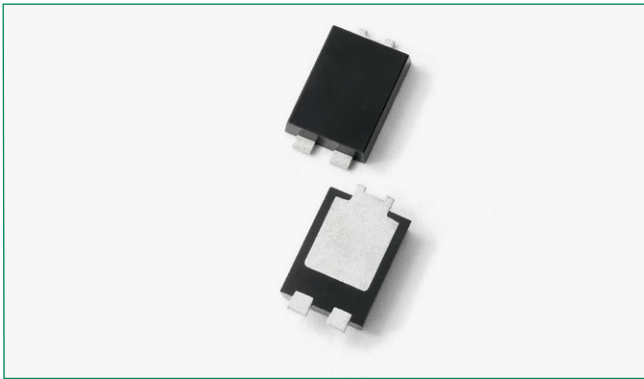
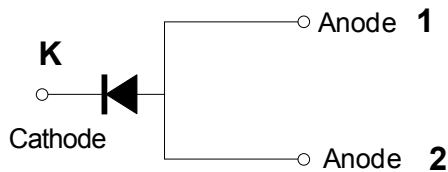


DST1040S-A



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} | - | 40 | V |
| Average Forward Current* | $I_{F(AV)}$ | 50% duty cycle @ $T_L = 125^\circ\text{C}$ rectangular wave form | 10 | A |
| Peak One Cycle Non-Repetitive Surge Current | 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 | Typ | Max | Unit |
|------------------------|----------|---|-------|------|---------------|
| Forward Voltage Drop * | V_{F1} | @5A, Pulse, $T_J = 25^\circ\text{C}$ | 0.40 | 0.51 | V |
| | | @10A, Pulse, $T_J = 25^\circ\text{C}$ | 0.46 | 0.57 | |
| | V_{F2} | @5A, Pulse, $T_J = 125^\circ\text{C}$ | 0.30 | 0.43 | |
| | | @10A, Pulse, $T_J = 125^\circ\text{C}$ | 0.37 | 0.50 | |
| Reverse Current * | I_{R1} | @ $V_R = \text{rated } V_R, T_J = 25^\circ\text{C}$ | 0.015 | 0.80 | μA |
| | I_{R2} | @ $V_R = \text{rated } V_R, T_J = 125^\circ\text{C}$ | 78 | 100 | |
| Junction Capacitance | C_T | @ $V_R = 5\text{V}, T_C = 25^\circ\text{C}, f_{\text{SIG}} = 1\text{MHz}$ | 579 | - | pF |

* Pulse Width < 300 μs , 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 Junction to Ambient | R_{thJA} | DC operation | 75 | °C/W |
| Maximum Thermal Resistance Junction to Lead | R_{thJL}^* | | 3.5 | °C/W |
| Approximate Weight | wt | | 0.08 | g |
| Case Style | | TO-277B | | |

Mounted on 30 mm x 30 mm aluminum PCB; thermal resistance R_{thJL} - junction to lead

