



PFC Device Corporation

## P5L45F-A

### 5A 45V MOS Schottky Rectifier

#### Major ratings and characteristics

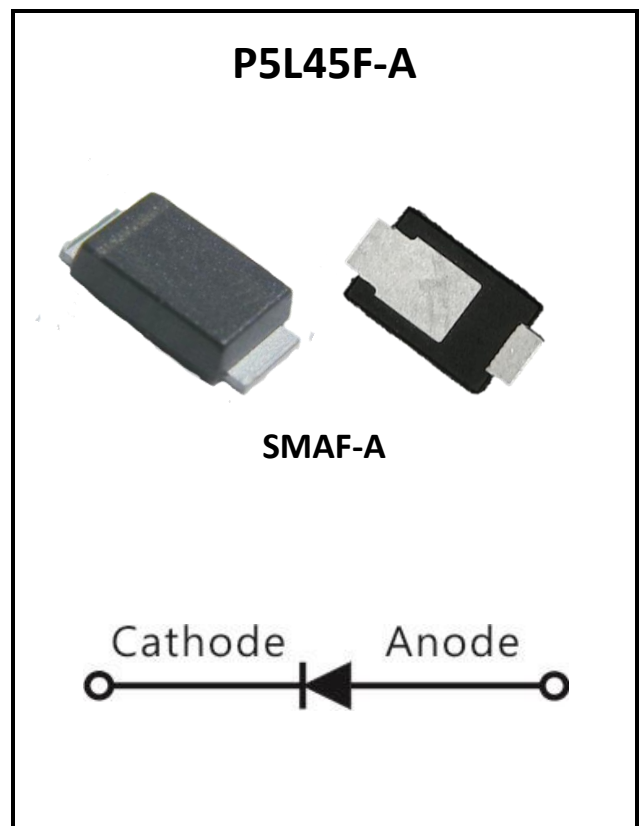
| Characteristics                      | Values      | Units      |
|--------------------------------------|-------------|------------|
| $I_{F(AV)}$ Rectangular Waveform     | 5           | A          |
| $V_{RRM}$                            | 45          | V          |
| $V_F@ 5A, T_j=125^\circ C$           | 0.45        | V, typ.    |
| $T_j$ Operating Junction Temperature | -65 to +150 | $^\circ C$ |

#### Features

- Low Forward Voltage Drop
- Reliable High Temperature Operation
- Softest, fast switching capability
- 150 $^\circ C$  Operating Junction Temperature
- Lead Free Finish, RoHS Compliant
- Green Molding Compound (No Br, Sb)

#### Typical Applications

Device optimized for low forward voltage drop to maximize efficiency in Power Supply applications



## 1. Characteristics

### Maximum Ratings Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise specified )

| Parameter                                                                                        | Symbol         | Values       | Units                       |
|--------------------------------------------------------------------------------------------------|----------------|--------------|-----------------------------|
| DC Blocking Voltage                                                                              | $V_{RM}$       | 45           | Volts                       |
| Working Peak Reverse Voltage                                                                     | $V_{RWM}$      |              |                             |
| Peak Repetitive Reverse Voltage                                                                  | $V_{RRM}$      |              |                             |
| Average Rectified Forward Current<br>Per device<br>(Rated VR-20Khz Square Wave) - 50% duty cycle | $I_o$          | 5            | Amps                        |
| Peak Forward Surge Current - 1/2 60hz                                                            | $I_{FSM}$      | 150          | Amps                        |
| Peak Repetitive Reverse Surge Current (2uS-1Khz)                                                 | $I_{RRM}$      | 2            | Amps                        |
| Typical Thermal Resistance                                                                       | $R\theta_{JL}$ | 30           | $^\circ\text{C} / \text{W}$ |
| Thermal Resistance junction to Ambient Note (1)                                                  |                |              |                             |
| Maximum Rate of Voltage Change ( at Rated VR )                                                   | $dv/dt$        | 10000        | V/uS                        |
| Operating Junction Temperature                                                                   | $T_J$          | - 65 to +150 | $^\circ\text{C}$            |
| Storage Junction Temperature                                                                     | $T_{STG}$      | - 65 to +150 |                             |

### Electrical Characteristics - (per leg) ( $T_A = 25^\circ\text{C}$ unless otherwise specified )

| Parameter                     | Test Conditions |                           | Symbol | Typ. | Max. | Units         |
|-------------------------------|-----------------|---------------------------|--------|------|------|---------------|
| Instantaneous Forward Voltage | IF = 1.0 A      | $T_J = 25^\circ\text{C}$  | VF*    | 0.34 | ---- | Volts         |
|                               | IF = 2.5 A      |                           |        | 0.39 | ---- |               |
|                               | IF = 5.0 A      |                           |        | 0.47 | 0.51 |               |
|                               | IF = 1.0 A      | $T_J = 125^\circ\text{C}$ |        | 0.23 | ---- |               |
|                               | IF = 2.5 A      |                           |        | 0.32 | ---- |               |
|                               | IF = 5.0 A      |                           |        | 0.44 | ---- |               |
| Instantaneous Reverse Current | At $V_{RM}$     | $T_J = 25^\circ\text{C}$  | IR*    | 54   | 300  | $\mu\text{A}$ |
|                               |                 | $T_J = 125^\circ\text{C}$ |        | ---- | 35   | $\text{mA}$   |

\* Pulse width < 300 uS, Duty cycle < 2%

Note 1. FR-4 PCB, 2 oz Copper. Minimum recommended pad layout



2. Characteristics Curves

Ratings and Characteristics Curves

( TA = 25°C unless otherwise specified )

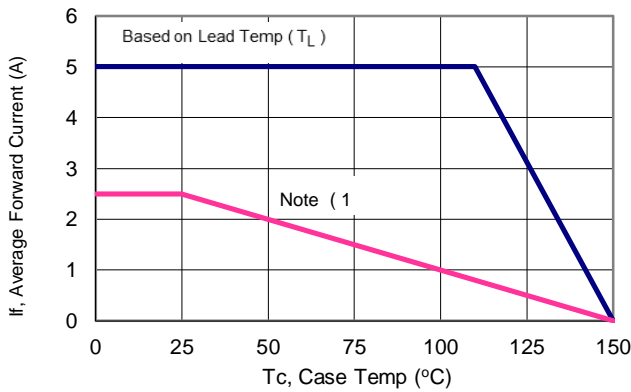


Figure 1: Current Derating, Case

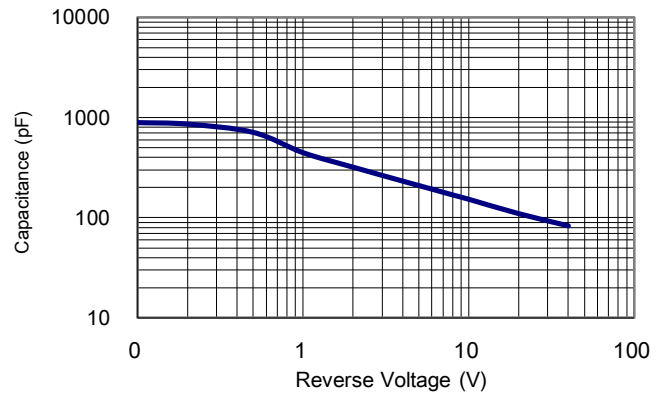


Figure 2: Typical Junction Capacitance

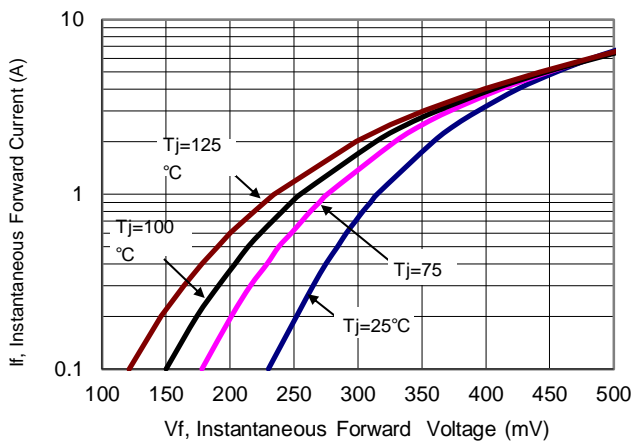


Figure 3: Typical Forward Voltage

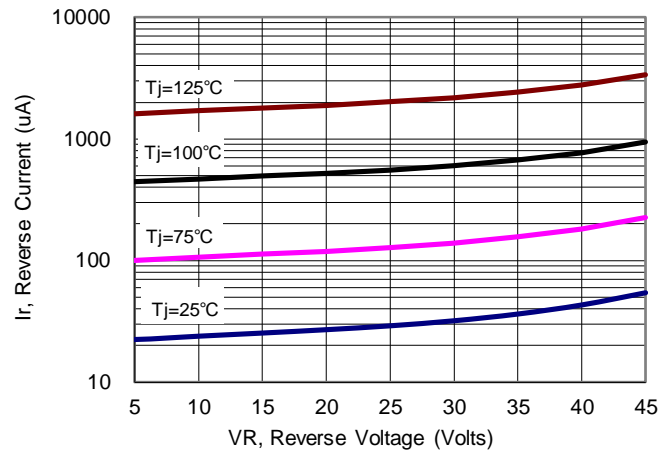
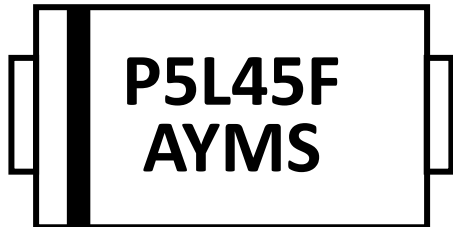


Figure 4: Typical Reverse Current



3. Marking information

Top Marking Rule



P5L45F = Product Type Marking Code

A = Assembly Code

YM = Date Code

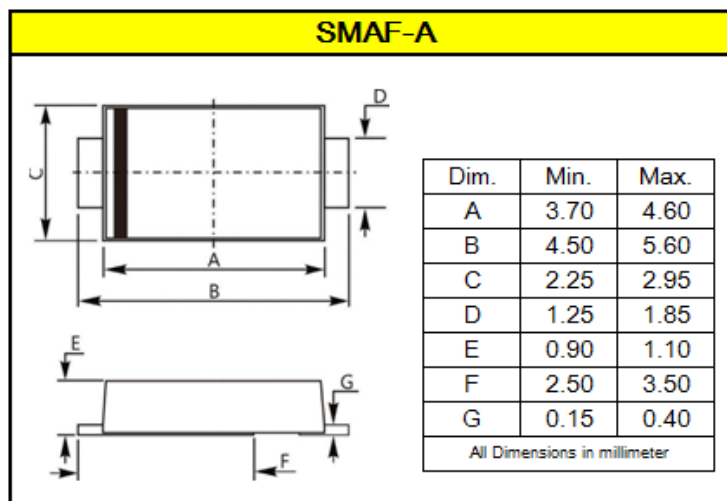
Y = Last one digits of year

M = Month code

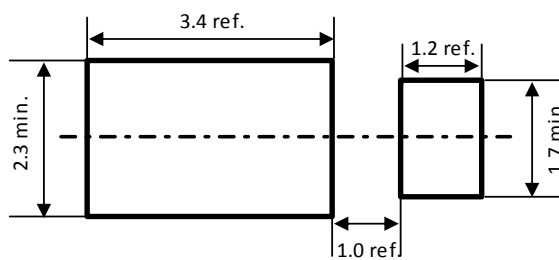
S = Series Number

4. Package information

Suggested Package Outline Dimensions millimeters

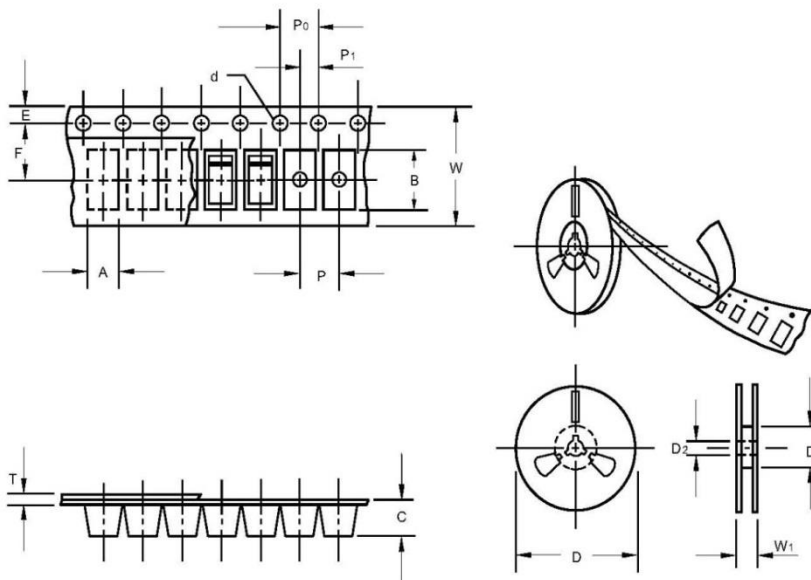


Mounting pad Outline Dimensions millimeters



5. Packing and Ordering information

Packing information millimeters



| Item                  | Symbol | Dimension |
|-----------------------|--------|-----------|
| Carrier width         | A      | 2.79±0.15 |
| Carrier length        | B      | 5.10±0.15 |
| Carrier depth         | C      | 1.40±0.15 |
| Sprocket hole         | d      | 1.55±0.10 |
| Reel outside diameter | D      | 330.0±1.0 |
| Reel inner diameter   | D1     | 75±1.0    |
| Feed hole diameter    | D2     | 13.5±1.0  |
| Stocket hole position | E      | 1.75±0.10 |
| Punch hole position   | F      | 5.5±0.05  |
| Punch hole pitch      | P      | 4.0±0.10  |
| Sprocket hole pitch   | P0     | 4.0±0.10  |
| Embossment center     | P1     | 2.0±0.10  |
| Total tape thickness  | T      | 0.3±0.10  |
| Tape width            | W      | 12.0±0.15 |
| Reel width            | W1     | 18.1±1.5  |

Ordering information

| Part Number | Package                 | Base Quantity | Delivery mode                      |
|-------------|-------------------------|---------------|------------------------------------|
| P5L45F-A    | Flat SMA with heat sink | 10000         | 13" diameter plastic tape and reel |

Mechanical

- Case: SMAF-A (Flat SMA with heat sink)
- Molder Plastic: UL Flammability Classification Rating 94V-0
- Device Weight : 0.0012 ounces (0.033grams) – SMAF-A

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