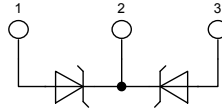


# Schottky Diode Gen<sup>2</sup>

High Performance Schottky Diode  
Low Loss and Soft Recovery  
Common Cathode

Part number

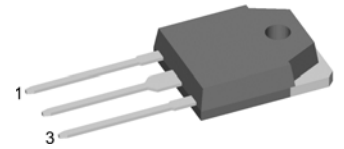
**DSA 50 C 100 QB**



$$V_{RRM} = 100 \text{ V}$$

$$I_{FAV} = 2 \times 25 \text{ A}$$

$$V_F = 0.72 \text{ V}$$



Backside: cathode

### 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

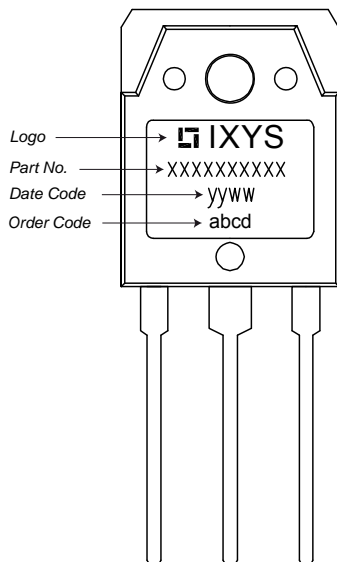
### Package:

- Housing: TO-3P
- Industry standard outline compatible with TO-247
- Epoxy meets UL 94V-0
- RoHS compliant

| Symbol     | Definition                          | Conditions                              | Ratings |      |      | Unit |
|------------|-------------------------------------|---|---------|------|------|------|
|            |                                     |   | min.    | typ. | max. |      |
| $V_{RRM}$  | max. repetitive reverse voltage     |   |         |      | 100  | V    |
| $I_R$      | reverse current                     | $V_R = 100 \text{ V}$                   |         |      | 0.45 | mA   |
|            |                                     | $V_R = 100 \text{ V}$                   |         |      | 5    | mA   |
| $V_F$      | forward voltage                     | $I_F = 25 \text{ A}$                    |         |      | 0.90 | V    |
|            |                                     | $I_F = 50 \text{ A}$                    |         |      | 1.07 | V    |
|            |                                     | $I_F = 25 \text{ A}$                    |         |      | 0.72 | V    |
|            |                                     | $I_F = 50 \text{ A}$                    |         |      | 0.90 | V    |
| $I_{FAV}$  | average forward current             | rectangular d = 0.5                     |         |      | 25   | A    |
| $V_{F0}$   | threshold voltage                   | } for power loss calculation only       |         |      | 0.45 | V    |
| $r_F$      | slope resistance                    |   |         |      | 7.3  | mΩ   |
| $R_{thJC}$ | thermal resistance junction to case |   |         |      | 0.95 | K/W  |
| $T_{VJ}$   | virtual junction temperature        |   | -55     |      | 175  | °C   |
| $P_{tot}$  | total power dissipation             |   |         |      | 160  | W    |
| $I_{FSM}$  | max. forward surge current          | t = 10 ms (50 Hz), sine                 |         |      | 230  | A    |
| $C_J$      | junction capacitance                | $V_R = 12 \text{ V}; f = 1 \text{ MHz}$ |         | 289  |      | pF   |

| Symbol        | Definition                          | Conditions            | Ratings |      |      | Unit |
|---------------|-------------------------------------|-----------------------|---------|------|------|------|
|               |                                     |                       | min.    | typ. | max. |      |
| $I_{RMS}$     | RMS current                         | per pin <sup>1)</sup> |         |      | 50   | A    |
| $R_{thCH}$    | thermal resistance case to heatsink |                       |         | 0.25 |      | K/W  |
| $T_{stg}$     | storage temperature                 |                       | -55     |      | 150  | °C   |
| <b>Weight</b> |                                     |                       |         | 5    |      | g    |
| $M_D$         | mounting torque                     |                       | 0.8     |      | 1.2  | Nm   |
| $F_C$         | mounting force with clip            |                       | 20      |      | 120  | N    |

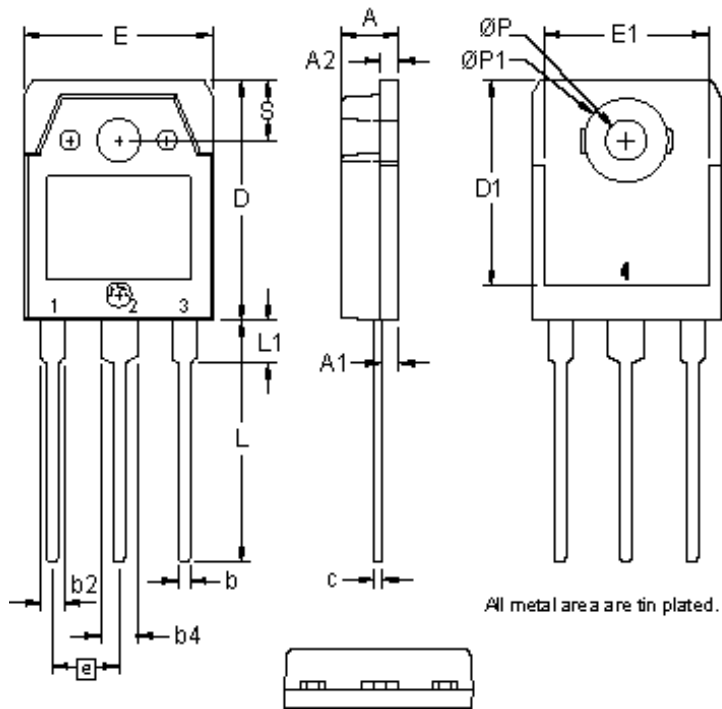
<sup>1)</sup>  $I_{RMS}$  is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip.  
 In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.

**Product Marking**

**Part number**

- D = Diode
- S = Schottky Diode
- A = low VF
- 50 = Current Rating [A]
- C = Common Cathode
- 100 = Reverse Voltage [V]
- QB = TO-3P (3)

| Ordering | Part Name       | Marking on Product | Delivering Mode | Base Qty | Code Key |
|----------|-----------------|--------------------|-----------------|----------|----------|
| Standard | DSA 50 C 100 QB | DSA50C100QB        | Tube            | 30       | 504033   |

| Similar Part | Package      | Voltage class |
|--------------|--------------|---------------|
| DSA50C100HB  | TO-247AD (3) | 100           |
| DSA60C100PB  | TO-220AB (3) | 100           |

**Outlines TO-3P**


All metal area are tin plated.

| SYM | INCHES   |      | MILLIMETERS |       |
|-----|----------|------|-------------|-------|
|     | MIN      | MAX  | MIN         | MAX   |
| A   | .185     | .193 | 4.70        | 4.90  |
| A1  | .051     | .059 | 1.30        | 1.50  |
| A2  | .057     | .065 | 1.45        | 1.65  |
| b   | .035     | .045 | 0.90        | 1.15  |
| b2  | .075     | .087 | 1.90        | 2.20  |
| b4  | .114     | .126 | 2.90        | 3.20  |
| c   | .022     | .031 | 0.55        | 0.80  |
| D   | .780     | .791 | 19.80       | 20.10 |
| D1  | .665     | .677 | 16.90       | 17.20 |
| E   | .610     | .622 | 15.50       | 15.80 |
| E1  | .531     | .539 | 13.50       | 13.70 |
| e   | .215 BSC |      | 5.45 BSC    |       |
| L   | .779     | .795 | 19.80       | 20.20 |
| L1  | .134     | .142 | 3.40        | 3.60  |
| ØP  | .126     | .134 | 3.20        | 3.40  |
| ØP1 | .272     | .280 | 6.90        | 7.10  |
| S   | .193     | .201 | 4.90        | 5.10  |

