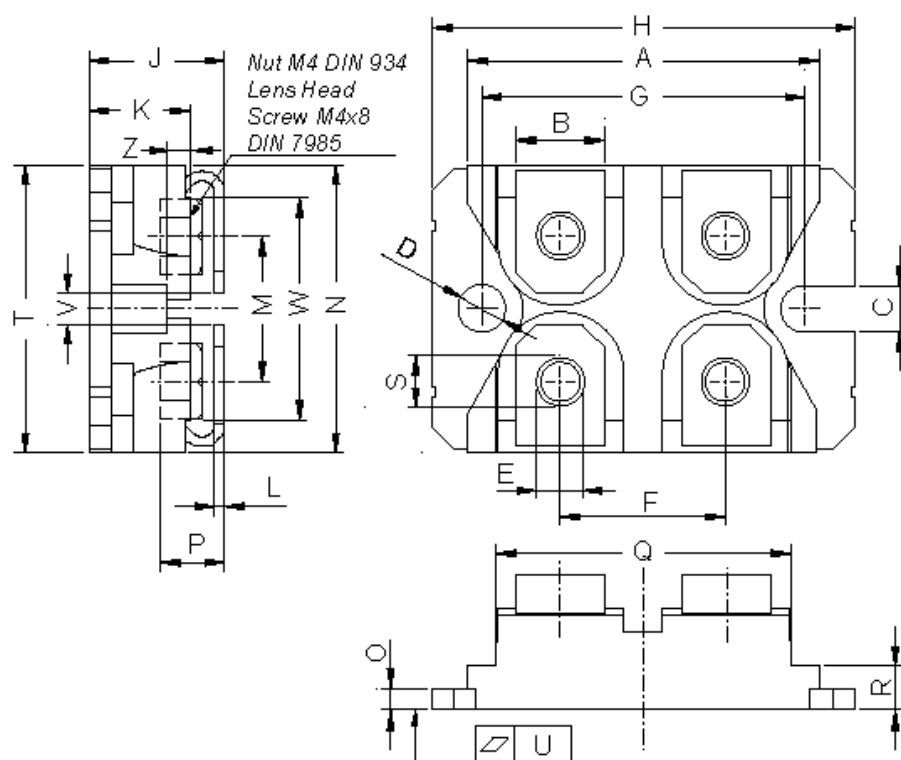
| Symbol        | Definition                                            | Conditions                 | Ratings |      |      | Unit |
|---------------|-------------------------------------------------------|----------------------------|---------|------|------|------|
|               |                                                       |                            | min.    | typ. | max. |      |
| $I_{RMS}$     | RMS current                                           | per terminal <sup>1)</sup> |         |      | 100  | A    |
| $R_{thCH}$    | thermal resistance case to heatsink                   |                            |         | 0.10 |      | K/W  |
| $T_{stg}$     | storage temperature                                   |                            | -40     |      | 150  | °C   |
| Weight        |                                                       |                            |         | 30   |      | g    |
| $M_D$         | mounting torque                                       |                            | 1.1     |      | 1.5  | Nm   |
| $M_T$         | terminal torque                                       |                            | 1.1     |      | 1.5  | Nm   |
| $V_{ISOL}$    | isolation voltage                                     | t = 1 second               | 3000    |      |      | V    |
|               |                                                       | t = 1 minute               | 2500    |      |      | V    |
| $d_{Spp/App}$ | creepage   striking distance on surface   through air | terminal to terminal       | 10.5    | 3.2  |      | mm   |
| $d_{Spb/Apb}$ | creepage   striking distance on surface   through air | terminal to backside       | 8.6     | 6.8  |      | mm   |

### Product Marking



| Ordering | Part Name     | Marking on Product | Delivering Mode | Base Qty | Code Key |
|----------|---------------|--------------------|-----------------|----------|----------|
| Standard | DSS2x81-0045B | DSS2x81-0045B      | Tube            | 10       | 470422   |

# Outlines SOT-227B (minibloc)



| Dim. | Millimeter |       | Inches |       |
|------|------------|-------|--------|-------|
|      | min        | max   | min    | max   |
| A    | 31.50      | 31.88 | 1.240  | 1.255 |
| B    | 7.80       | 8.20  | 0.307  | 0.323 |
| C    | 4.09       | 4.29  | 0.161  | 0.169 |
| D    | 4.09       | 4.29  | 0.161  | 0.169 |
| E    | 4.09       | 4.29  | 0.161  | 0.169 |
| F    | 14.91      | 15.11 | 0.587  | 0.595 |
| G    | 30.12      | 30.30 | 1.186  | 1.193 |
| H    | 37.80      | 38.23 | 1.488  | 1.505 |
| J    | 11.68      | 12.22 | 0.460  | 0.481 |
| K    | 8.92       | 9.60  | 0.351  | 0.378 |
| L    | 0.74       | 0.84  | 0.029  | 0.033 |
| M    | 12.50      | 13.10 | 0.492  | 0.516 |
| N    | 25.15      | 25.42 | 0.990  | 1.001 |
| O    | 1.95       | 2.13  | 0.077  | 0.084 |
| P    | 4.95       | 6.20  | 0.195  | 0.244 |
| Q    | 26.54      | 26.90 | 1.045  | 1.059 |
| R    | 3.94       | 4.42  | 0.155  | 0.167 |
| S    | 4.55       | 4.85  | 0.179  | 0.191 |
| T    | 24.59      | 25.25 | 0.968  | 0.994 |
| U    | -0.05      | 0.10  | -0.002 | 0.004 |
| V    | 3.20       | 5.50  | 0.126  | 0.217 |
| W    | 19.81      | 21.08 | 0.780  | 0.830 |
| Z    | 2.50       | 2.70  | 0.098  | 0.106 |

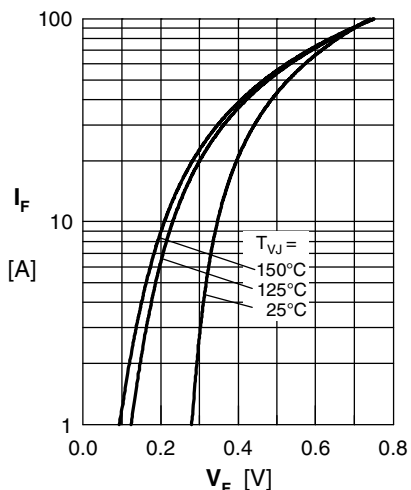


Fig. 1 Maximum forward voltage drop characteristics

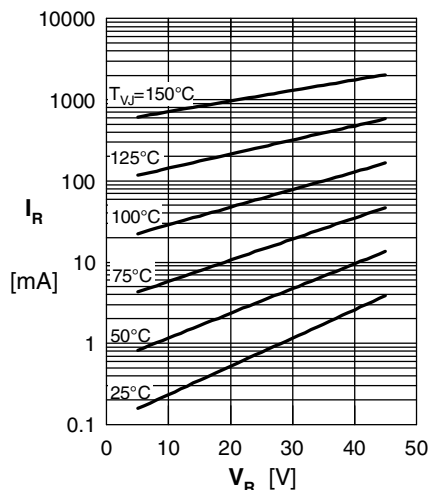


Fig. 2 Typ. reverse current  $I_R$  vs. reverse voltage  $V_R$

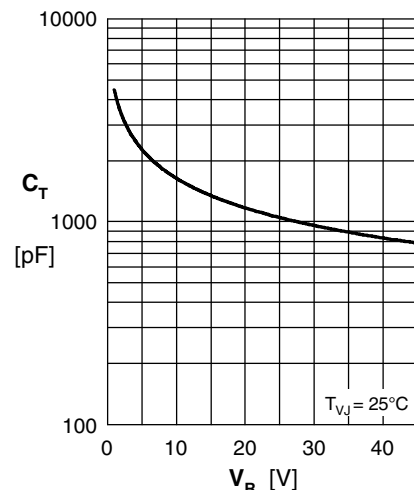


Fig. 3 Typ. junction capacitance  $C_T$  vs. reverse voltage  $V_R$

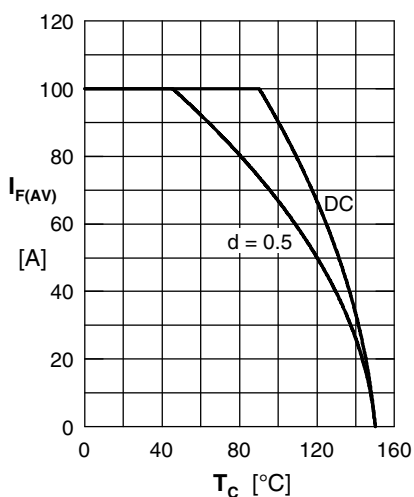


Fig. 4 Average forward current  $I_{F(AV)}$  vs. case temp.  $T_C$

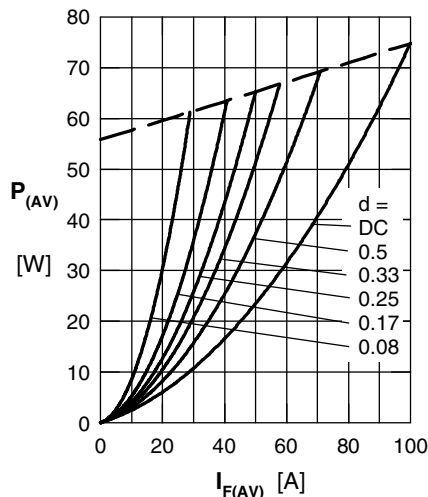


Fig. 5 Forward power loss characteristics

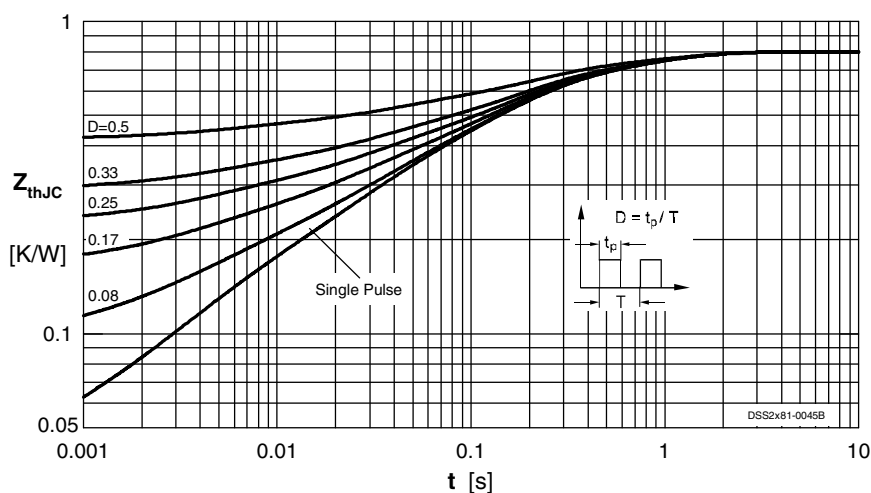


Fig. 6 Transient thermal impedance junction to case at various duty cycles

Note: All curves are per diode