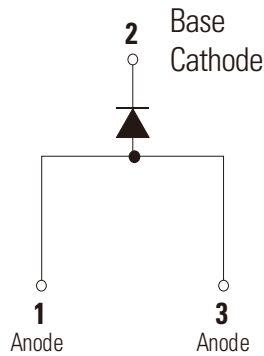


## DSTD5200



### Pin out



### Description

Littelfuse DST series Ultra Low  $V_F$  Schottky Barrier Rectifier is designed to meet the general requirements of commercial and industry 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

- Ultra low forward voltage drop
- High frequency operation
- High junction temperature capability
- Guard ring for enhanced ruggedness and long term reliability
- Single die in TO-252 package

### 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                                  | $V_{RWM}$   | -                                                                | 200 | V    |
| Average Forward Current (per device)                  | $I_{F(AV)}$ | 50% duty cycle @ $T_C = 100^\circ\text{C}$ rectangular wave form | 5   | A    |
| Peak One Cycle Non-Repetitive Surge Current (per leg) | $I_{FSM}$   | 8.3 ms, half Sine pulse                                          | 120 | A    |

### Electrical Characteristics

| Parameters                       | Symbol   | Test Conditions                                         | Typ      | Max  | Unit          |
|----------------------------------|----------|---------------------------------------------------------|----------|------|---------------|
| Breakdown Voltage (per leg) *    | $V_{BR}$ | @ $I_R = 1.0\text{mA}$ , $T_J = 25^\circ\text{C}$       | 200(Min) | -    | V             |
| Forward Voltage Drop (per leg) * | $V_{F1}$ | @ 2.5A, Pulse, $T_J = 25^\circ\text{C}$                 | 0.72     | -    | V             |
|                                  |          | @ 5A, Pulse, $T_J = 25^\circ\text{C}$                   | 0.81     | 0.90 |               |
|                                  | $V_{F2}$ | @ 2.5A, Pulse, $T_J = 125^\circ\text{C}$                | 0.60     | -    |               |
|                                  |          | @ 5A, Pulse, $T_J = 125^\circ\text{C}$                  | 0.67     | 0.73 |               |
| Reverse Current (per leg) *      | $I_{R1}$ | @ $V_R = \text{rated } V_R$ , $T_J = 25^\circ\text{C}$  | 0.19     | 150  | $\mu\text{A}$ |
|                                  | $I_{R2}$ | @ $V_R = \text{rated } V_R$ , $T_J = 125^\circ\text{C}$ | 0.33     | 10   | mA            |

\* 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   |
| Typical Thermal Resistance Junction to Case | $R_{thJC}$ | DC operation    | 2.4         | °C/W |
| Approximate Weight                          | wt         |                 | 0.39        | g    |
| Case Style                                  |            | DPAK (TO-252)   |             |      |

Figure 1: Typical Forward Characteristics

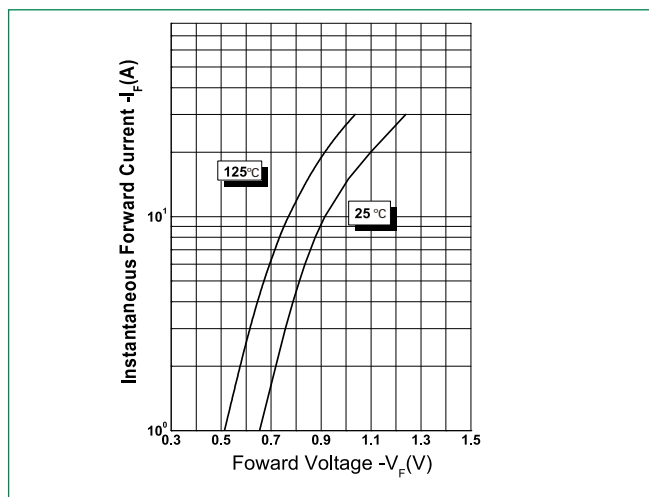


Figure 2: Typical Reverse Characteristics

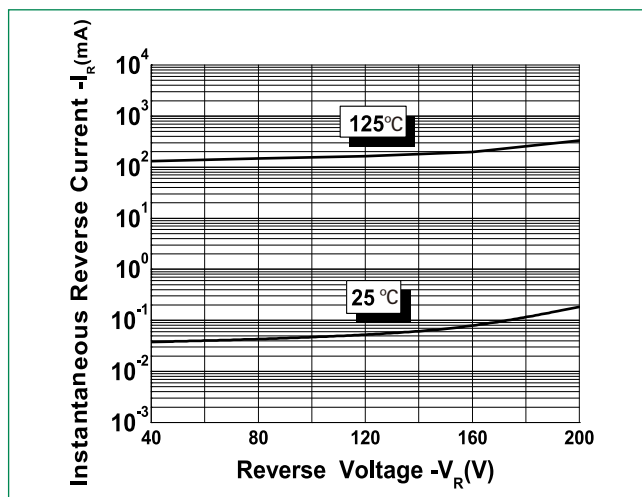
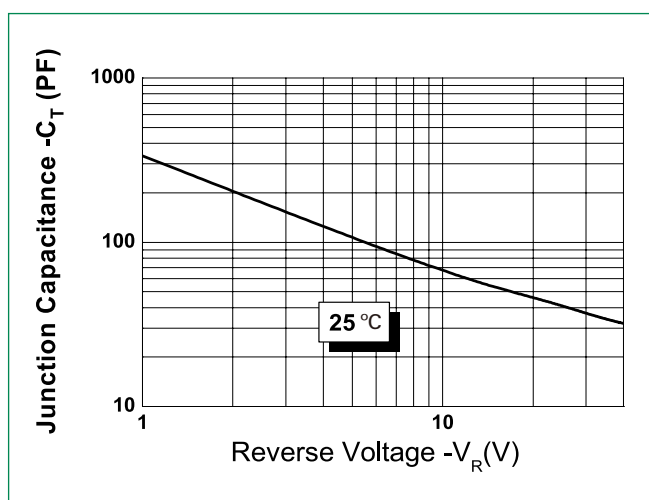
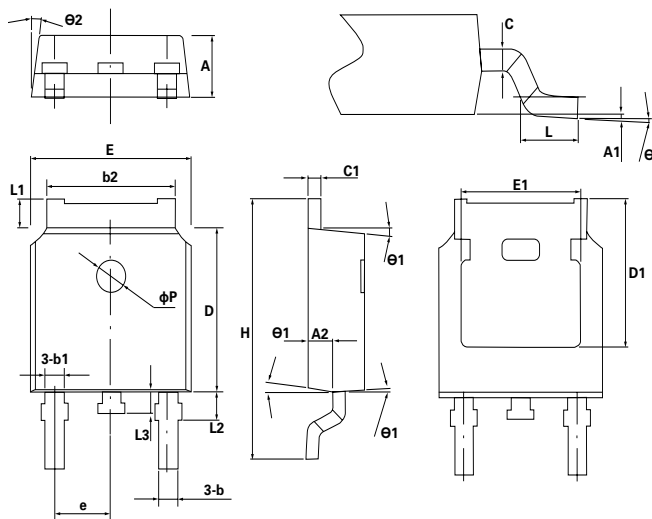


Figure 3: Typical Junction Capacitance

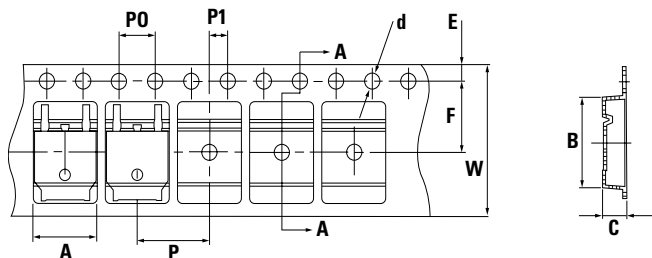


### Dimensions-DPAK(TO-252)



| Symbol    | Min.     | Typ. | Max.. |
|-----------|----------|------|-------|
| <b>A</b>  | 2.2      | 2.3  | 2.38  |
| <b>A1</b> | 0        | -    | 0.1   |
| <b>A2</b> | 0.9      | 1.01 | 1.1   |
| <b>b</b>  | 0.71     | 0.76 | 0.86  |
| <b>b1</b> |          | 0.76 |       |
| <b>b2</b> | 5.13     | 5.33 | 5.46  |
| <b>c</b>  | 0.47     | 0.5  | 0.6   |
| <b>c1</b> | 0.47     | 0.5  | 0.6   |
| <b>D</b>  | 6        | 6.1  | 6.2   |
| <b>D1</b> | -        | 5.3  | -     |
| <b>E</b>  | 6.5      | 6.6  | 6.7   |
| <b>E1</b> | -        | 4.8  | -     |
| <b>e</b>  | 2.286BSC |      |       |
| <b>H</b>  | 9.7      | 10.1 | 10.4  |
| <b>L</b>  | 1.4      | 1.5  | 1.7   |
| <b>L1</b> | 0.9      | -    | 1.25  |
| <b>L2</b> |          | 1.05 |       |
| <b>L3</b> |          | 0.8  |       |
| <b>øP</b> |          | 1.2  |       |
| <b>Θ</b>  | 0°       | -    | 8°    |
| <b>Θ1</b> | 5°       | 7°   | 9°    |
| <b>Θ2</b> | 5°       | 7°   | 9°    |

## Carrier Tape & Reel Specification



| Symbol    | Millimeters |       |
|-----------|-------------|-------|
|           | Min         | Max   |
| <b>A</b>  | 6.80        | 7.00  |
| <b>B</b>  | 10.40       | 10.60 |
| <b>C</b>  | 2.60        | 2.80  |
| <b>d</b>  | ø1.45       | ø1.65 |
| <b>E</b>  | 1.65        | 1.85  |
| <b>F</b>  | 7.40        | 7.60  |
| <b>P0</b> | 3.90        | 4.10  |
| <b>P</b>  | 7.90        | 8.10  |
| <b>P1</b> | 1.90        | 2.10  |
| <b>W</b>  | 15.5        | 16.5  |

## Part Numbering and Marking System



**DST** = Device Type  
**D** = Package type  
**5** = Forward Current (5A)  
**200** = Reverse Voltage (200V)  
**CT** = Configuration  
**LF** = Littelfuse  
**YY** = Year  
**WW** = Week  
**L** = Lot Number

## Packing Options

| Part Number | Marking  | Packing Mode   | M.O.Q |
|-------------|----------|----------------|-------|
| DSTD5200    | DSTD5200 | 2500pcs / reel | 2500  |