



PFC Device Corporation

**PTR40V120CT**  
**PTR40V120CTF**  
**PTR40V120CTI**  
**PTR40V120CTB**

## 40A 120V HPTR<sup>®</sup> Schottky Rectifier

### Major ratings and characteristics

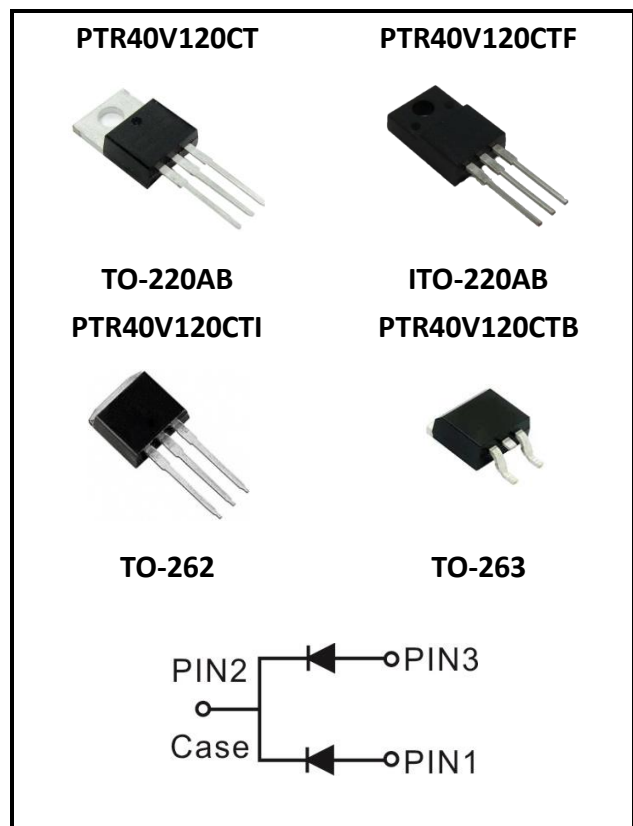
Characteristics	Values	Units
$I_{F(AV)}$ Rectangular Waveform	20 × 2	A
$V_{RRM}$	120	V
$V_F@ 20A, T_j=125^\circ C$	0.61	V, typ.
$T_j$ Operating Junction Temperature	-40 to +150	°C

### Features

- Super Low Forward Voltage ( SLVF<sup>®</sup> ) Drop
- Reliable High Temperature Operation
- Softest, fast switching capability
- 150°C Operating Junction Temperature
- Lead Free Finish, RoHS Compliant

### Typical Applications

Device optimized for ultra-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	$V_{RM}$	120	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	$I_o$	40	Amps
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) 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	$T_J$	- 40 to +150	$^\circ\text{C}$
Storage Junction Temperature	$T_{STG}$	- 40 to +150	

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

Parameter	Test Conditions		Symbol	Typ.	Max.	Units
Breakdown Voltage	$I_R = 0.5\text{mA}$	$T_J = 25^\circ\text{C}$	$V_B^*$	120 (min.)		V
Instantaneous Forward Voltage	$IF = 5\text{ A}$	$T_J = 25^\circ\text{C}$	$V_F^*$	0.49	-----	Volts
	$IF = 10\text{ A}$			0.59		
	$IF = 20\text{ A}$			0.72	0.77	
	$IF = 5\text{ A}$	$T_J = 125^\circ\text{C}$		0.42	-----	
	$IF = 10\text{ A}$			0.53		
	$IF = 20\text{ A}$			0.61	0.67	
Instantaneous Reverse Current	$V_R = 90\text{V}$	$T_J = 25^\circ\text{C}$	$I_R^*$	5.0	-----	$\mu\text{A}$
	$V_R = 120\text{V}$			-----	300	$\mu\text{A}$
	$V_R = 90\text{V}$	$T_J = 125^\circ\text{C}$		7.0	-----	$\text{mA}$
	$V_R = 120\text{V}$			13.0	45	$\text{mA}$

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



2. Characteristics Curves

Ratings and Characteristics Curves

( TA = 25°C unless otherwise specified )

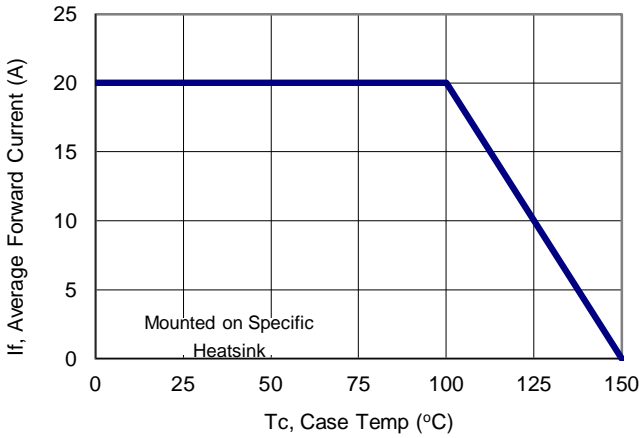


Figure 1: Current Derating, Case

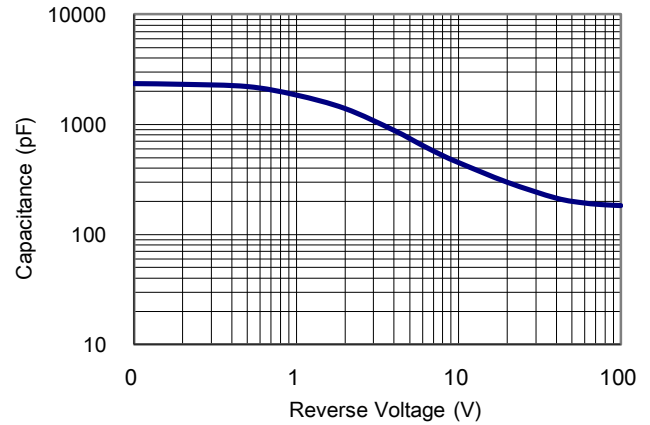


Figure 2: Typical Junction Capacitance

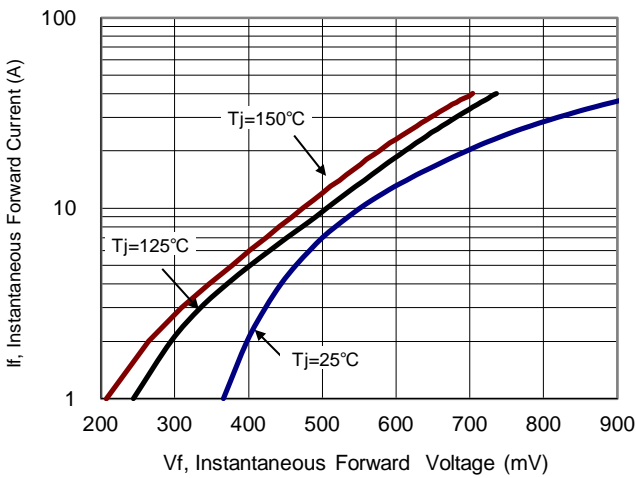


Figure 3: Typical Forward Voltage

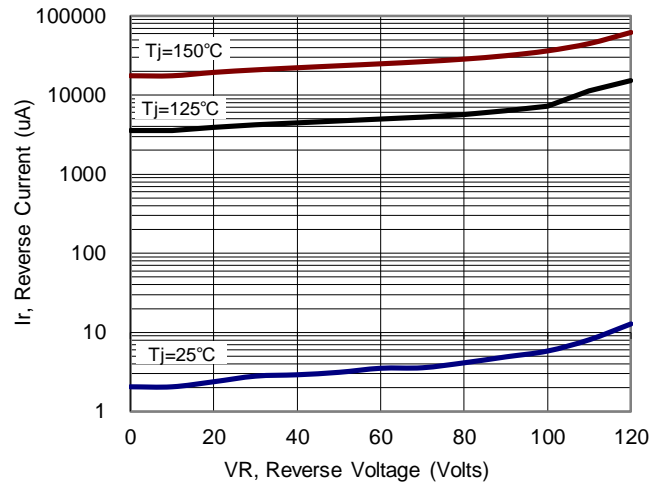


Figure 4: Typical Reverse Current



**3. Marking information**

**Top Marking Rule**

**PFC PTR  
40V120CT  
YYWW ABSH**

PTR40V120CT = 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 PTR  
40V120CTF  
YYWW ABSH**

PTR40V120CTF = 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 PTR  
40V120CTI  
YYWW ABSH**

PTR40V120CTI = 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)

