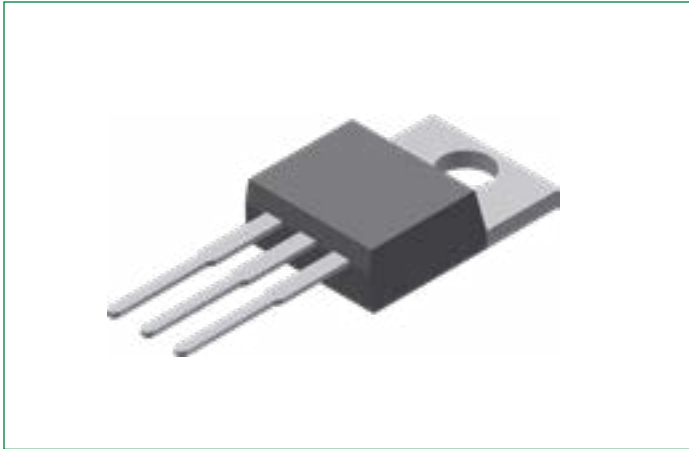


# DSB60C45PB

## 45 V, 60 A Schottky Rectifier Diode

RoHS

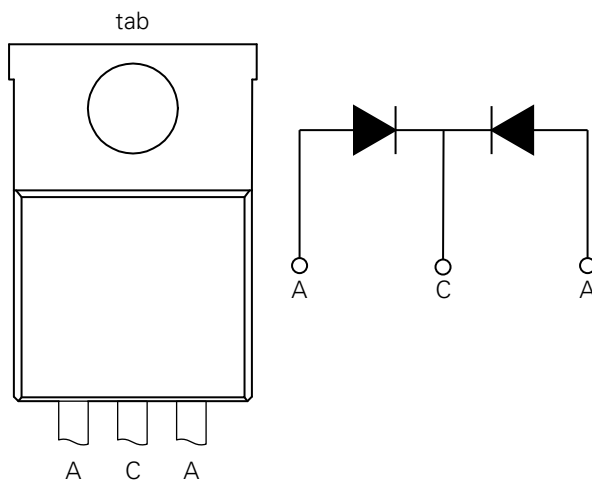
Pb



### Features and Advantages:

- 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
- This is a Pb-free device
- Epoxy meets UL 94 V-0

### Pinout Diagram (TO-220-3L AB)



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

### Applications:

- Rectifiers in Switch Mode Power Supplies (SMPS)
- Free wheeling diode in low voltage converters

### Product Summary

| Characteristic | Value  | Unit |
|----------------|--------|------|
| $V_{RRM}$      | 45     | V    |
| $I_{FAV}$      | 2 x 30 | A    |
| $V_F$          | 0.64   | V    |

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

| Symbol    | Characteristics                                       | Condition   | Max.                            | Units |
|-----------|---|---|---------------------------------|-------|
| $V_{RRM}$ | Peak Repetitive Reverse Voltage                       | -   | 45                              | V     |
| $V_{RWM}$ | Working Peak Reverse Voltage                          |   |                                 |       |
| $V_R$     | DC Blocking Voltage                                   |   |                                 |       |
| $I_{FAV}$ | Average Rectified Forward Current                     | 50% duty cycle @ $T_C = 125^\circ\text{C}$ ,<br>rectangular wave form | 30 (Per Leg)<br>60 (Per Device) | A     |
| $I_{FSM}$ | Peak One Cycle Non-Repetitive Surge Current (Per Leg) | 10 ms, Half Sine pulse, $T_{VJ} = 25^\circ\text{C}$                   | 490                             | A     |
| $P_{tot}$ | Total Power Dissipation                               | $T_C = 25^\circ\text{C}$  | 145                             | W     |