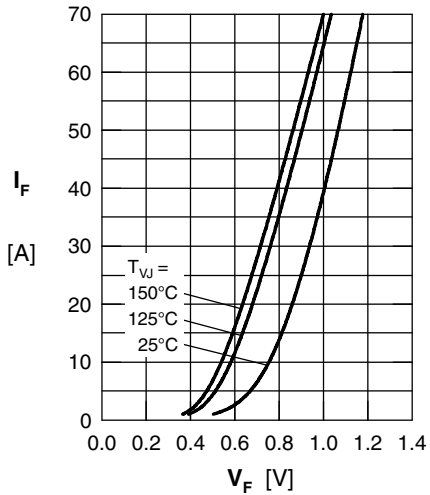


Fig. 1 Maximum forward voltage drop characteristics

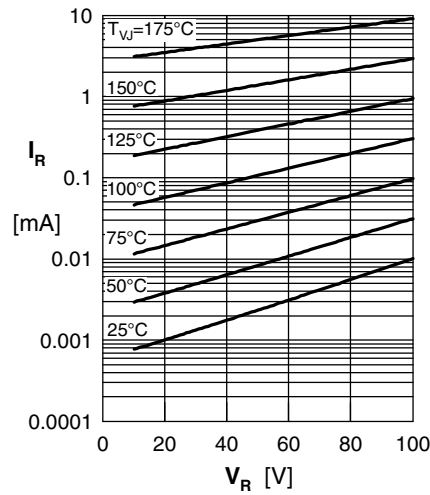


Fig. 2 Typ. reverse current  $I_R$  vs. reverse voltage  $V_R$

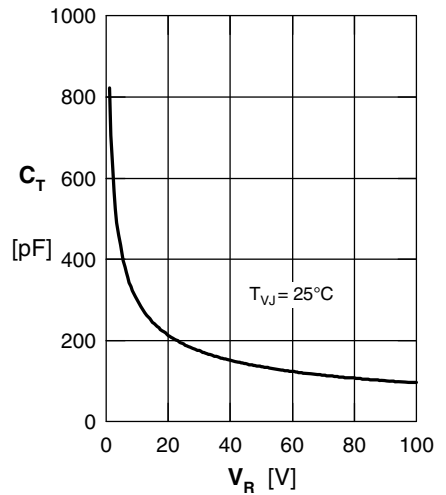


Fig. 3 Typ. junction capacitance  $C_T$  vs. reverse voltage  $V_R$

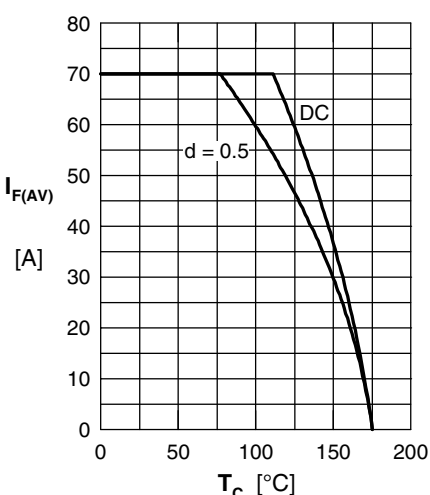


Fig. 4 Average forward current  $I_{F(AV)}$  vs. case temperature  $T_C$

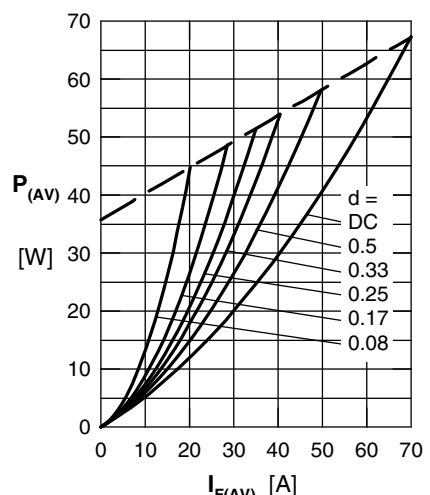


Fig. 5 Forward power loss characteristics

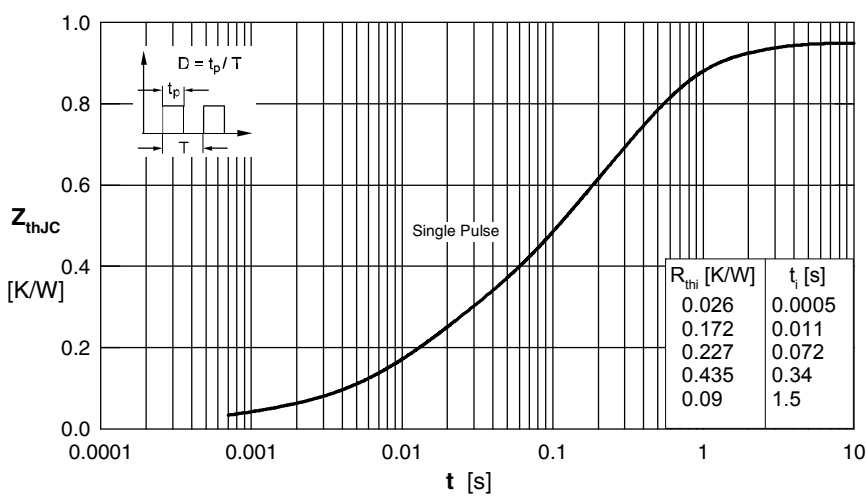


Fig. 6 Transient thermal impedance junction to case

Note: All curves are per diode