*Lead temperature monitored at the cathode pin

Figure 1: Forward Current Derating Curve

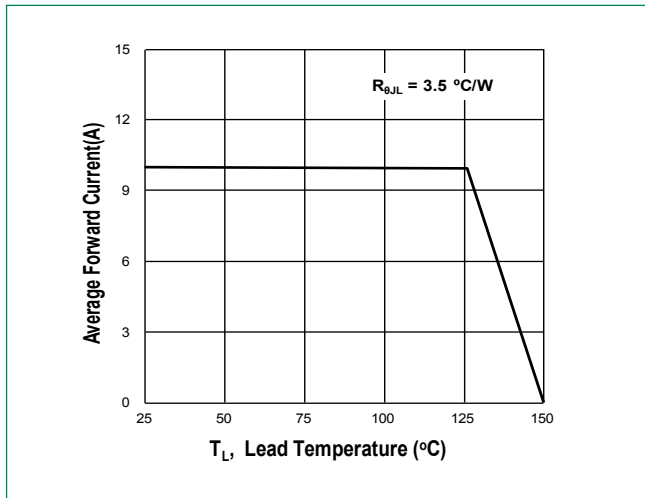


Figure 2: Forward Power Loss Characteristics

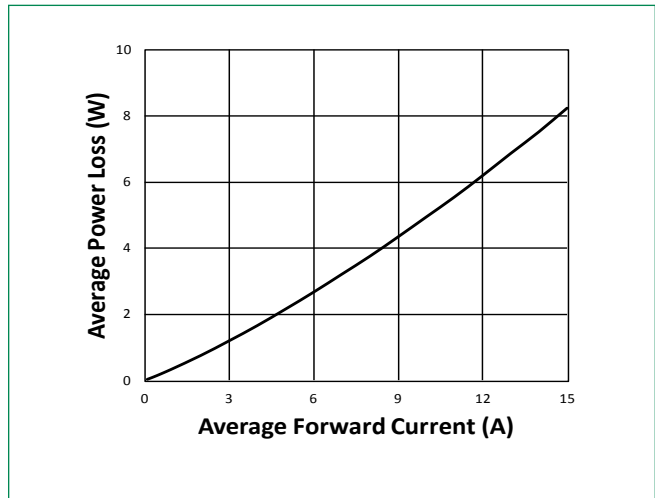


Figure 3: Typical Forward Characteristics

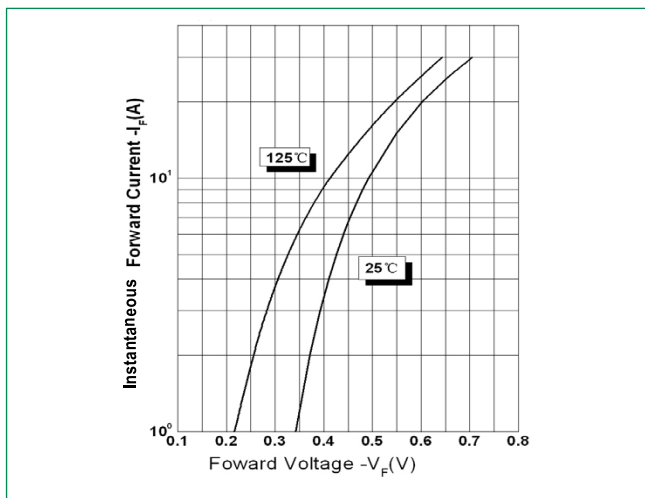


Figure 4: Typical Reverse Characteristics

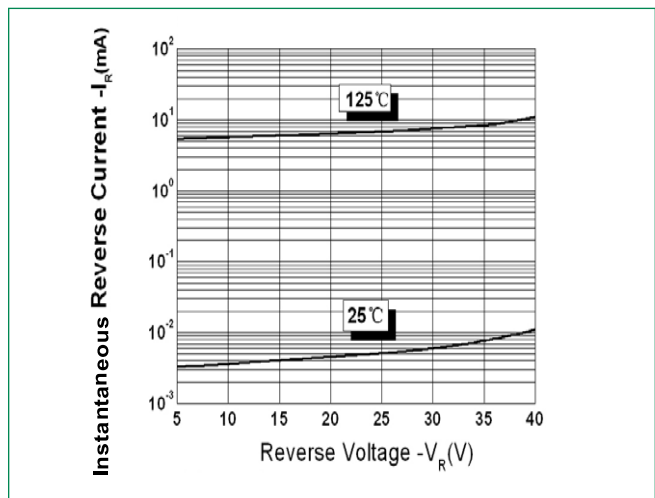
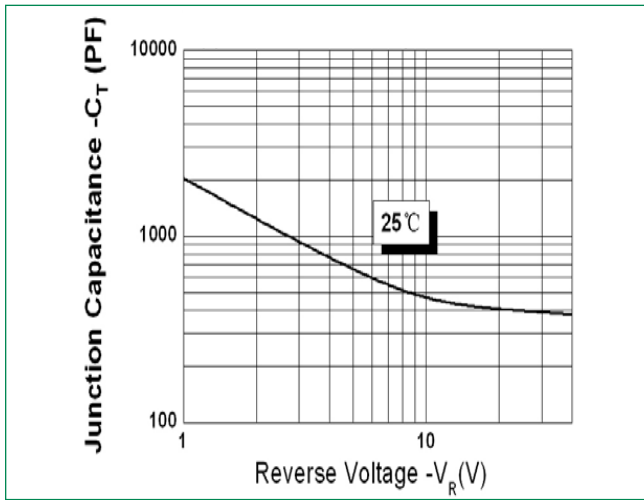
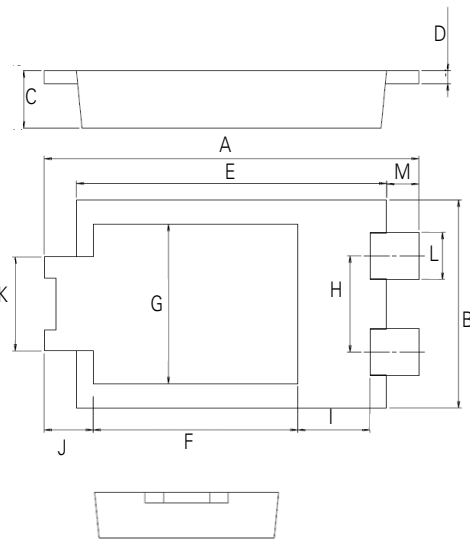


