



PFC Device Corporation

PFR2045CT
PFR2045CTF
PFR2045CTI
PFR2045CTB

20A 45V MOS Schottky Rectifier

Major ratings and characteristics

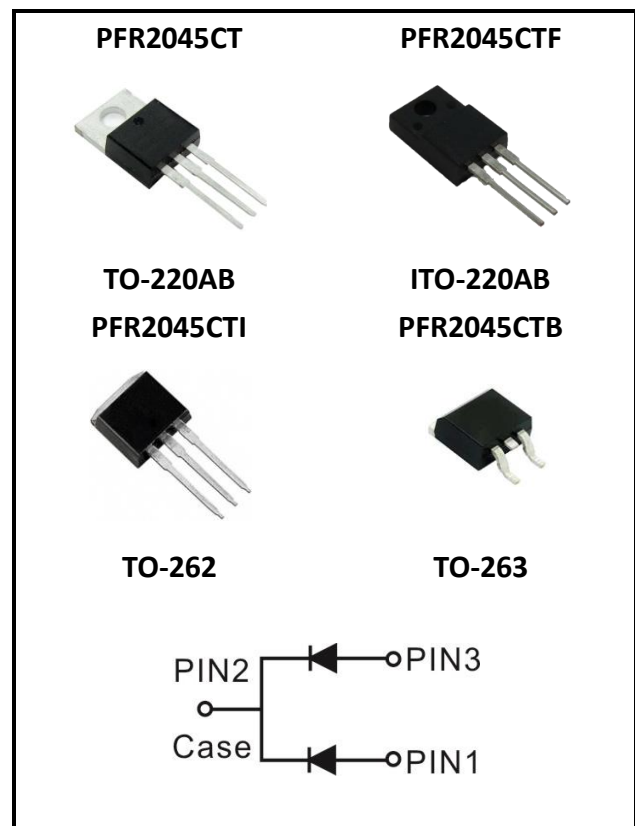
| Characteristics | Values | Units |
|--------------------------------------|-------------|------------|
| $I_{F(AV)}$ Rectangular Waveform | 10 × 2 | A |
| V_{RRM} | 45 | V |
| $V_F@ 10A, T_j=125^\circ C$ | 0.51 | V, typ. |
| T_j Operating Junction Temperature | -65 to +150 | $^\circ C$ |

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



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 Per device (Rated VR-20Khz Square Wave) - 50% duty cycle | I_o | 20 | 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 (per leg) Package = TO-220AB Package = ITO-220AB Package = TO-262 Package = TO-263 | $R\theta_{JC}$ | 2 4 2.5 3 | $^\circ\text{C} / \text{W}$ |
| Isolation voltage (ITO-220 only) | V_{AC} | 1500 | V |
| Maximum Rate of Voltage Change (at Rated V_R) | 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 | $I_R = 0.5\text{mA}$ | $T_J = 25^\circ\text{C}$ | V_B^* | 45 (min.) | | V |
| Instantaneous Forward Voltage | $I_F = 10\text{A}$ | $T_J = 25^\circ\text{C}$ | V_F^* | --- | 0.54 | Volts |
| | | $T_J = 125^\circ\text{C}$ | | 0.51 | 0.52 | |
| Instantaneous Reverse Current | At V_{RM} | $T_J = 25^\circ\text{C}$ | I_R^* | --- | 500 | μA |
| | | $T_J = 125^\circ\text{C}$ | | --- | 100 | mA |

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



2. Characteristics Curves

Ratings and Characteristics Curves (TA = 25°C unless otherwise specified)

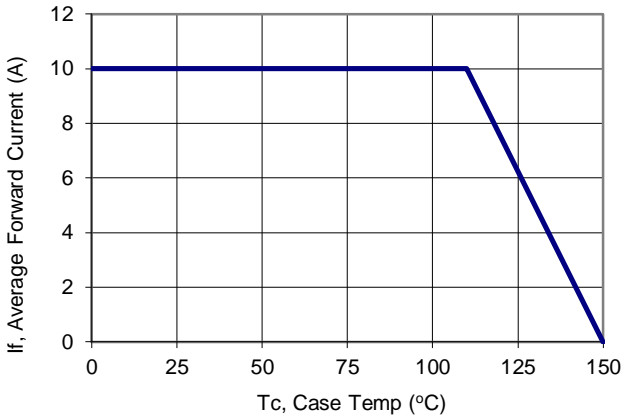


Figure 1: Current Derating, Case

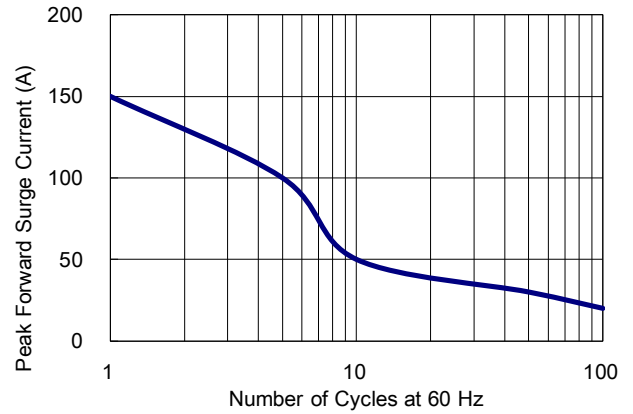


Figure 2: Maximum Repetitive Surge Current

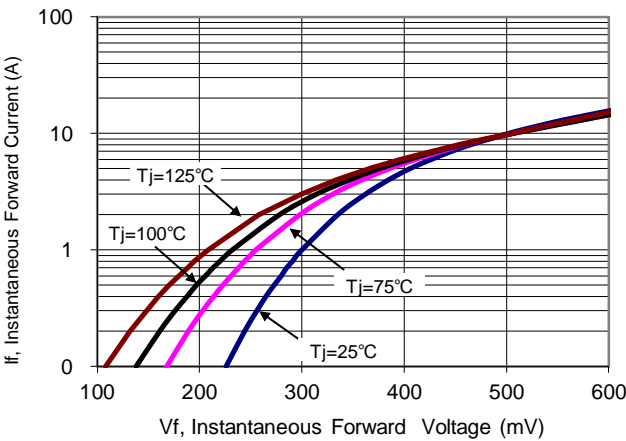


Figure 3: Typical Forward Voltage

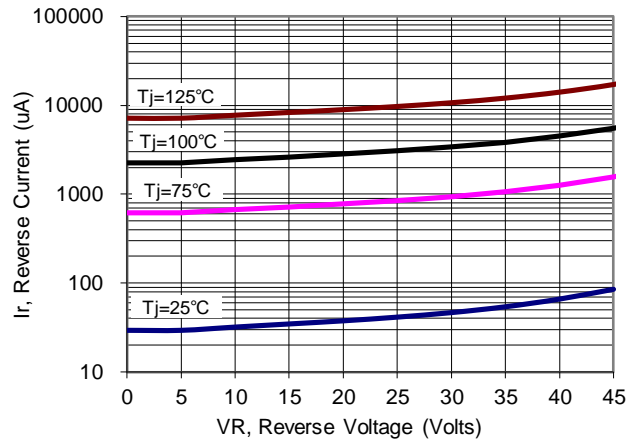


Figure 4: Typical Reverse Current

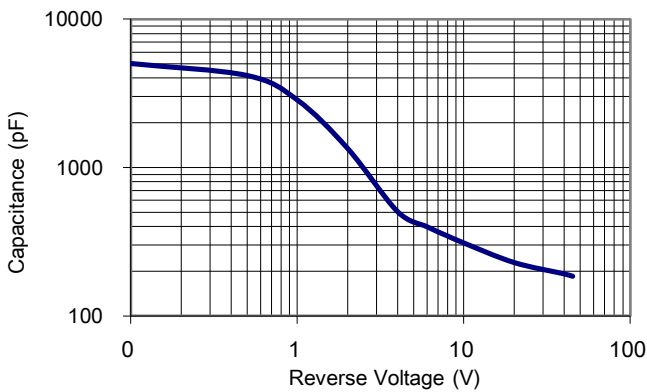


Figure 5: Typical Junction Capacitance



3. Marking information

Top Marking Rule

PFC
PFR2045CT
YYWW ABSH

PFR2045CT = 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)

PFC
PFR2045CTF
YYWW ABSH

PFR2045CTF = 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)

PFC
PFR2045CTI
YYWW ABSH

PFR2045CTI = Product Type Marking Code
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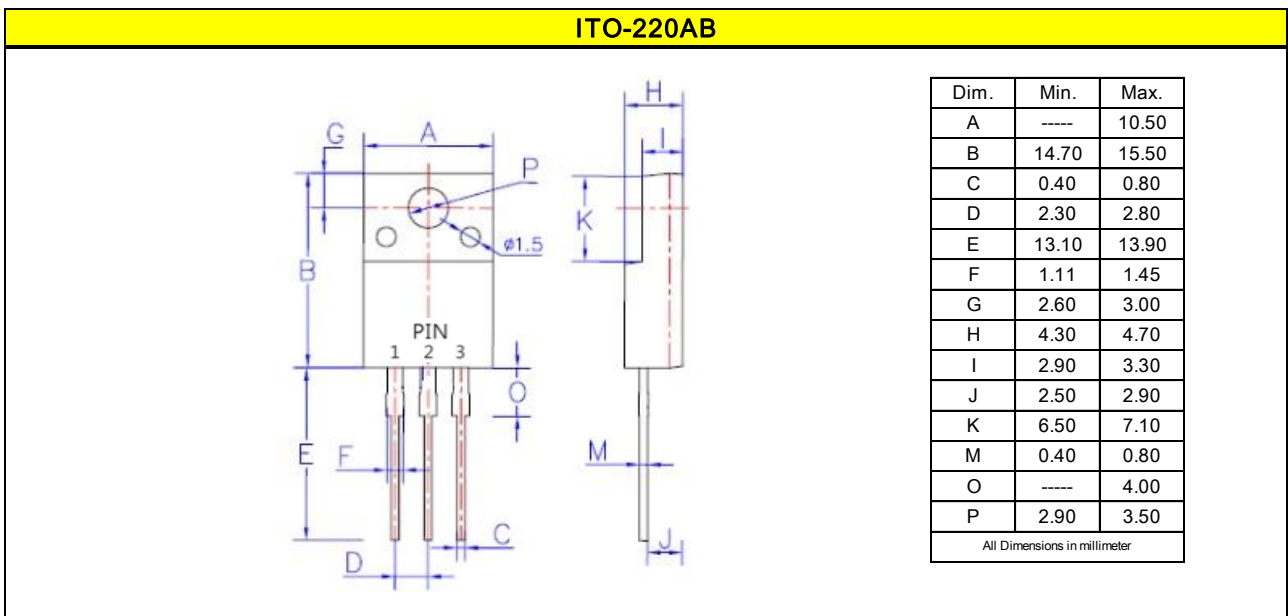
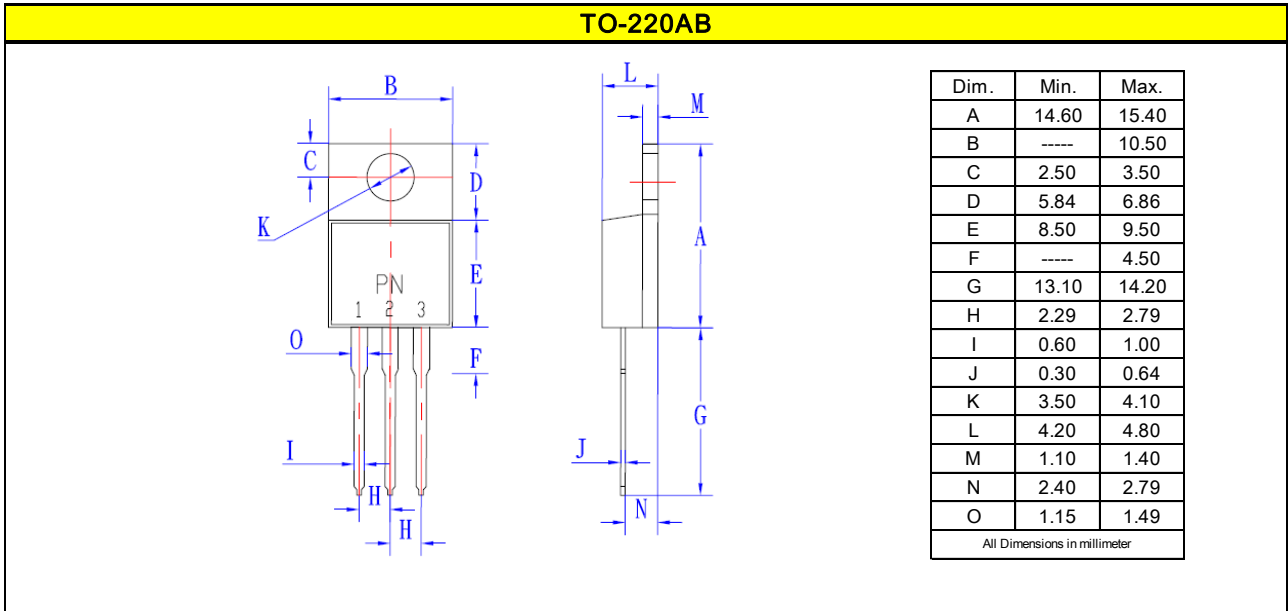
PFC
PFR2045CTB
YYWW ABSH

PFR2045CTB = 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



Package Outline Dimensions millimeters



5. Ordering information

| Part Number | Package | Delivery mode |
|-------------|-----------|--------------------------------|
| PFR2045CT | TO-220AB | 50 pieces / tube |
| PFR2045CTF | ITO-220AB | 50 pieces / tube |
| PFR2045CTI | TO-262 | 50 pieces / tube |
| PFR2045CTB | TO-263 | 800 pieces / 13" diameter reel |

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

Mechanical

- Molder Plastic: UL Flammability Classification Rating 94V-0
- Device Weight : 0.07 ounces (1.96grams) - TO-220AB
 0.06 ounces (1.74grams) - ITO-220AB
 0.05 ounces (1.45 grams) - TO-262
 0.04 ounces (1.16 grams) - TO-263
- Mounting Torque : Recommended 4~5 kg-cm.

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