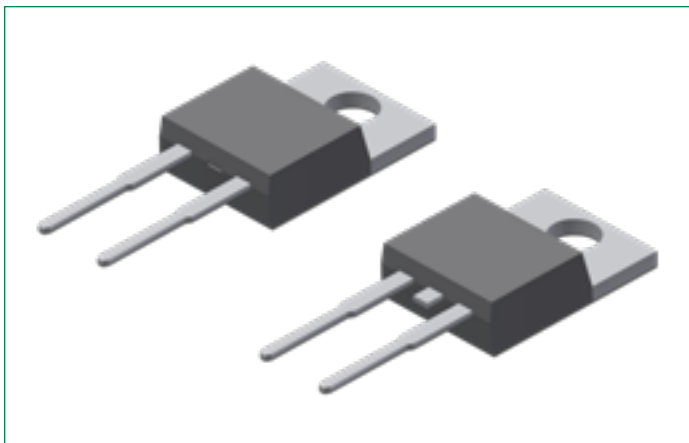


DSS10-0045B

45 V, 10 A Schottky Rectifier Diode

RoHS

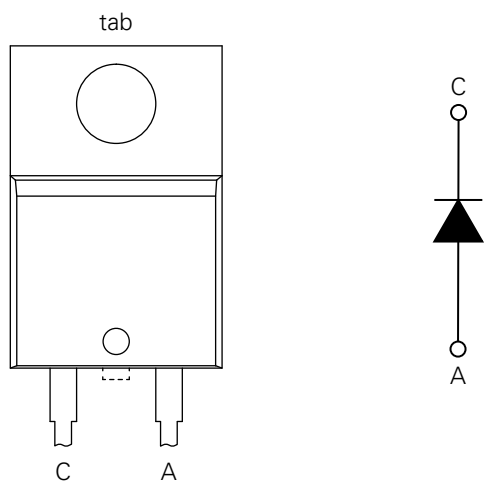
Pb



Features & Benefits:

- 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-220AC)



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 | - | 45 | V |
| V_{RWM} | Working Peak Reverse Voltage | | | |
| V_R | DC Blocking Voltage | | | |
| $I_{F(AV)}$ | Average Rectified Forward Current | 50% duty cycle @ $T_C=135^\circ\text{C}$, rectangular wave form | 10 | A |
| I_{FSM} | Peak One Cycle Non-Repetitive Surge Current | 10 ms, Half Sine pulse, $T_J=25^\circ\text{C}$ | 200 | A |
| P_{tot} | Total power dissipation | $T_C = 25^\circ\text{C}$ | 75 | W |
| E_{AS} | Non-repetitive avalanche energy | $I_{AS} = 20\text{ A}$, $L=100\ \mu\text{H}$, $T_J=25^\circ\text{C}$ | 20 | mJ |
| I_{AR} | Repetitive avalanche current | $V_A = 1.5 \cdot V_R$, typ. $f=1\text{ kHz}$ | 2 | A |

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

| Symbol | Characteristics | Conditions | Typ. | Max. | Units |
|----------|-----------------------------------|---|------|------|-------|
| V_{F1} | Forward Voltage Drop ¹ | @ 10A, Pulse, $T_J = 25^\circ\text{C}$ | - | 0.55 | V |
| V_{F1} | | @ 10A, Pulse, $T_J = 125^\circ\text{C}$ | - | 0.50 | V |
| I_{R1} | Reverse Current* | @ $V_R = \text{rated } V_R$, $T_J = 25^\circ\text{C}$ | - | 10 | mA |
| I_{R2} | | @ $V_R = \text{rated } V_R$, $T_J = 100^\circ\text{C}$ | - | 50 | mA |
| C_T | Junction Capacitance | @ $V_R = 5\text{ V}$, $T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{ MHz}$ | 560 | - | pF |

Note 1: Pulse width < 300 μs , 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 Max 0.6 | Nm |
| F_C | Mounting force with clip | - | Min 20 Max 60 | N |
| $R_{\theta JC}$ | Maximum Thermal Resistance Junction to Case | DC operation | 1.7 | $^\circ\text{C/W}$ |
| $R_{\theta CS}$ | Typical Thermal Resistance Junction to Heat Sink | - | 0.5 | $^\circ\text{C/W}$ |
| wt | Approximate Weight | - | 1.6 | g |

Characteristic Curves

Fig. 1. Typical Forward Characteristics

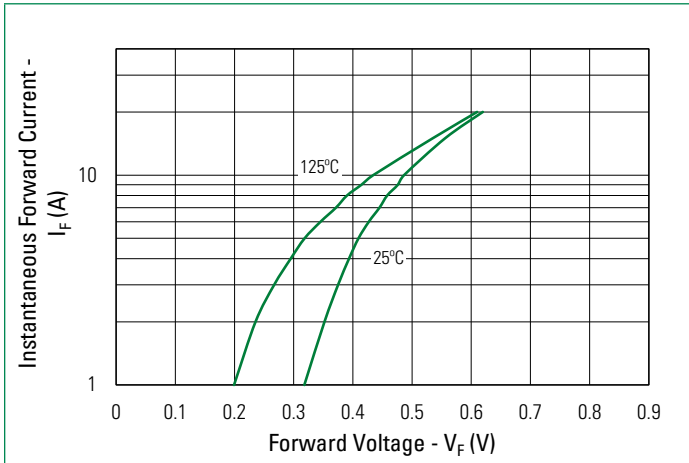


Fig. 2. Typical Reverse Characteristics

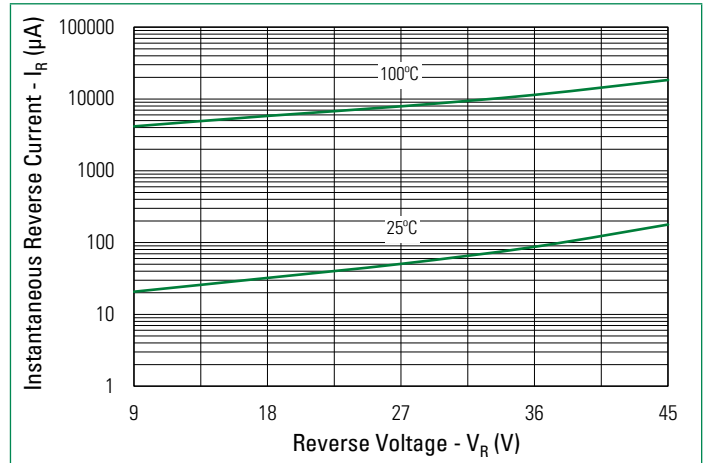
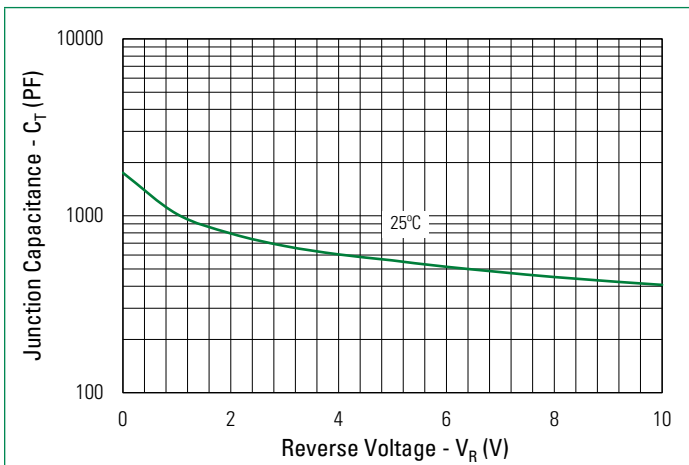
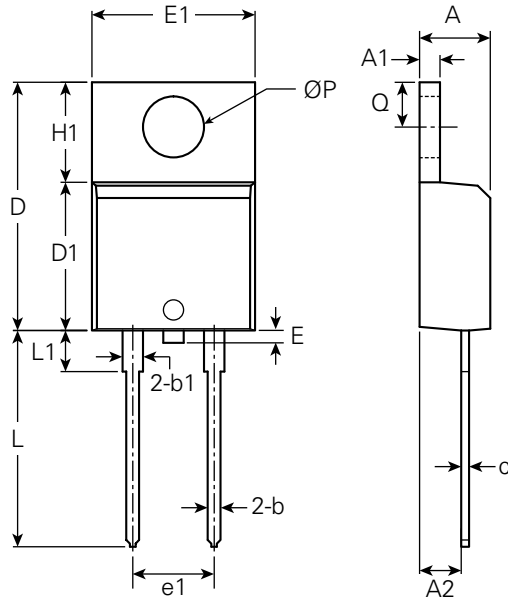


Fig. 3. Typical Junction Capacitance

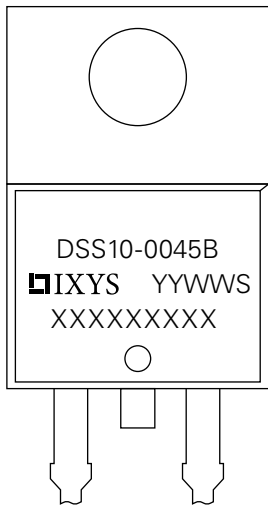


Part Outline Drawing (TO-220AC)



| 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 | 0.100 | - | 0.135 | 2.54 | - | 3.43 |
| ØP | - | 0.14 | - | - | 3.56 | - |

Part Number and Marking

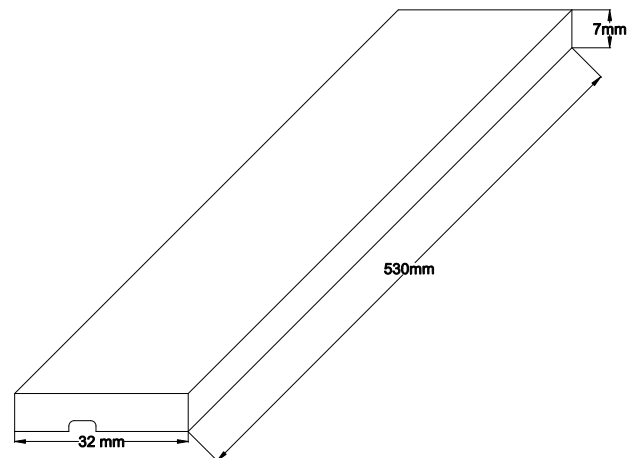


- DS = Schottky Diode
- S = Product Generation
- 10 = Current Rating
- 0045 = Voltage Rating
- B = Package Code
- YY = Year
- WW = Work Week
- S = Plant Location Code
- XXXXXXXXXX = Lot Number

Ordering Information

| Part Number | Marking | Packing Mode | M.O.Q |
|-------------|-------------|---------------|-------|
| DSS10-0045B | DSS10-0045B | Tube (50 pcs) | - |

Packing Specifications



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