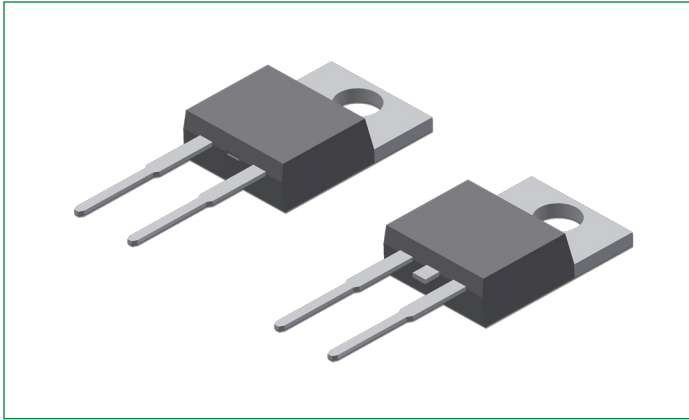


# DSB20I15PA

## 15 V, 20 A Schottky Rectifier Diode

RoHS



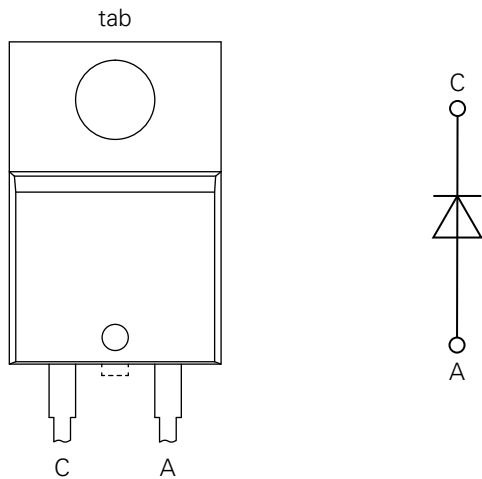
### Features

- Very low  $V_F$
- Extremely low switching losses
- Low  $I_{RM}$  values
- Improved thermal behavior
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching
- Terminals finish: 100% Pure Tin
- Epoxy meets UL 94V-0

### Applications

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

### Pinout Diagram (TO-220AC)



**C:** Cathode; **A:** Anode; **tab:** Cathode

**Maximum Ratings** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

| Symbol      | Characteristics                             | Condition                                                        | Max. | Units |
|-------------|---------------------------------------------|------------------------------------------------------------------|------|-------|
| $V_{RRM}$   | Peak Repetitive Reverse Voltage             | -                                                                | 15   | V     |
| $V_{RWM}$   | Working Peak Reverse Voltage                |                                                                  |      |       |
| $V_R$       | DC Blocking Voltage                         |                                                                  |      |       |
| $I_{F(AV)}$ | Average Rectified Forward Current           | 50% duty cycle @ $T_C=130^\circ\text{C}$ , rectangular wave form | 20   | A     |
| $I_{FSM}$   | Peak One Cycle Non-Repetitive Surge Current | 10 ms, Half Sine pulse, $T_J=25^\circ\text{C}$                   | 390  | A     |
| $P_{tot}$   | Total power dissipation                     | $T_C = 25^\circ\text{C}$                                         | 70   | W     |

**Electrical Characteristics** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

| Symbol   | Characteristics                   | Conditions                                                              | Typ. | Max. | Units |
|----------|-----------------------------------|-------------------------------------------------------------------------|------|------|-------|
| $V_{F1}$ | Forward Voltage Drop <sup>1</sup> | @ 20A, Pulse, $T_J = 25^\circ\text{C}$                                  | –    | 0.48 | V     |
| $V_{F1}$ |                                   | @ 20A, Pulse, $T_J = 125^\circ\text{C}$                                 | –    | 0.39 | V     |
| $I_{R1}$ | Reverse Current*                  | @ $V_R = \text{rated } V_{R'}$ , $T_J = 25^\circ\text{C}$               | –    | 5    | mA    |
| $I_{R2}$ |                                   | @ $V_R = \text{rated } V_{R'}$ , $T_J = 100^\circ\text{C}$              | –    | 40   | mA    |
| $C_T$    | Junction Capacitance              | @ $V_R=3\text{V}$ , $T_C = 25^\circ\text{C}$<br>$f_{SIG} = 1\text{MHz}$ | 1209 | –    | pF    |

