



PFC Device Corporation

# PFR4045PT PFR4045PT-L

## 40A 45V MOS Schottky Rectifier

### Major ratings and characteristics

| Characteristics                      | Values        | Units      |
|--------------------------------------|---------------|------------|
| $I_{F(AV)}$ Rectangular Waveform     | $20 \times 2$ | A          |
| $V_{RRM}$                            | 45            | V          |
| $V_F@ 20A, T_J=125^\circ C$          | 0.56          | V, typ.    |
| $T_J$ Operating Junction Temperature | -65 to +150   | $^\circ C$ |

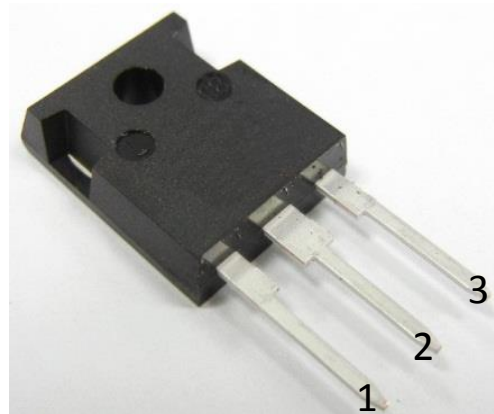
### Features

- Low Forward Voltage Drop
- Reliable High Temperature Operation
- Softest, fast switching capability
- $150^\circ C$  Operating Junction Temperature
- Lead Free Finish, RoHS Compliant

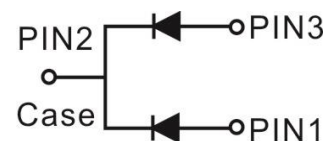
### Typical Applications

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

### PFR4045PT



### TO-247AB



## 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  | $I_o$          | 40           | Amps                          |
| (Rated VR-20Khz Square Wave) - 50% duty cycle    |                |              |                               |
| Peak Forward Surge Current - 1/2 60hz            | $I_{FSM}$      | 250          | Amps                          |
| Peak Repetitive Reverse Surge Current (2uS-1Khz) | $I_{RRM}$      | 2            | Amps                          |
| Typical Thermal Resistance (per leg)             | $R\theta_{JC}$ | 1.5          | $^{\circ}\text{C} / \text{W}$ |
| 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         |
|-------------------------------|-----------------|-----------------------------|---------|-----------|------|---------------|
| Breakdown Voltage             | IR = 0.5mA      | $T_J = 25^{\circ}\text{C}$  | $V_B^*$ | 45 (min.) |      | V             |
| Instantaneous Forward Voltage | IF = 20 A       | $T_J = 25^{\circ}\text{C}$  | $V_F^*$ | -----     | 0.64 | Volts         |
|                               |                 | $T_J = 125^{\circ}\text{C}$ |         | 0.56      | 0.60 |               |
| Instantaneous Reverse Current | At $V_{RM}$     | $T_J = 25^{\circ}\text{C}$  | $I_R^*$ | -----     | 500  | $\mu\text{A}$ |
|                               |                 | $T_J = 125^{\circ}\text{C}$ |         | -----     | 100  | mA            |

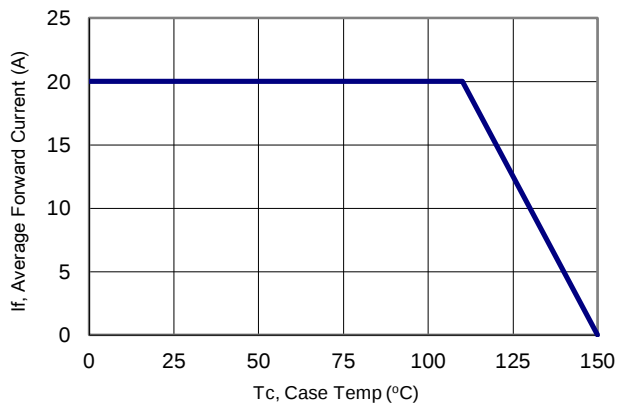
\* Pulse width < 300 uS, Duty cycle < 2%



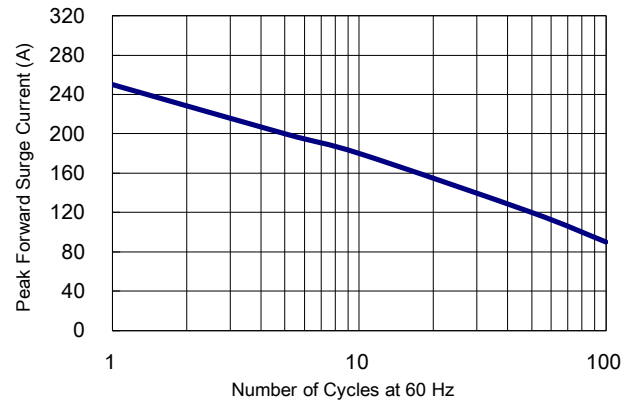
## 2. Characteristics Curves

### Ratings and Characteristics Curves

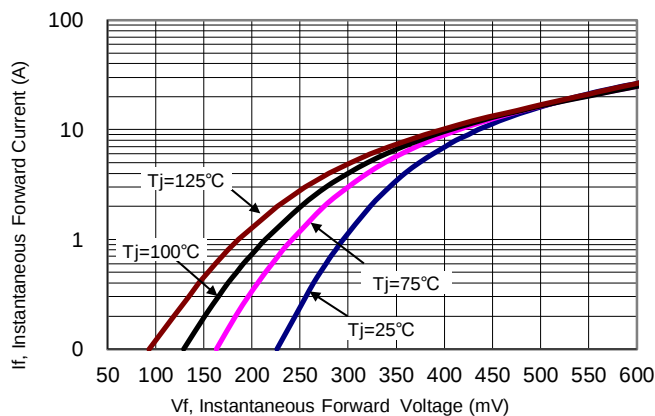
(  $T_A = 25^{\circ}\text{C}$  unless otherwise specified )



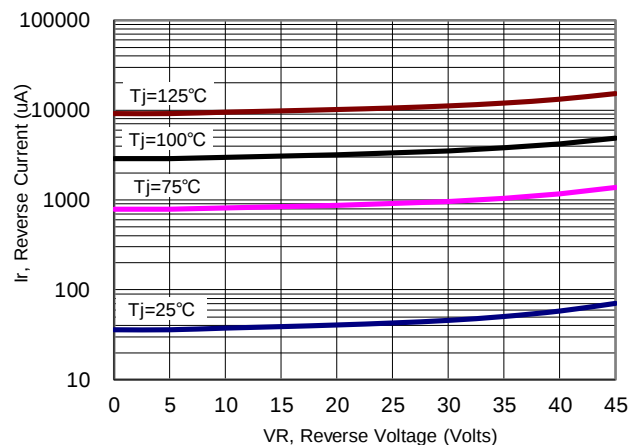
**Figure 1: Current Derating, Case**



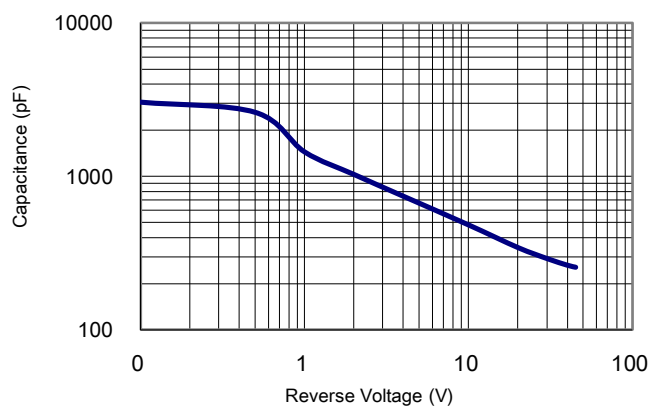
**Figure 2: Maximum Repetitive Surge Current**



**Figure 3: Typical Forward Voltage**



**Figure 4: Typical Reverse Current**

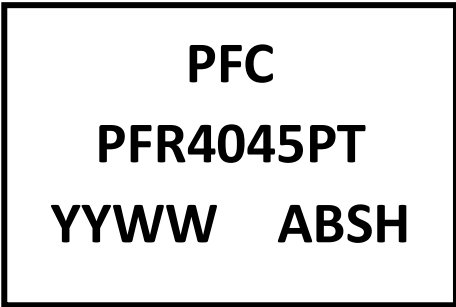


**Figure 5: Typical Junction Capacitance**



3. Marking information

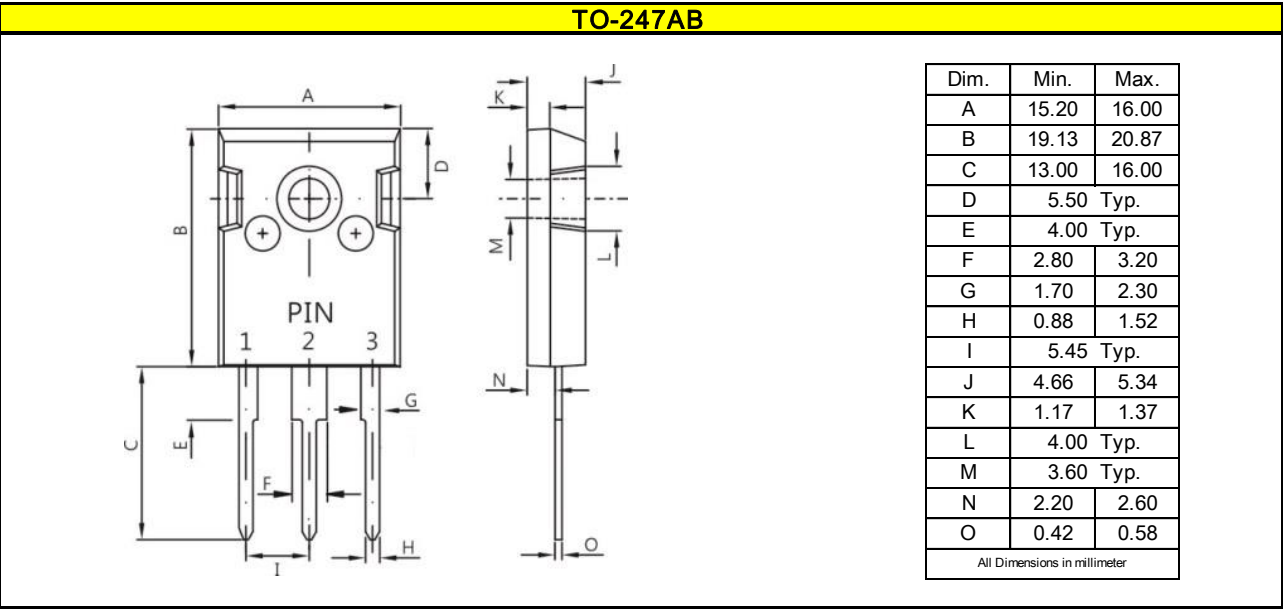
Top Marking Rule

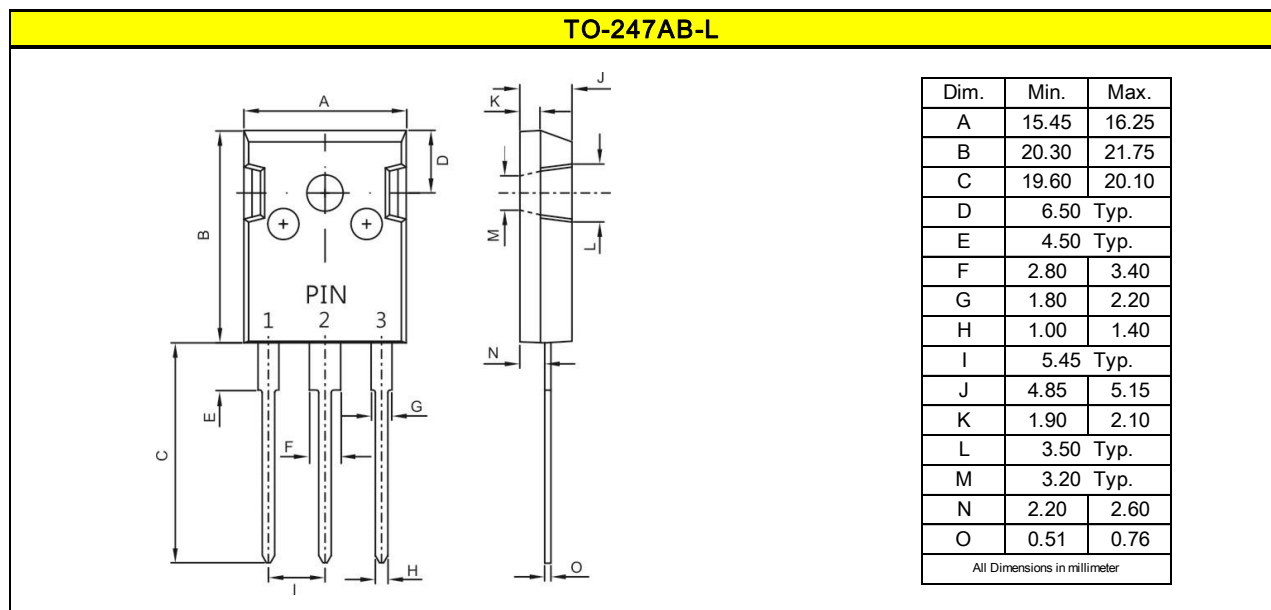


PFR4045PT = Product Type Marking Code  
YYWW = Date Code  
YY = Last two digits of year  
WW = Week code  
AB = Assembly code  
S = Series Number  
H = Halogen Free (N/A = common molding compound)

4. Package information

Package Outline Dimensions millimeters





## 5. Ordering information

| Part Number | Package               | Delivery mode    |
|-------------|-----------------------|------------------|
| PFR4045PT   | TO-247AB              | 30 pieces / tube |
| PFR4045PT-L | TO-247AB-L(long lead) | 30 pieces / tube |

Note: For Halogen Free molding compound, add "H" suffix to part number above.

### Mechanical

- Molder Plastic: UL Flammability Classification Rating 94V-0
- Device Weight : 0.16 ounces (4.53grams) - TO-247AB  
0.197 Ounces (5.6grams) – TO-247AB-L (long lead)  
Mounting Torque : 10 in-lbs maximum.



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