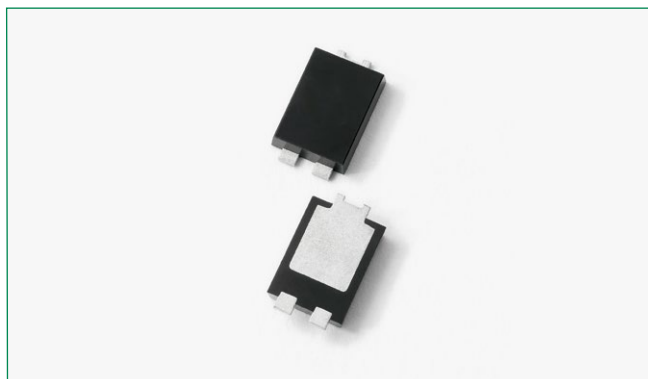
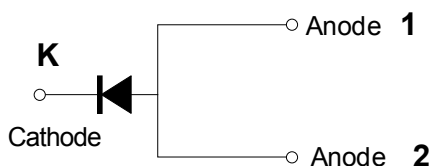


## DST580S-A



### Pin out



### Description

Littelfuse DST series Ultra Low  $V_F$  Schottky Barrier Rectifier is designed to meet the general requirements of automotive 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                        | $V_{RWM}$   | -                                                                | 80  | V    |
| Average Forward Current                     | $I_{F(AV)}$ | 50% duty cycle @ $T_L = 125^\circ\text{C}$ rectangular wave form | 5   | A    |
| Peak One Cycle Non-Repetitive Surge Current | $I_{FSM}$   | 8.3 ms, half Sine pulse                                          | 80  | A    |

### Electrical Characteristics

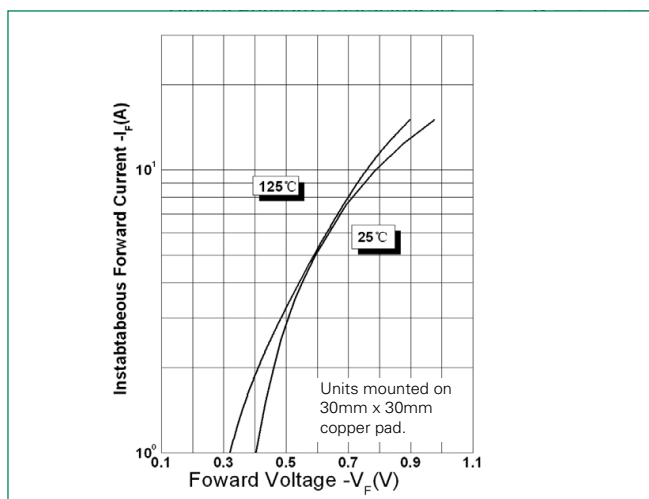
| Parameters            | Symbol   | Test Conditions                                             | Typ   | Max  | Unit |
|-----------------------|----------|-------------------------------------------------------------|-------|------|------|
| Forward Voltage Drop* | $V_{F1}$ | @2.5A, Pulse, $T_J = 25^\circ\text{C}$                      | 0.48  | -    | V    |
|                       |          | @5A, Pulse, $T_J = 25^\circ\text{C}$                        | 0.59  | 0.72 |      |
|                       | $V_{F2}$ | @2.5A, Pulse, $T_J = 125^\circ\text{C}$                     | 0.45  | -    |      |
|                       |          | @5A, Pulse, $T_J = 125^\circ\text{C}$                       | 0.59  | 0.66 |      |
| Reverse Current*      | $I_{R1}$ | @ $V_R = \text{rated } V_R, T_J = 25^\circ\text{C}$         | 0.011 | 0.4  | mA   |
|                       | $I_{R2}$ | @ $V_R = \text{rated } V_R, T_J = 125^\circ\text{C}$        | 4     | 15   |      |
| Junction Capacitance  | $C_T$    | @ $V_R = 5V, T_C = 25^\circ\text{C}, f_{SIG} = 1\text{MHz}$ | 245   | -    | pF   |

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

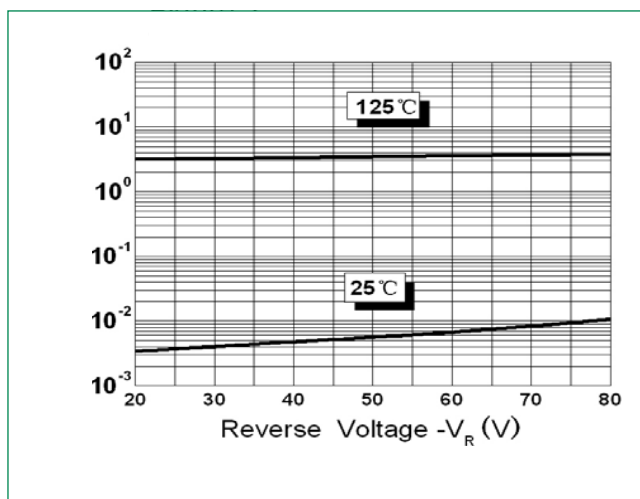
### Thermal-Mechanical Specifications

| 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    | $R_{thJL}$ |                 | 4           | °C/W |
| Approximate Weight                                | wt         |                 | 0.08        | g    |
| Case Style                                        | TO-277B    |                 |             |      |

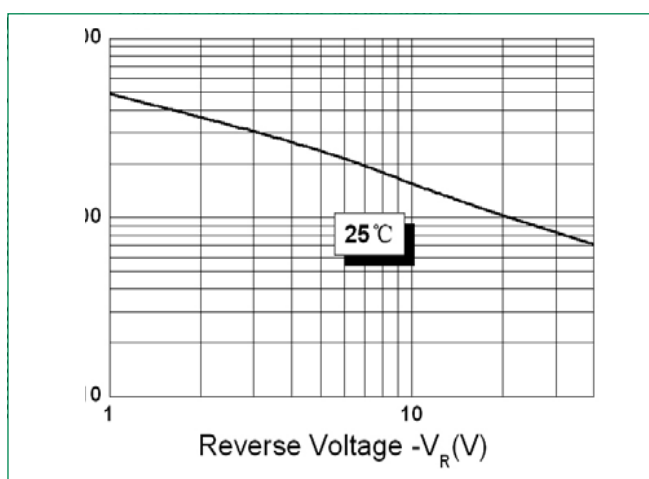
**Figure 1: Typical Forward Characteristics**



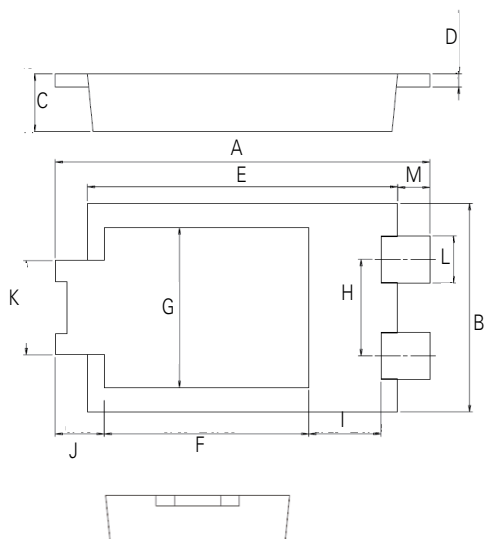
**Figure 2: Typical Reverse Characteristics**



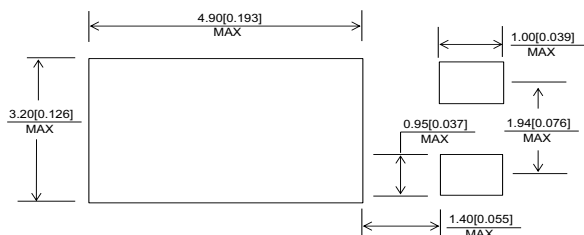
**Figure 3: Typical Junction Capacitance**



### Dimensions-T0-277B



### Mounting Pad Layout

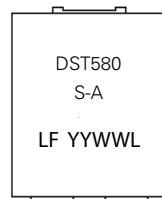


### Packing Options

| Part Number | Marking   | Packing Mode   | M.O.Q |
|-------------|-----------|----------------|-------|
| DST580S-A   | DST580S-A | 5000pcs / Reel | 5000  |

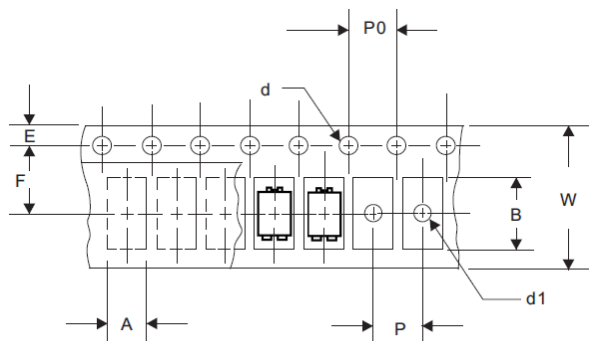
| Symbol | Millimeters |      |      |
|--------|-------------|------|------|
|        | Min         | Typ  | Max  |
| A      | 6.30        | 6.50 | 6.70 |
| B      | 3.88        | 3.98 | 4.08 |
| C      | 0.95        | 1.10 | 1.25 |
| D      | 0.20        | 0.25 | 0.30 |
| E      | 5.28        | 5.38 | 5.48 |
| F      | 3.40        | 3.55 | 3.70 |
| G      | 2.90        | 3.05 | 3.20 |
| H      | 1.74        | 1.84 | 1.94 |
| I      | 1.10        | 1.25 | 1.40 |
| J      | -           | 0.85 | -    |
| K      | 1.70        | 1.80 | 1.90 |
| L      | 0.85        | 0.90 | 0.95 |
| M      | -           | 0.56 | -    |

### Part Numbering and Marking System



DST = Device Type  
 5 = Forward Current (5A)  
 80 = Reverse Voltage (80V)  
 S = Package Type  
 A = AEC-Q101 qualified device  
 LF = Littelfuse  
 YY = Year  
 WW = Week  
 L = Lot Number

### 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      | 5.40        | 5.60  |
| P      | 7.90        | 8.10  |
| P0     | 3.90        | 4.10  |
| W      | 11.70       | 12.30 |