Figure 5: Typical Junction Capacitance

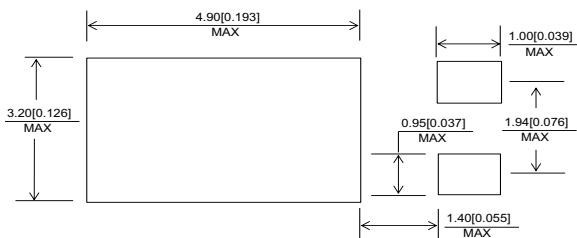


Dimensions-TO-277B

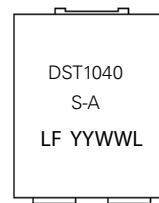


| Symbol | Millimeters | | |
|--------|-------------|------|------|
| | Min | Typ | Max |
| A | 6.30 | 6.50 | 6.70 |
| B | 3.88 | 3.98 | 4.08 |
| C | 0.95 | 1.10 | 1.25 |
| D | 0.20 | 0.25 | 0.30 |
| E | 5.28 | 5.38 | 5.48 |
| F | 3.40 | 3.55 | 3.70 |
| G | 2.90 | 3.05 | 3.20 |
| H | 1.74 | 1.84 | 1.94 |
| 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 | - |

Mounting Pad Layout



Part Numbering and Marking System

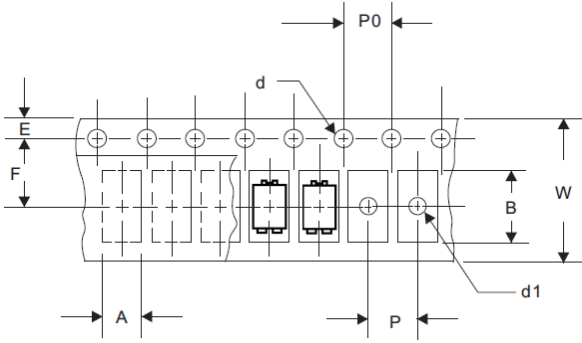


- DST = Device Type
- 10 = Forward Current (10A)(10A)
- 40 = Reverse Voltage (45V)(40V)
- S = Package Type
- A = AEC-Q101 qualified device
- LF = Littelfuse
- YY = Year
- WW = Week
- L = Lot Number

Packing Options

| Part Number | Marking | Packing Mode | M.O.Q |
|-------------|------------|----------------|-------|
| DST1040S-A | DST1040S-A | 5000pcs / Reel | 5000 |

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 |