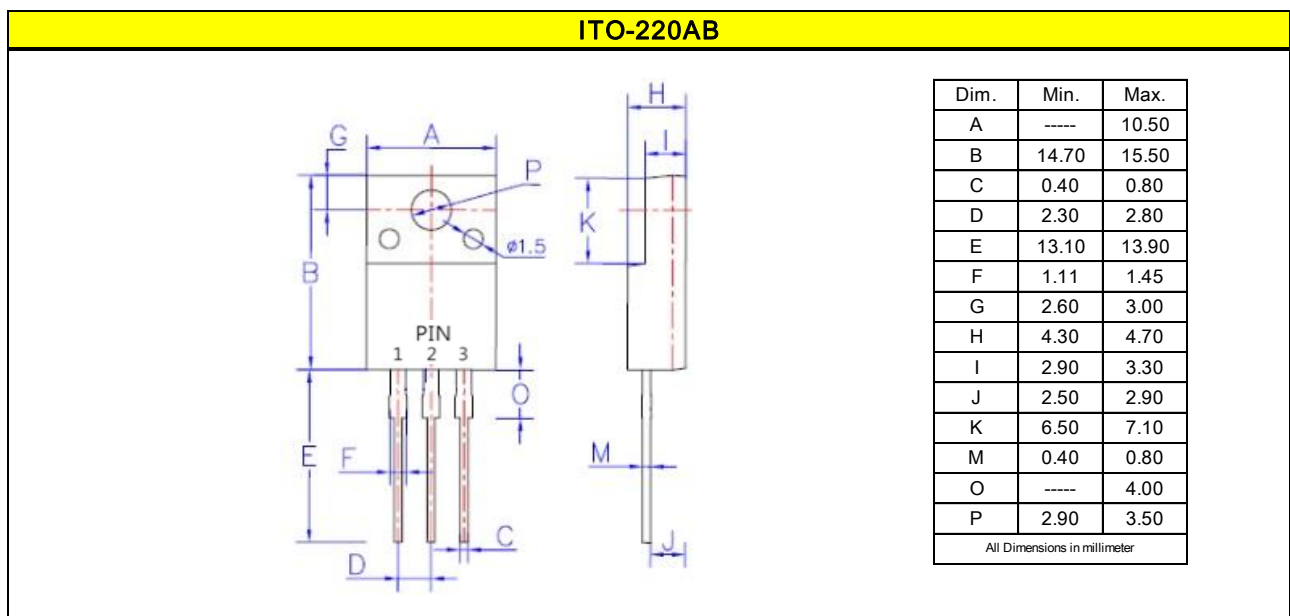
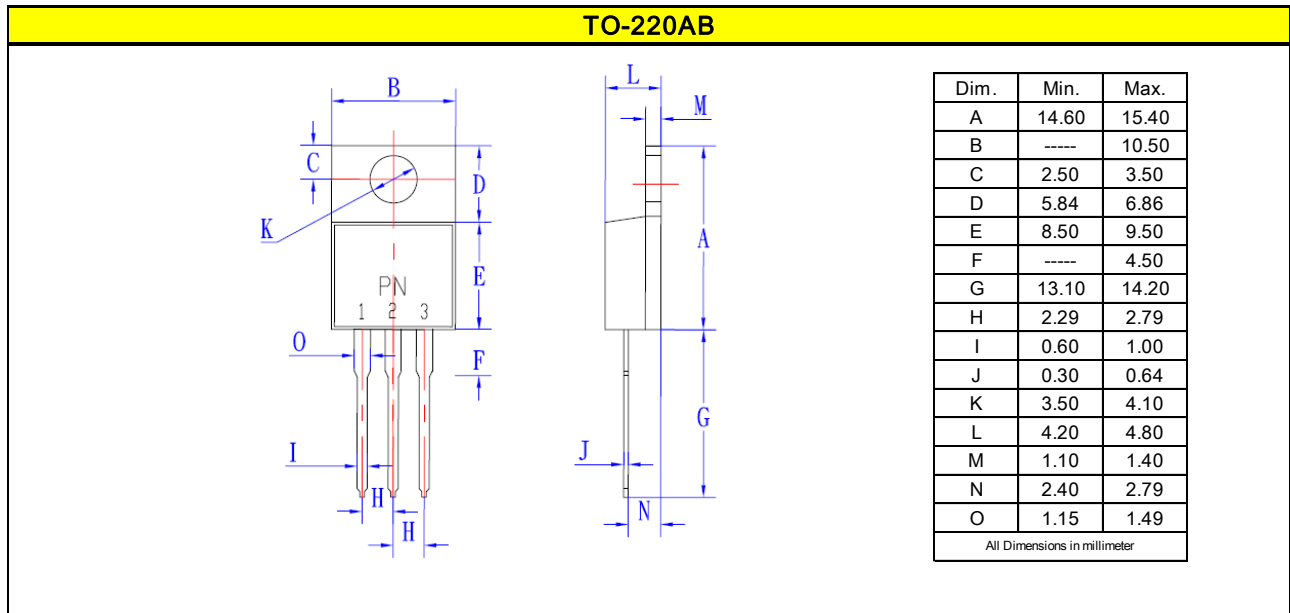
**PFC PTR  
40V120CTB  
YYWW ABSH**

PTR40V120CTB = 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
PTR40V120CT	TO-220AB	50 pieces / tube
PTR40V120CTF	ITO-220AB	50 pieces / tube
PTR40V120CTI	TO-262	50 pieces / tube
PTR40V120CTB	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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