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

| Symbol   | Characteristics                             | Conditions  | Typ. | Max. | Units |
|----------|---|---|------|------|-------|
| $V_{F1}$ | Forward Voltage Drop (Per Leg) <sup>1</sup> | @ 30 A, Pulse, $T_{VJ} = 25^\circ\text{C}$                                  | -    | 0.67 | V     |
| $V_{F2}$ |   | @ 30 A, Pulse, $T_{VJ} = 125^\circ\text{C}$                                 | -    | 0.64 | V     |
| $I_{R1}$ | Reverse Current (Per Leg) <sup>1</sup>      | @ $V_R = \text{rated } V_R$ , $T_{VJ} = 25^\circ\text{C}$                   | -    | 10   | mA    |
| $I_{R2}$ |   | @ $V_R = \text{rated } V_R$ , $T_{VJ} = 100^\circ\text{C}$                  | -    | 100  | mA    |
| $C_T$    | Junction Capacitance (Per Leg)              | @ $V_R = 5\text{ V}$ , $T_C = 25^\circ\text{C}$<br>$f_{SIG} = 1\text{ MHz}$ | 967  | -    | pF    |

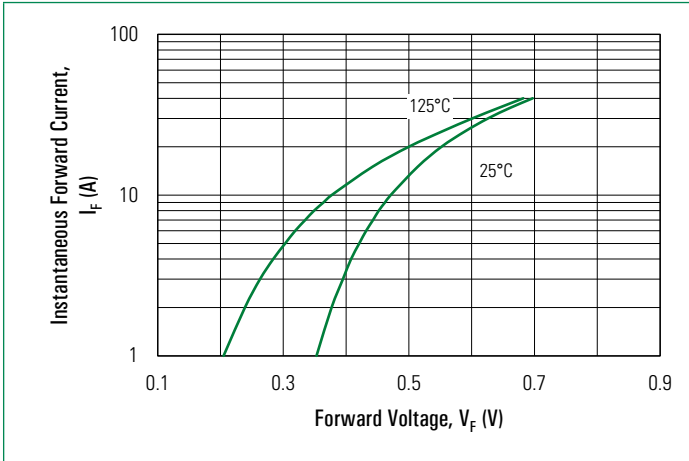
**Note 1:** Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

**Thermal-Mechanical Specifications**

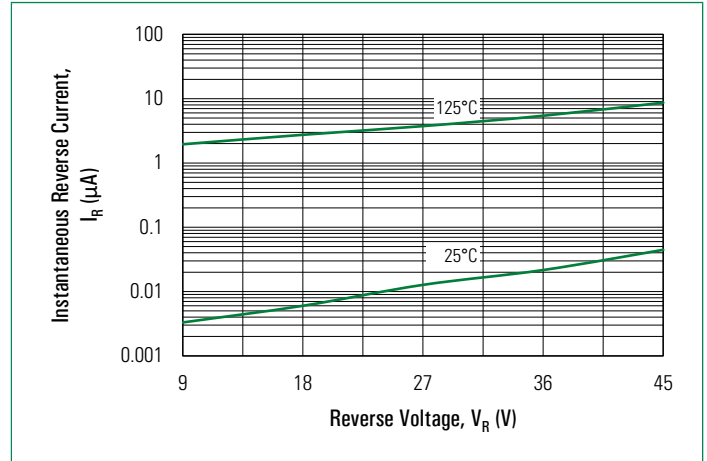
| Symbol     | Characteristics                                  | Condition    | Specification      | Units            |
|------------|--|--------------|--------------------|------------------|
| $T_{VJ}$   | Junction Temperature                             | -            | -55 to +150        | $^\circ\text{C}$ |
| $T_O$      | 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                |
| $R_{thJC}$ | Maximum Thermal Resistance Junction to Case      | DC operation | 0.85               | K/W              |
| $R_{thJS}$ | Typical Thermal Resistance Junction to Heat Sink | -            | 0.5                | K/W              |
| wt         | Approximate Weight                               | -            | 2                  | g                |