**Note 1:** Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

**Thermal-Mechanical Specifications**

| Symbol          | Characteristics                              | Condition    | Specification      | Units              |
|-----------------|----------------------------------------------|--------------|--------------------|--------------------|
| $T_J$           | Junction Temperature                         | –            | -55 to +150        | $^\circ\text{C}$   |
| $T_O$           | Operation temperature                        | –            | -55 to +125        | $^\circ\text{C}$   |
| $T_{stg}$       | Storage Temperature                          | –            | -55 to +150        | $^\circ\text{C}$   |
| $M_D$           | Mounting torque                              | –            | Min 0.4<br>Max 0.6 | Nm                 |
| $F_C$           | Mounting force with clip                     | –            | Min 20<br>Max 60   | N                  |
| $R_{\theta JC}$ | Maximum Thermal Resistance Junction to Case  | DC operation | 1.75               | $^\circ\text{C/W}$ |
| $R_{\theta CS}$ | Typical Thermal Resistance Case to Heat Sink | –            | 0.5                | $^\circ\text{C/W}$ |
| wt              | Approximate Weight                           | –            | 1.6                | g                  |

Characteristic Curves

Fig. 1. Typical Forward Characteristics

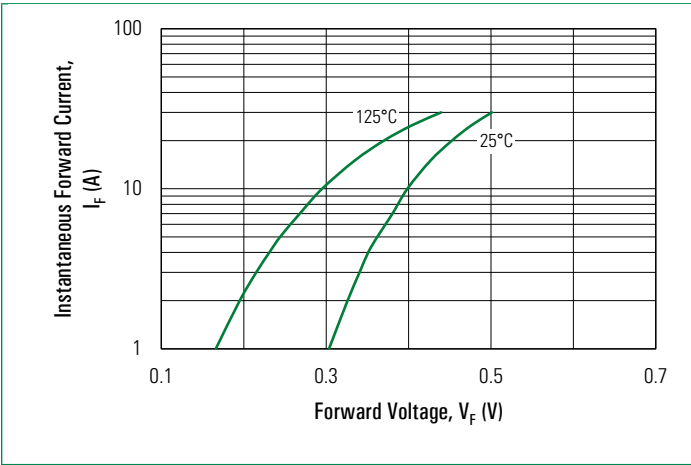


Fig. 2. Typical Reverse Characteristics

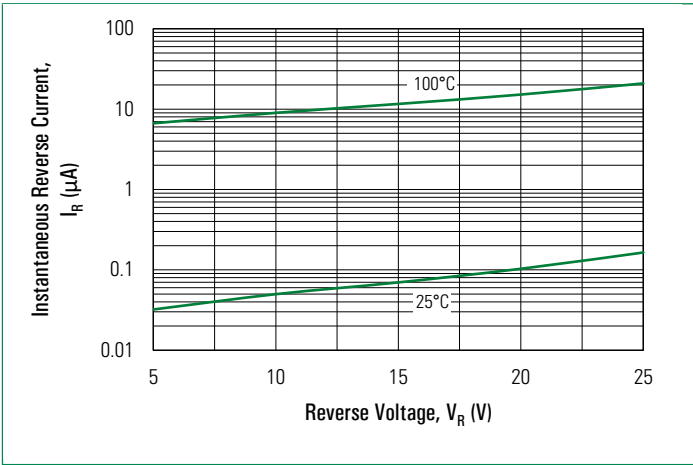
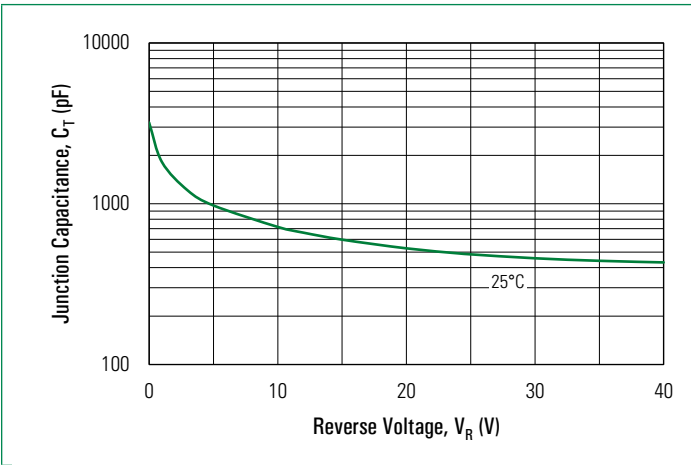
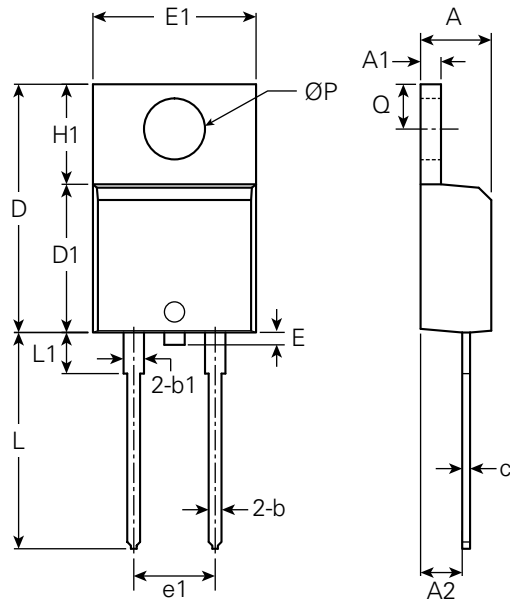


Fig. 3. Typical Junction Capacitance

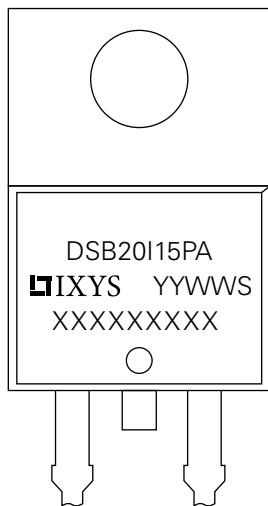


## Part Outline Drawing (TO-220AC)



| Symbol | Inches |         |       | Millimeters |         |       |
|--------|--------|---------|-------|-------------|---------|-------|
|        | Min.   | Typical | Max.  | Min.        | Typical | Max.  |
| A      | 0.14   | —       | 0.19  | 3.56        | —       | 4.83  |
| A1     | 0.02   | —       | 0.06  | 0.51        | —       | 1.40  |
| A2     | 0.08   | —       | 0.11  | 2.03        | —       | 2.92  |
| b      | 0.01   | —       | 0.04  | 0.38        | —       | 1.02  |
| b1     | 0.04   | —       | 0.07  | 1.14        | —       | 1.78  |
| c      | 0.12   | —       | 0.02  | 0.31        | —       | 0.61  |
| D      | 0.56   | —       | 0.65  | 14.22       | —       | 16.51 |
| D1     | 0.33   | —       | 0.37  | 8.38        | —       | 9.42  |
| E      | —      | —       | 0.07  | —           | —       | 1.78  |
| E1     | 0.38   | 0.40    | 0.42  | 9.65        | 10.16   | 10.67 |
| e1     | —      | 0.20    | —     | —           | 5.08    | —     |
| H1     | 0.23   | —       | 0.27  | 5.84        | —       | 6.86  |
| L      | 0.50   | —       | 0.58  | 12.70       | —       | 14.73 |
| L1     | —      | —       | 0.25  | —           | —       | 6.35  |
| Q      | 0.10   | —       | 0.135 | 2.54        | —       | 3.43  |
| ØP     | —      | 0.14    | —     | —           | 3.56    | —     |

## Part Number and Marking

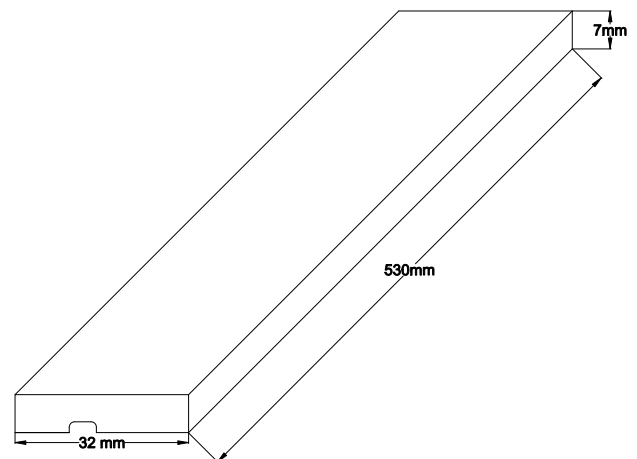


D = Diode  
 S = Schottky Diode  
 B = Ultra Low VF  
 20 = Forward Current  
 I = Single Diode  
 15 = Reverse Voltage  
 PA = Package Code  
 YY = Year  
 WW = Work Week  
 S = Plant Location Code  
 XXXXXXXXX = Lot Number

## Ordering Information

| Part Number | Marking    | Packing Mode | Quantity     |
|-------------|------------|--------------|--------------|
| DSB20I15PA  | DSB20I15PA | Tube         | 50 pcs/ tube |

## Packing Specifications



## Disclaimer Notice

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Part of:

