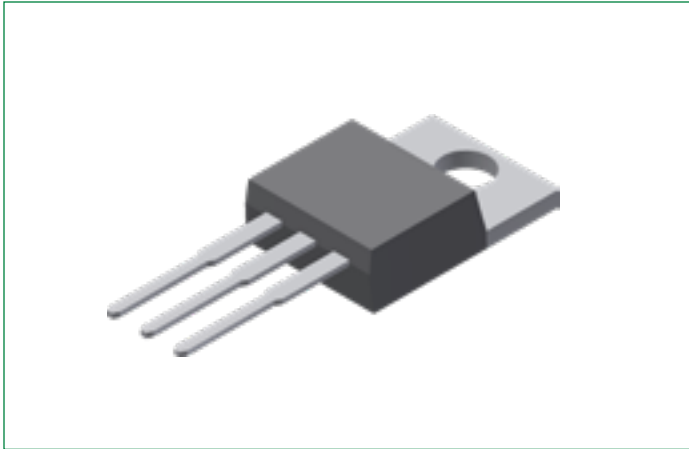


# DSA30C100PB

## 100 V, 30 A Schottky Rectifier Diode

RoHS

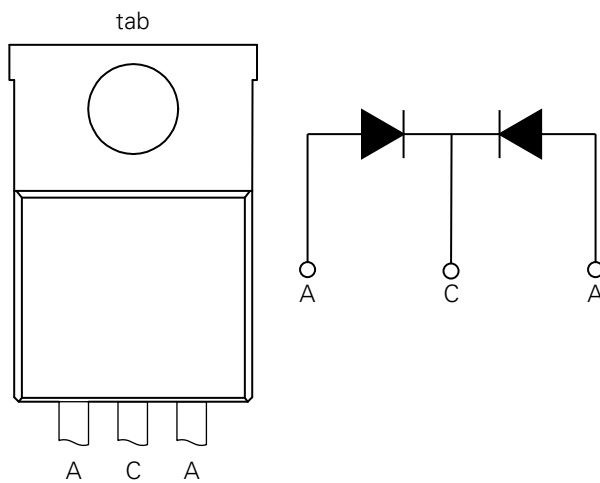
Pb



### 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
- This is a Pb – Free Device
- Epoxy meets UL 94V-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

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

| Symbol      | Characteristics                                       | Condition                                                          | Max.                            | Units |
|-------------|-------------------------------------------------------|--------------------------------------------------------------------|---------------------------------|-------|
| $V_{RRM}$   | Peak Repetitive Reverse Voltage                       | -                                                                  | 100                             | V     |
| $V_{RWM}$   | Working Peak Reverse Voltage                          |                                                                    |                                 |       |
| $V_R$       | DC Blocking Voltage                                   |                                                                    |                                 |       |
| $I_{F(AV)}$ | Average Rectified Forward Current                     | 50% duty cycle @ $T_C = 155^\circ\text{C}$ , rectangular wave form | 15 (Per Leg)<br>30 (Per Device) | A     |
| $I_{FSM}$   | Peak One Cycle Non-Repetitive Surge Current (Per Leg) | 10 ms, Half Sine pulse, $T_J = 25^\circ\text{C}$                   | 340                             | A     |
| $P_{tot}$   | Total power dissipation                               | $T_C = 25^\circ\text{C}$                                           | 35                              | 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> | @ 15A, Pulse, $T_J = 25^\circ\text{C}$                                       | -    | 0.91 | V             |
| $V_{F2}$ |                                             | @ 15A, Pulse, $T_J = 125^\circ\text{C}$                                      | -    | 0.73 | V             |
| $I_{R1}$ | Reverse Current (Per Leg) <sup>1</sup>      | @ $V_R = \text{rated } V_R$ , $T_J = 25^\circ\text{C}$                       | -    | 250  | $\mu\text{A}$ |
| $I_{R2}$ |                                             | @ $V_R = \text{rated } V_R$ , $T_J = 125^\circ\text{C}$                      | -    | 2.5  | mA            |
| $C_T$    | Junction Capacitance (Per Leg)              | @ $V_R = 12\text{ V}$ , $T_C = 25^\circ\text{C}$<br>$f_{SIG} = 1\text{ MHz}$ | 223  | -    | 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 +175        | $^\circ\text{C}$   |
| $T_O$           | Operation temperature                        | -            | -55 to +150        | $^\circ\text{C}$   |
| $T_{stg}$       | 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                           | -            | 2                  | g                  |

Characteristic Curves

Fig. 1. Typical Forward Characteristics

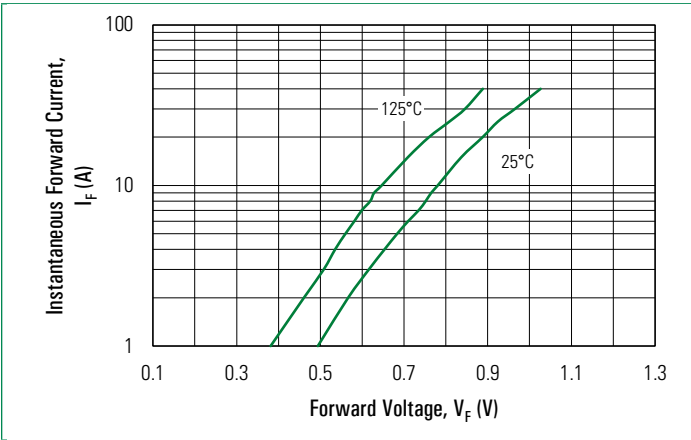


Fig. 2. Typical Reverse Characteristics

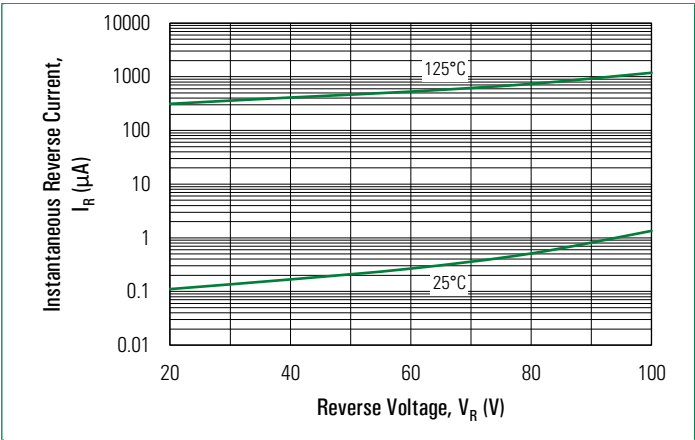
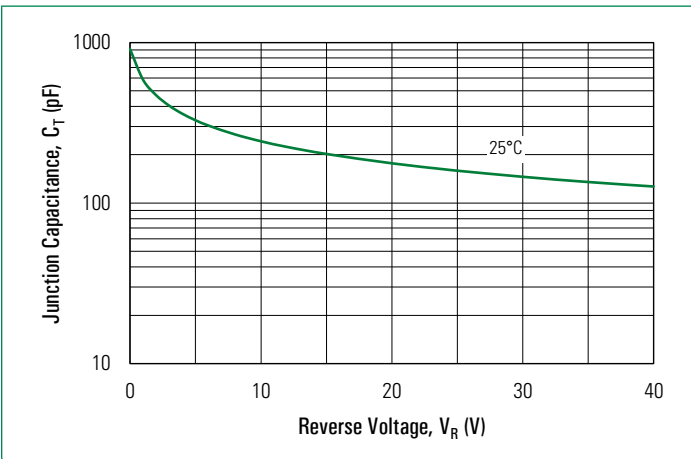
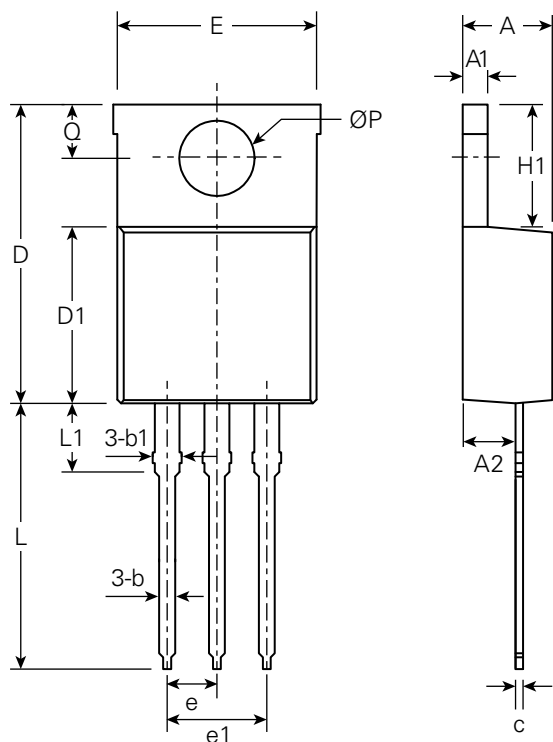


Fig. 3. Typical Junction Capacitance

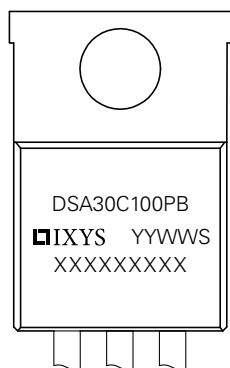


## Part Outline Drawing (TO-220-3L AB)



| 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

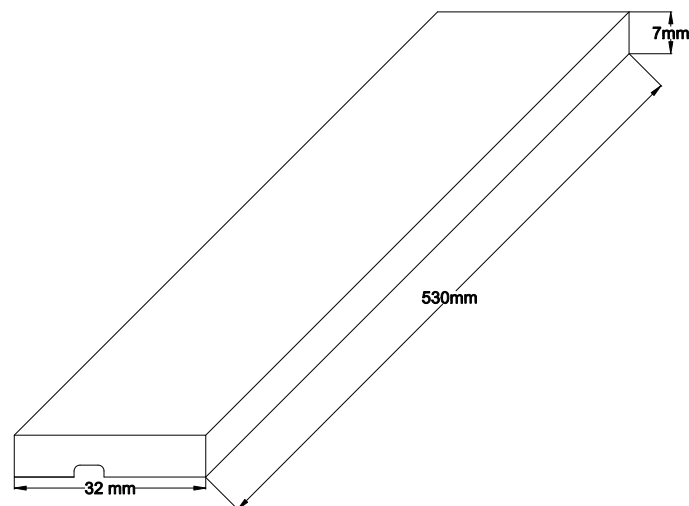


D = Diode  
 S = Schottky Diode  
 A Low VF  
 30 = Forward Current (30A)  
 C Common Cathode  
 100 = Reverse Voltage (100V)  
 PB = Package Code (TO-220AB)  
 YY = Year  
 WW = Work Week  
 S = Plant Location Code  
 XXXXXXXX = Lot Number

## Ordering Information

| Part Number | Marking     | Packing Mode | Quantity     |
|-------------|-------------|--------------|--------------|
| DSA30C100PB | DSA30C100PB | Tube         | 50 pcs/ tube |

## Packing Specifications



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