## Characteristic Curves

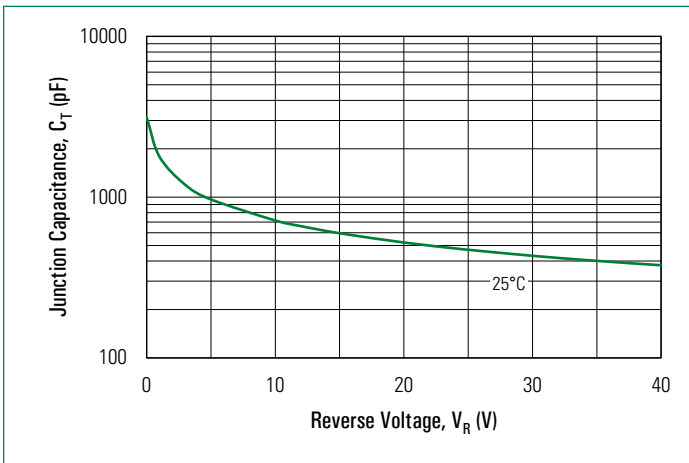
**Fig. 1. Typical Forward Characteristics**



**Fig. 2. Typical Reverse Characteristics**



**Fig. 3. Typical Junction Capacitance**

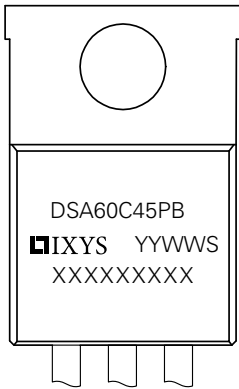


Part Outline Drawing (TO-220-3L AB)



| Symbol | Inches |         |       | Millimeters |         |       |
|--------|--------|---------|-------|-------------|---------|-------|
|        | Min.   | Typical | Max.  | Min.        | Typical | Max.  |
| A      | 0.140  | –       | 0.190 | 3.56        | –       | 4.83  |
| A1     | 0.020  | –       | 0.055 | 0.51        | –       | 1.40  |
| A2     | 0.080  | –       | 0.115 | 2.03        | –       | 2.92  |
| b      | 0.015  | –       | 0.040 | 0.38        | –       | 1.02  |
| b1     | 0.045  | –       | 0.070 | 1.14        | –       | 1.78  |
| c      | 0.012  | –       | 0.024 | 0.31        | –       | 0.61  |
| D      | 0.560  | –       | 0.650 | 14.22       | –       | 16.51 |
| D1     | 0.330  | –       | 0.371 | 8.38        | –       | 9.42  |
| E      | 0.380  | –       | 0.420 | 9.65        | –       | 10.67 |
| e      | –      | 0.100   | –     | –           | 2.54    | –     |
| e1     | –      | 0.200   | –     | –           | 5.08    | –     |
| H1     | 0.230  | –       | 0.270 | 5.84        | –       | 6.86  |
| L      | 0.500  | –       | 0.580 | 12.70       | –       | 14.73 |
| L1     | –      | –       | 0.250 | –           | –       | 6.35  |
| ØP     | –      | 0.140   | –     | –           | 3.56    | –     |
| Q      | 0.100  | –       | 0.135 | 2.54        | –       | 3.43  |

Part Number and Marking

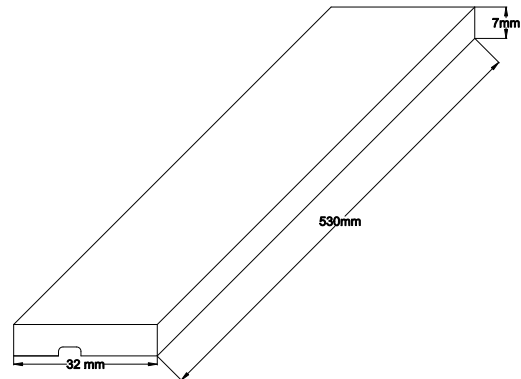


- D = Diode
- S = Schottky Diode
- B Ultra Low  $V_F$
- 60 = Current Rate (60 A)
- C Common Cathode
- 45 = Voltage Rating (45 V)
- PB = Package Code (TO-220AB)
- YY = Year
- WW = Work Week
- S = Plant Location Code
- XXXXXXXXX = Lot Number

Ordering Information

| Part Number | Marking    | Packing Mode | Quantity     |
|-------------|------------|--------------|--------------|
| DSB60C45PB  | DSB60C45PB | Tube         | 50 pcs/ tube |

Packing Specifications



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Part of:

