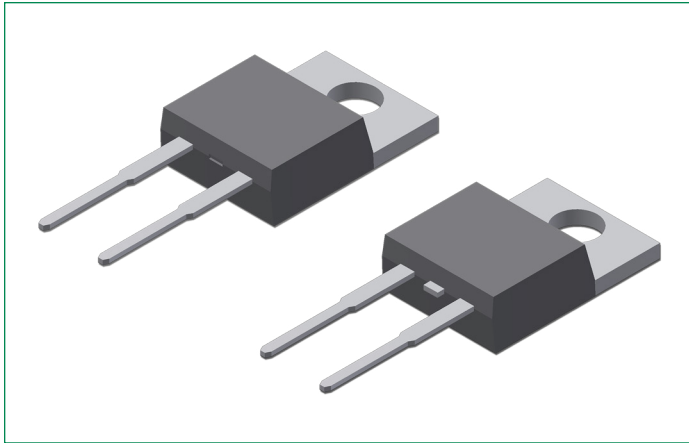


# DSS16-01A

## 100 V, 16 A Schottky Rectifier Diode

RoHS



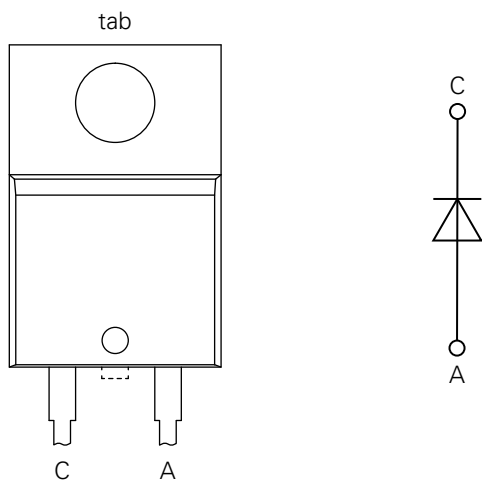
### Features

- 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             | –                                                                   | 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    | 16   | A     |
| $I_{FSM}$   | Peak One Cycle Non-Repetitive Surge Current | 10 ms, Half Sine pulse, $T_J=25^\circ\text{C}$                      | 280  | A     |
| $P_{tot}$   | Total power dissipation                     | $T_C = 25^\circ\text{C}$                                            | 105  | W     |
| $E_{AS}$    | Non-repetitive avalanche energy             | $I_{AS} = 10\text{A}$ , $L=100\mu\text{H}$ , $T_J=25^\circ\text{C}$ | 5    | mJ    |
| $I_{AR}$    | Repetitive avalanche current                | $V_A = 1.5 \cdot V_R$ , typ. $f=1\text{ kHz}$                       | 1    | A     |

**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> | @ 16A, Pulse, $T_J = 25^\circ\text{C}$                                       | –    | 0.83 | V             |
| $V_{F1}$ |                                   | @ 16A, Pulse, $T_J = 125^\circ\text{C}$                                      | –    | 0.65 | V             |
| $I_{R1}$ | Reverse Current*                  | @ $V_R = \text{rated } V_R$ , $T_J = 25^\circ\text{C}$                       | –    | 500  | $\mu\text{A}$ |
| $I_{R2}$ |                                   | @ $V_R = \text{rated } V_R$ , $T_J = 125^\circ\text{C}$                      | –    | 15   | mA            |
| $C_T$    | Junction Capacitance              | @ $V_R = 12\text{ V}$ , $T_C = 25^\circ\text{C}$<br>$f_{SIG} = 1\text{ MHz}$ | 334  | –    | 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                  |
| $R_{THJC}$ | Maximum Thermal Resistance Junction to Case      | DC operation | 1.4                | $^\circ\text{C/W}$ |
| $R_{THCH}$ | 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

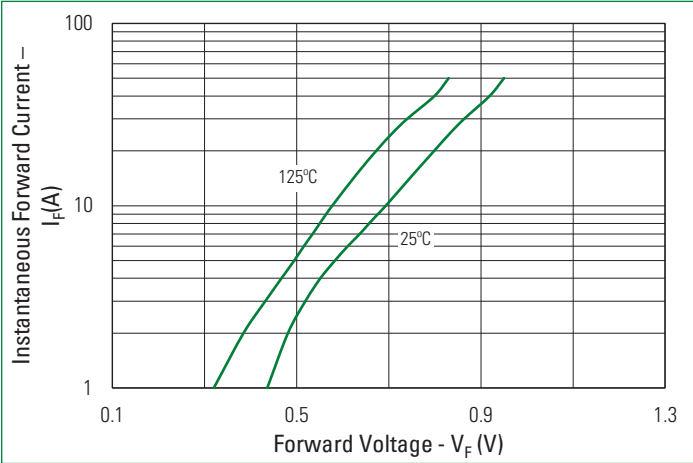


Fig. 2. Typical Reverse Characteristics

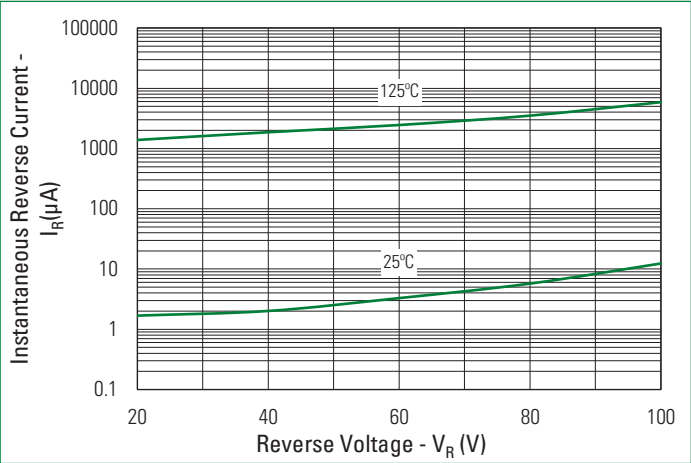
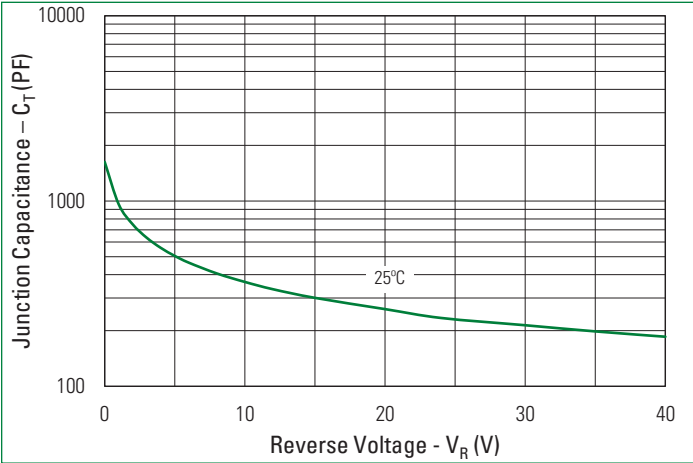
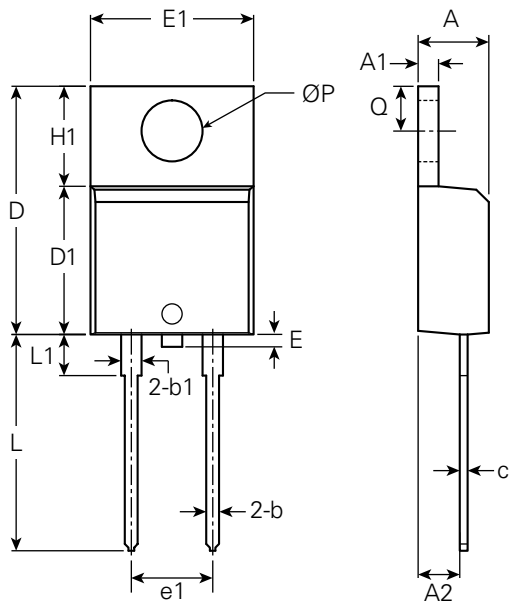


Fig. 3. Typical Junction Capacitance

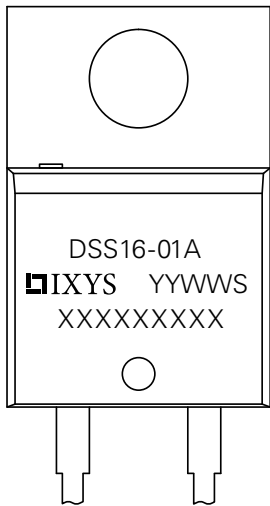


Part Outline Drawing (TO-220AC)



| 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      | 0.1    | –       | 0.13 | 2.54        | –       | 3.43  |
| ØP     | –      | 0.14    | –    | –           | 3.56    | –     |

Part Number and Marking

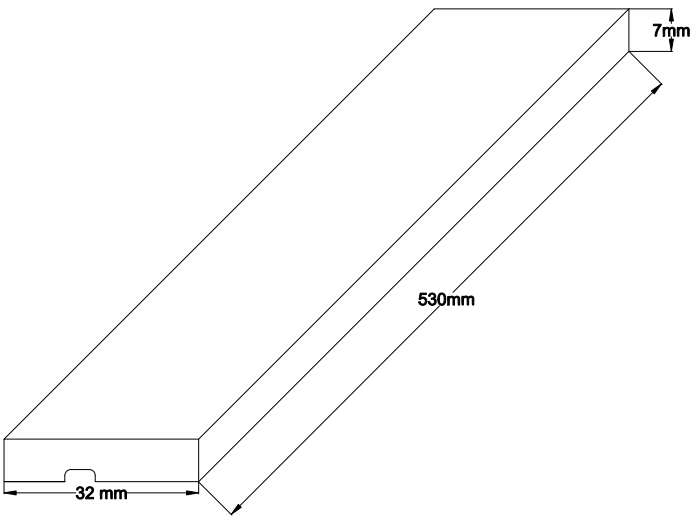


- DS = Schottky Diode
- S = Product Generation
- 16 = Current Rate
- 01 = Voltage Rating
- A = Package Code
- YY = Year
- WW = Work Week
- S = Plant Location Code
- XXXXXXXXXX = Lot Number

Ordering Information

| Part Number | Marking   | Packing Mode  | M.O.Q |
|-------------|-----------|---------------|-------|
| DSS16-01A   | DSS16-01A | Tube (50 pcs) | –     |

Packing Specifications



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Part of:

