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September 2015

# FSV8100V

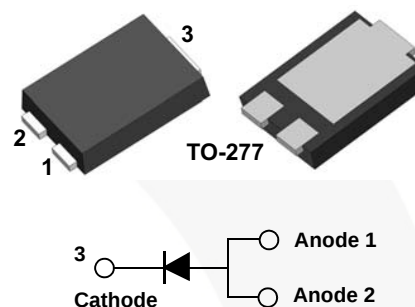
## 8 A, 100 V Ultra-Low VF Schottky Rectifier

### Features

- Ultra-Low Forward Voltage Drop
- Low Thermal Resistance
- Very Low Profile: Typical Height of 1.1 mm
- Trench Schottky Technology
- RoHS Compliant
- Green Molding Compound as per IEC61249 Standard
- Lead Free in Compliance with EU RoHS 2011/65/EU Directive
- Qualified per AEC-Q101 Rev. C Standard

### Applications

- AC-DC and DC-DC Converter
- Mobile Charger
- LED lighting
- Solar Panel
- Reverse Polarity Protection



### Ordering Information

| Part Number | Top Mark | Package   | Packing Method |
|-------------|----------|-----------|----------------|
| FSV8100V    | FSV8100V | TO-277 3L | Tape and Reel  |

### Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol      | Parameter                                    | Value       | Unit             |
|-------------|----------------------------------------------|-------------|------------------|
| $V_{RRM}$   | Peak Repetitive Reverse Voltage              | 100         | V                |
| $V_{RWM}$   | Working Peak Reverse Voltage                 | 100         | V                |
| $V_{RMS}$   | RMS Reverse Voltage                          | 70          | V                |
| $V_R$       | DC Blocking Voltage                          | 100         | V                |
| $I_{F(AV)}$ | Average Rectified Peak Forward Surge Current | 8           | A                |
| $I_{FSM}$   | Non-Repetitive Peak Forward Surge Current    | 150         | A                |
| $T_J$       | Operating Junction Temperature Range         | -55 to +150 | $^\circ\text{C}$ |
| $T_{STG}$   | Storage Temperature Range                    | -55 to +150 | $^\circ\text{C}$ |

FSV8100V — 8 A, 100 V Ultra-Low VF Schottky Rectifier

## Thermal Characteristics<sup>(1)</sup>

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol          | Parameter                                                                  | Minimum Land Pattern | Maximum Land Pattern | Unit               |
|-----------------|----------------------------------------------------------------------------|----------------------|----------------------|--------------------|
| $R_{\theta JA}$ | Junction-to-Ambient Thermal Resistance                                     | 100                  | 40                   | $^\circ\text{C/W}$ |
| $\Psi_{JL}$     | Junction-to-Lead Thermal Characteristics, Thermocouple Soldered to Anode   | 15                   | 12                   | $^\circ\text{C/W}$ |
|                 | Junction-to-Lead Thermal Characteristics, Thermocouple Soldered to Cathode | 6                    | 5                    |                    |

### Note:

- The thermal resistances ( $R_{\theta JA}$  &  $\Psi_{JL}$ ) are characterized with device mounted on the following FR4 printed circuit boards, as shown in Figure 1 and Figure 2. PCB size: 76.2 x 114.3 mm. Minimum land pattern size: 4.9 x 4.8 mm (big pattern, x1), 1.4 x 1.52 mm (small pattern, x2). Maximum land pattern size: 30 x 30 mm (pattern, x2). Force line trace size = 55 mils, sense line trace size = 4 mils.



Figure 1. Minimum Land Pattern of 2 oz Copper



Figure 2. Maximum Land Pattern of 2 oz Copper

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol   | Parameter             | Conditions                                                        | Min. | Typ.  | Max.  | Unit |
|----------|-----------------------|-------------------------------------------------------------------|------|-------|-------|------|
| $BV_R$   | Breakdown Voltage     | $I_R = 0.5 \text{ mA}$                                            | 100  |       |       | V    |
| $V_F$    | Forward Voltage Drop  | $I_F = 5 \text{ A}$                                               |      | 0.542 |       | V    |
|          |                       | $I_F = 5 \text{ A}, T_A = 125^\circ\text{C}$                      |      | 0.496 |       |      |
|          |                       | $I_F = 8 \text{ A}$                                               |      | 0.620 | 0.670 |      |
|          |                       | $I_F = 8 \text{ A}, T_A = 125^\circ\text{C}$                      |      | 0.574 | 0.600 |      |
|          |                       | $I_F = 10 \text{ A}$                                              |      | 0.674 |       |      |
|          |                       | $I_F = 10 \text{ A}, T_A = 125^\circ\text{C}$                     |      | 0.611 |       |      |
| $I_R$    | Reverse Current       | $V_R = 70 \text{ V}$                                              |      | 0.006 |       | mA   |
|          |                       | $V_R = 70 \text{ V}, T_A = 125^\circ\text{C}$                     |      | 5.57  |       |      |
|          |                       | $V_R = 100 \text{ V}$                                             |      | 0.008 | 0.05  |      |
|          |                       | $V_R = 100 \text{ V}, T_A = 125^\circ\text{C}$                    |      | 15.65 | 20    |      |
| $C_J$    | Junction Capacitance  | $V_R = 4 \text{ V}, f = 1 \text{ MHz}$                            |      | 672   |       | pF   |
| $T_{rr}$ | Reverse Recovery Time | $I_F = 0.5 \text{ A}, I_R = 1 \text{ A}, I_{rr} = 0.25 \text{ A}$ |      | 19.64 |       | ns   |

## Typical Performance Characteristics

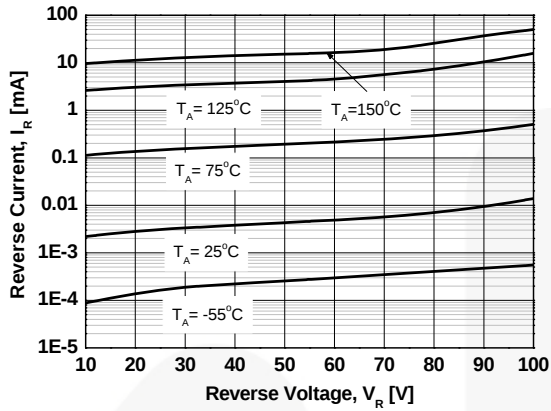


Figure 3. Typical Reverse Characteristics

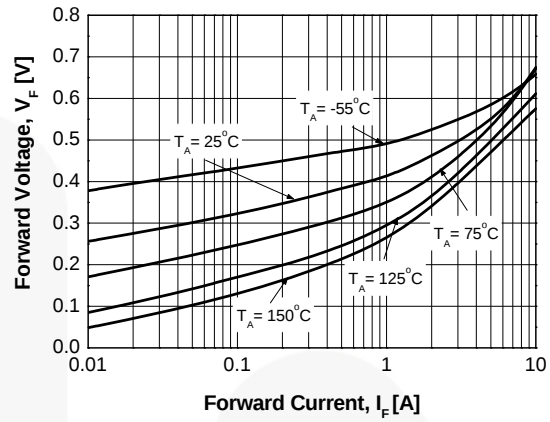


Figure 4. Typical Forward Characteristics

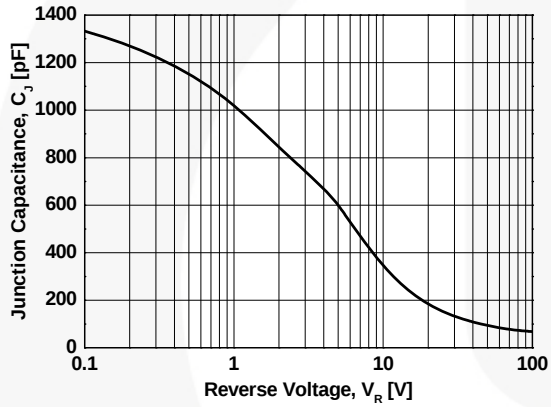


Figure 5. Typical Junction Capacitance

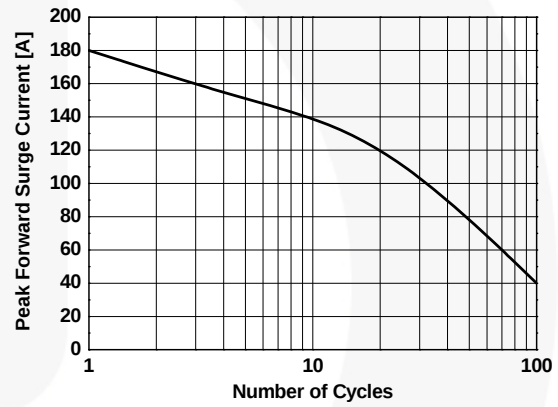


Figure 6. Maximum Non-repetitive Peak Forward Surge Current

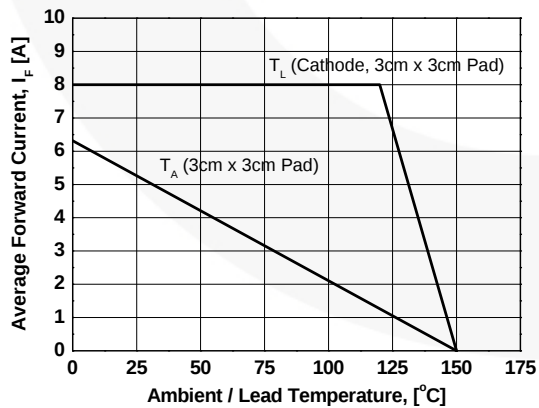


Figure 7. Forward Current Derating Curve



TOP VIEW

SEATING  
PLANE

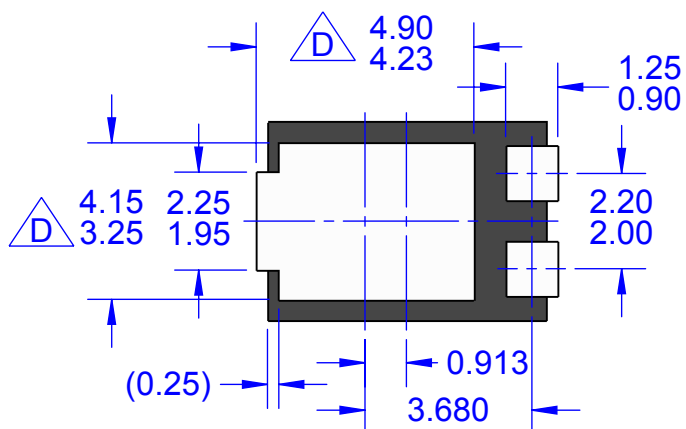
0.01



FRONT VIEW



LAND PATTERN RECOMMENDATION



BOTTOM VIEW

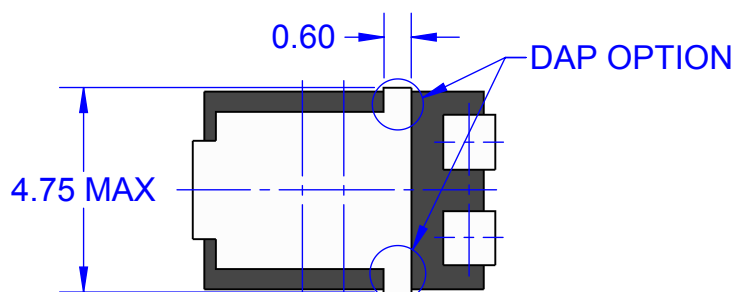
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BOTTOM VIEW - DAP OPTION



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