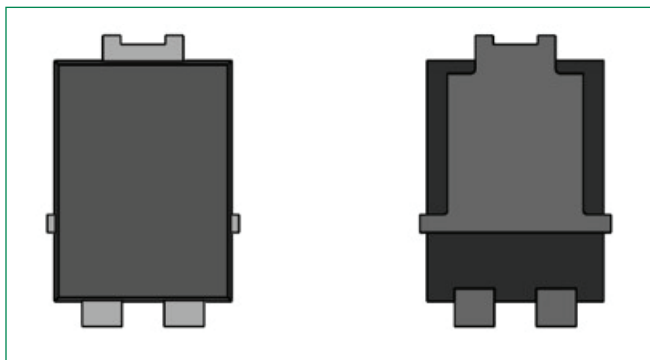
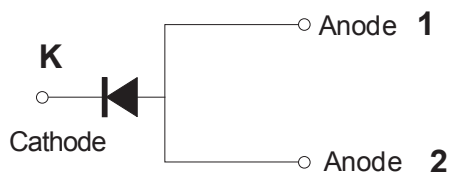


DST10100S-A



## Pin out



## Description

Littelfuse DST series Ultra Low  $V_F$  Schottky Barrier Rectifier is designed to meet the general requirements of commercial and industrial applications by providing high temperature, low leakage and lower  $V_F$  products.

It is suitable for high frequency switching mode power supply, free-wheeling diodes and polarity protection diodes.

## Features

- High reliability application and AEC-Q101 qualified.
- Ultra low forward voltage drop
- High frequency operation
- MSL: Level 1 - unlimited
- High junction temperature capability
- Trench MOS Schottky technology
- Single die in TO-277B Package
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/ JEDEC J-STD-609A.01)

## Applications

- Switching mode power supply
- DC/DC converters
- Free-Wheeling diodes
- Polarity Protection Diodes

## Maximum Ratings

| Parameters                          | Symbol      | Test Conditions                                                     | Max | Unit |
|-------------------------------------|-------------|---------------------------------------------------------------------|-----|------|
| Peak Inverse Voltage                | $V_{RWM}$   | -                                                                   | 100 | V    |
| Single Peak Reverse Voltage         | $V_{RSM}$   | -                                                                   | 105 | V    |
| Average Forward Current*            | $I_{F(AV)}$ | 50% duty cycle @ $T_L = 125^\circ\text{C}$<br>rectangular wave form | 10  | A    |
| Peak One Cycle Non-Repetitive Surge | $I_{FSM}$   | 8.3 ms, half Sine pulse                                             | 150 | A    |

\* Mounted on 30 mm x 30 mm pad areas aluminum PCB

## Electrical Characteristics

| Parameters             | Symbol   | Test Conditions                                         | Max  | Unit |
|------------------------|----------|---------------------------------------------------------|------|------|
| Forward Voltage Drop * | $V_{F1}$ | @2A, Pulse, $T_J = -40^\circ\text{C}$                   | 0.60 | V    |
|                        | $V_{F2}$ | @5A, Pulse, $T_J = -40^\circ\text{C}$                   | 0.65 |      |
|                        | $V_{F3}$ | @10A, Pulse, $T_J = -40^\circ\text{C}$                  | 0.70 |      |
|                        | $V_{F4}$ | @2A, Pulse, $T_J = 25^\circ\text{C}$                    | 0.50 |      |
|                        | $V_{F5}$ | @5A, Pulse, $T_J = 25^\circ\text{C}$                    | 0.60 |      |
|                        | $V_{F6}$ | @10A, Pulse, $T_J = 25^\circ\text{C}$                   | 0.70 |      |
|                        | $V_{F7}$ | @2A, Pulse, $T_J = 125^\circ\text{C}$                   | 0.40 |      |
|                        | $V_{F8}$ | @5A, Pulse, $T_J = 125^\circ\text{C}$                   | 0.55 |      |
|                        | $V_{F9}$ | @10A, Pulse, $T_J = 125^\circ\text{C}$                  | 0.65 |      |
| Reverse Current *      | $I_{R1}$ | @ $V_R = \text{rated } V_R$ , $T_J = 25^\circ\text{C}$  | 0.25 | mA   |
|                        | $I_{R2}$ | @ $V_R = \text{rated } V_R$ , $T_J = 125^\circ\text{C}$ | 36   |      |

\* Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

## Thermal-Mechanical Specifications

| Parameters                                        | Symbol       | Test Conditions | Max         | Unit |
|---------------------------------------------------|--------------|-----------------|-------------|------|
| Junction Temperature                              | $T_J$        |                 | -55 to +150 | °C   |
| Storage Temperature                               | $T_{stg}$    |                 | -55 to +150 | °C   |
| Maximum Thermal Resistance<br>Junction to Ambient | $R_{thJA}$   | DC operation    | 75          | °C/W |
| Maximum Thermal Resistance<br>Junction to Lead    | $R_{thJL}^*$ |                 | 3.5         | °C/W |
| Approximate Weight                                | wt           |                 | 0.08        | g    |
| Case Style                                        | TO-277B      |                 |             |      |

\*Lead temperature monitored at the cathode pin

Figure 1: Forward Current Derating Curve

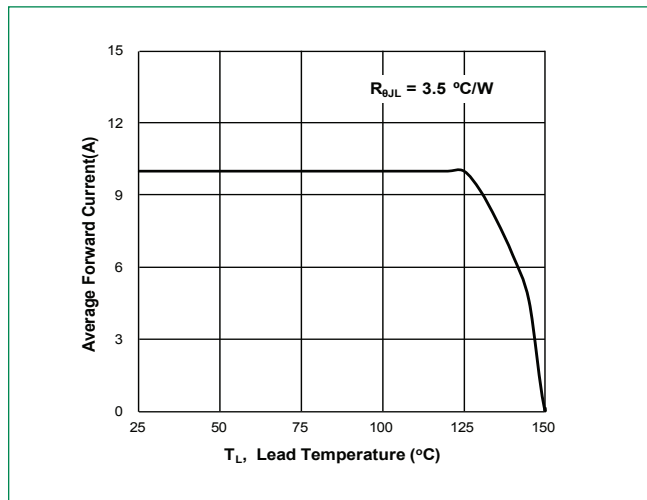


Figure 2: Forward Power Loss Characteristics

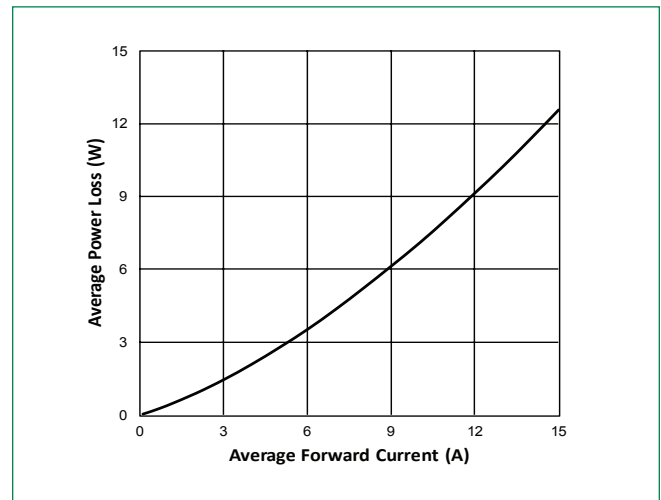


Figure 3: Typical Forward Characteristics

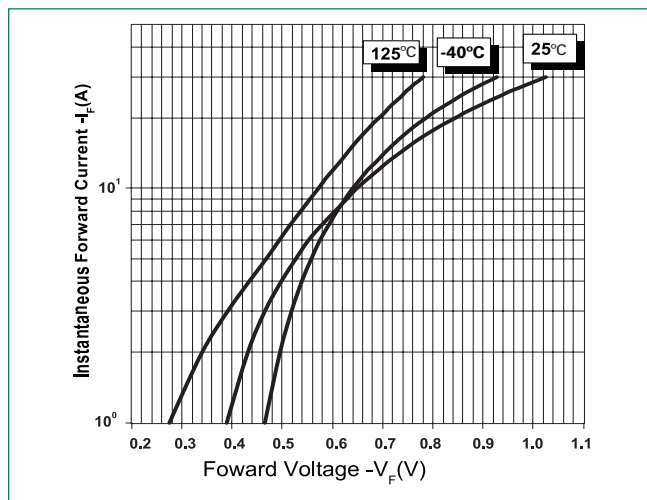
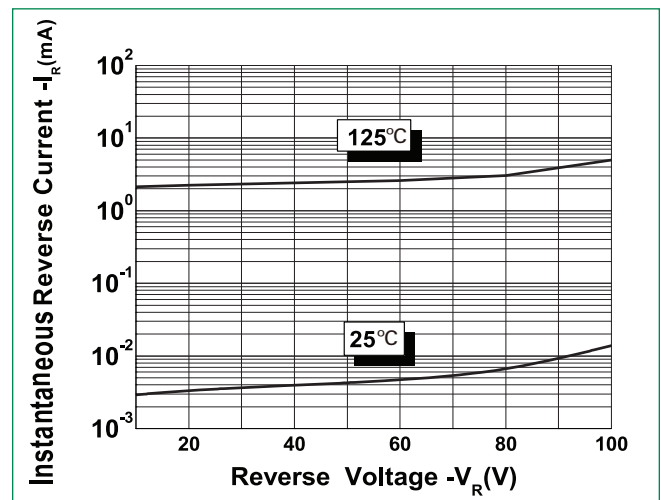
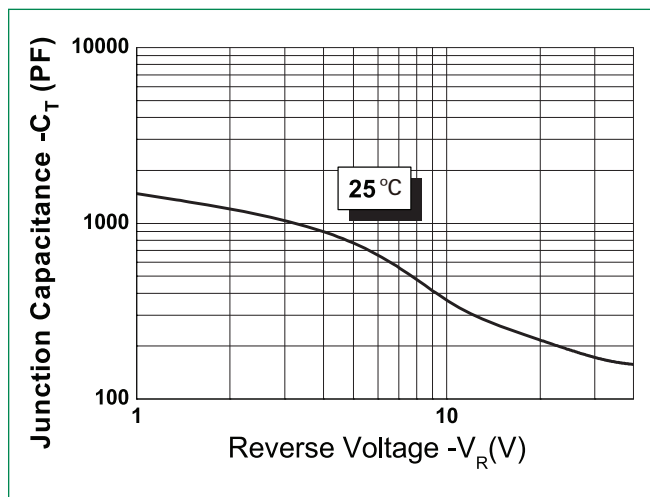


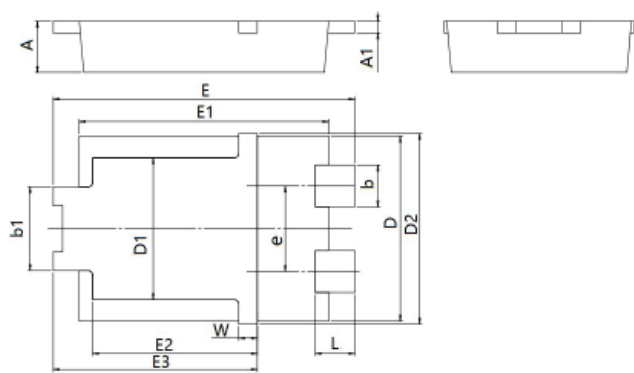
Figure 4: Typical Reverse Characteristics



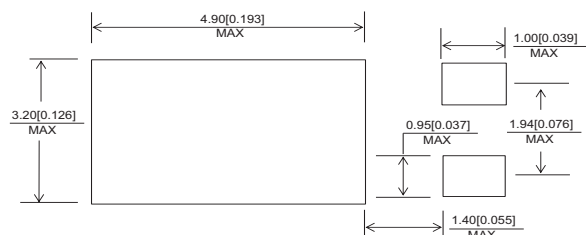
**Figure 5: Typical Junction Capacitance**



**Dimensions-TO-277B**

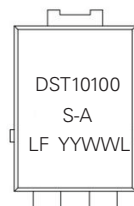


**Mounting Pad Layout**



| Symbol    | Millimeters |      | Inches |       |
|-----------|-------------|------|--------|-------|
|           | Min         | Max  | Min.   | Max.  |
| <b>A</b>  | 0.95        | 1.25 | 0.037  | 0.049 |
| <b>A1</b> | 0.20        | 0.30 | 0.008  | 0.012 |
| <b>b</b>  | 0.85        | 0.95 | 0.033  | 0.037 |
| <b>b1</b> | 1.70        | 1.90 | 0.067  | 0.075 |
| <b>D</b>  | 3.88        | 4.08 | 0.153  | 0.161 |
| <b>D1</b> | 2.90        | 3.20 | 0.114  | 0.126 |
| <b>D2</b> | 4.25        | —    | 0.167  | —     |
| <b>e</b>  | 1.74        | 1.94 | 0.069  | 0.076 |
| <b>E</b>  | 6.30        | 6.70 | 0.248  | 0.264 |
| <b>E1</b> | 5.28        | 5.48 | 0.208  | 0.216 |
| <b>E2</b> | 3.40        | 3.70 | 0.134  | 0.146 |
| <b>E3</b> | 4.20        | 4.60 | 0.165  | 0.181 |
| <b>L</b>  | 0.65        | 1.05 | 0.025  | 0.041 |
| <b>W</b>  | 0.25        | 0.55 | 0.010  | 0.022 |

**Part Numbering and Marking System**

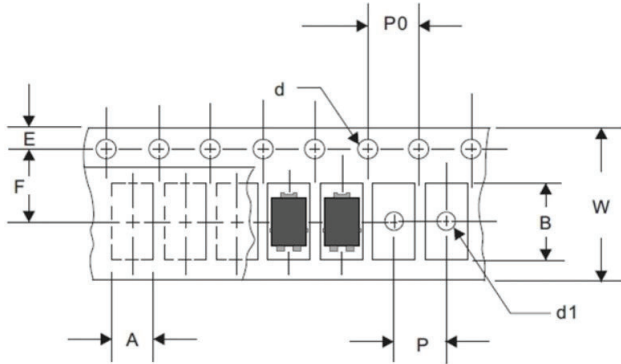


|            |                             |
|------------|-----------------------------|
| <b>DST</b> | = Device Type               |
| <b>10</b>  | = Forward Current (10A)     |
| <b>100</b> | = Reverse Voltage (100V)    |
| <b>S</b>   | = Package Type              |
| <b>A</b>   | = AEC-Q101 qualified device |
| <b>LF</b>  | = Littelfuse                |
| <b>YY</b>  | = Year                      |
| <b>WW</b>  | = Week                      |
| <b>L</b>   | = Lot Number                |

### Packing Options

| Part Number | Marking     | Packing Mode    | M.O.Q |
|-------------|-------------|-----------------|-------|
| DST10100S-A | DST10100S-A | 5000 pcs / Reel | 20000 |

### Carrier Tape & Reel Specification



| Symbol | Millimeters |       |
|--------|-------------|-------|
|        | Min         | Max   |
| A      | 4.28        | 4.48  |
| B      | 6.80        | 7.00  |
| d      | 1.40        | 1.60  |
| d1     | -           | 1.50  |
| E      | 1.65        | 1.85  |
| F      | 7.40        | 7.60  |
| P      | 5.40        | 5.60  |
| P0     | 3.90        | 4.10  |
| W      | 11.70       | 12.30 |

#### Disclaimer Notice

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Part of:

