PFC Device Corporation

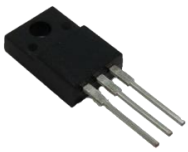
PTR40V120CT
PTR40V120CTF
PTR40V120CTI
PTR40V120CTB

40A 120V HPTR® Schottky Rectifier

Major ratings and characteristics

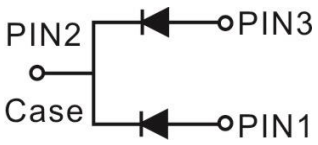
Characteristics	Values	Units
$I_{F(AV)}$ Rectangular Waveform	20 × 2	A
V_{RRM}	120	V
V_F@ 20A , Tj=125 °C	0.61	V, typ.
T_J Operating Junction Temperature	-40 to +150	°C

PTR40V120CT **PTR40V120CTF**



TO-220AB **ITO-220AB**
PTR40V120CTI **PTR40V120CTB**

TO-262 **TO-263**



Features

- Super Low Forward Voltage (SLVF®) 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℃ 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	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 Package = TO-220AB	$R\theta_{Jc}$	2	°C / W
(per leg) Package =ITO-220AB		4	
Package =TO-262		2.5	
Package =TO-263		3	
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	°C
Storage Junction Temperature	T_{STG}	- 40 to +150	

Electrical Characteristics - (per leg) (T_A = 25℃ unless otherwise specified)

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

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

2. Characteristics Curves

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

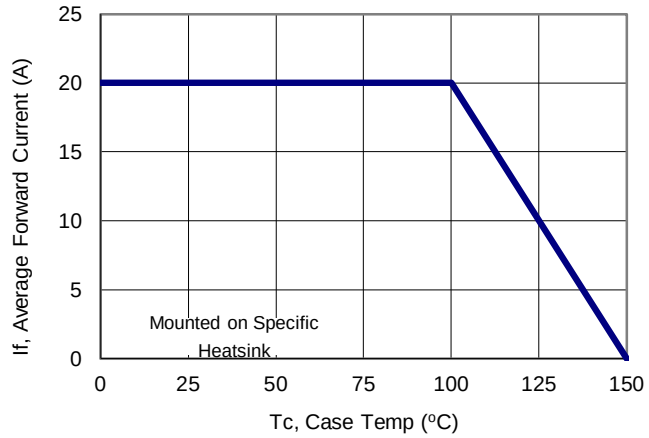


Figure 1: Current Derating, Case

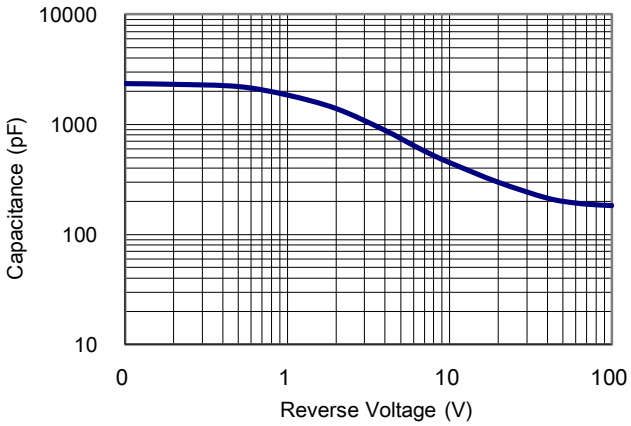


Figure 2: Typical Junction Capacitance

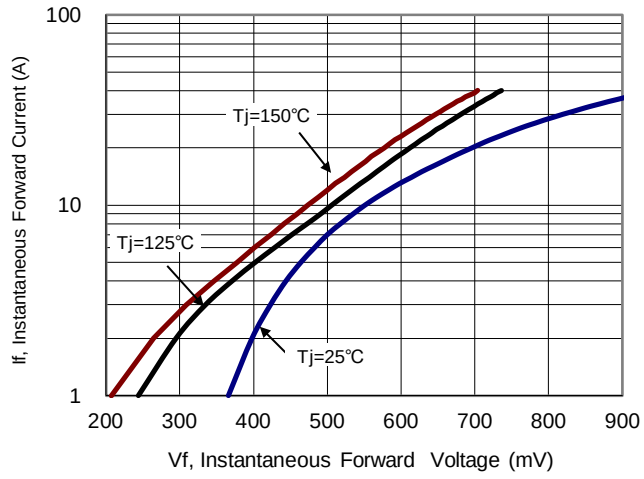


Figure 3: Typical Forward Voltage

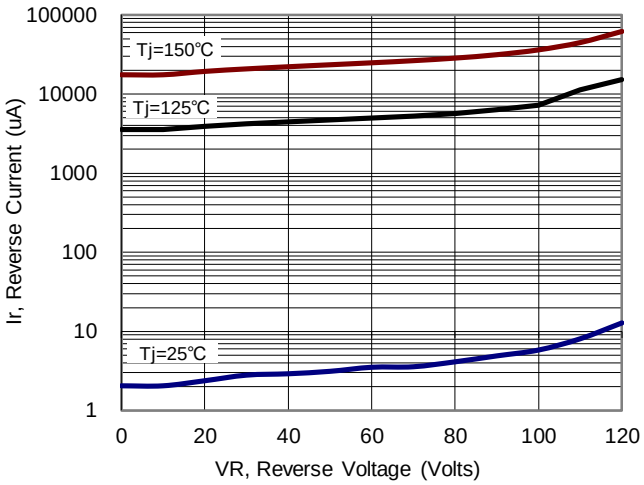
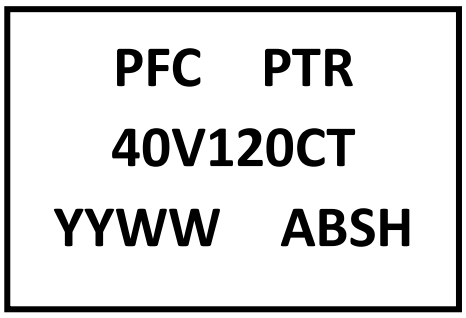


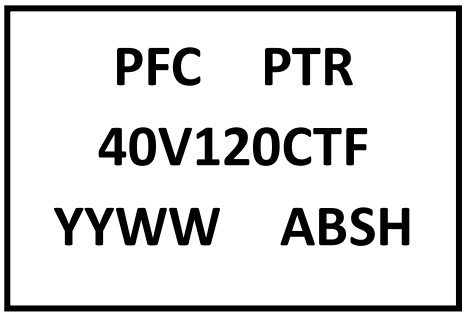
Figure 4: Typical Reverse Current

3. Marking information

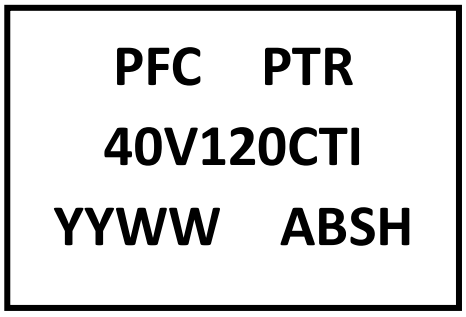
Top Marking Rule



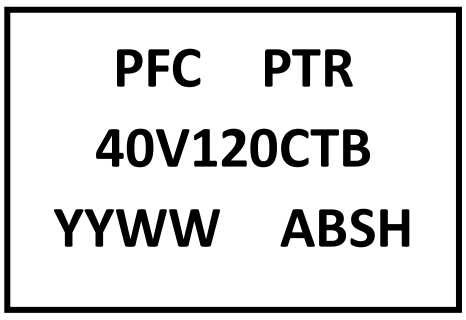
PTR40V120CT = Product Type Marking Code
YYWW = Date Code
YY = Last two digits of year
WW = Week code
AB = Assembly code
S = Series Number
H = Halogen Free (N/A = common molding compound)



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)



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)

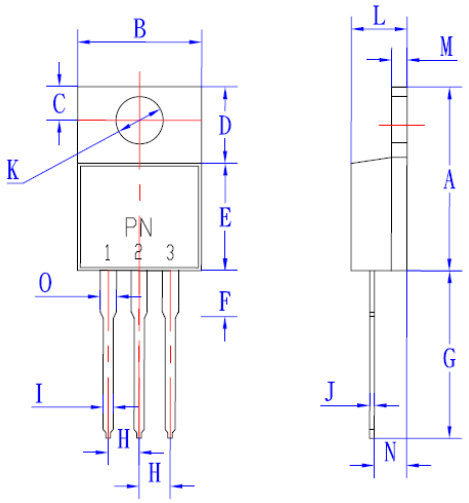


PTR40V120CTB = Product Type Marking Code
YYWW = Date Code
YY = Last two digits of year
WW = Week code
AB = Assembly code
S = Series Number
H = Halogen Free (N/A = common molding compound)

4. Package information

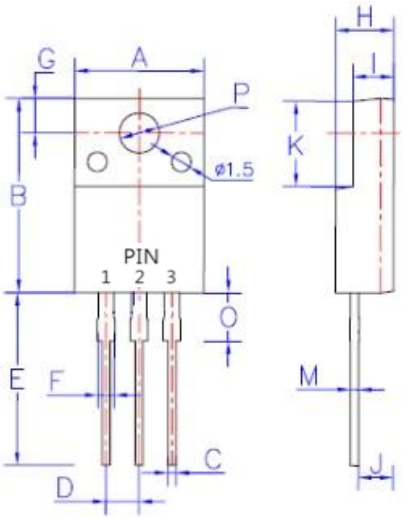
Package Outline Dimensions millimeters

TO-220AB



Dim.	Min.	Max.
A	14.60	15.40
B	-----	10.50
C	2.50	3.50
D	5.84	6.86
E	8.50	9.50
F	-----	4.50
G	13.10	14.20
H	2.29	2.79
I	0.60	1.00
J	0.30	0.64
K	3.50	4.10
L	4.20	4.80
M	1.10	1.40
N	2.40	2.79
O	1.15	1.49
All Dimensions in millimeter		

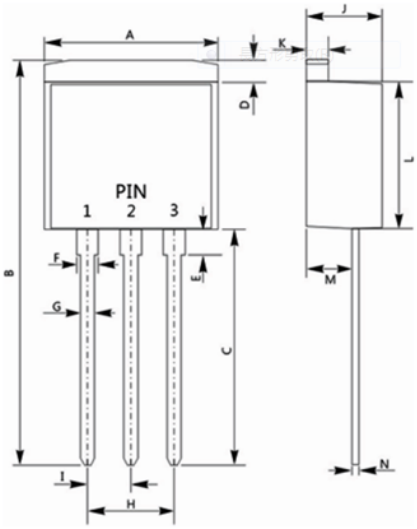
ITO-220AB



Dim.	Min.	Max.
A	-----	10.50
B	14.70	15.50
C	0.40	0.80
D	2.30	2.80
E	13.10	13.90
F	1.11	1.45
G	2.60	3.00
H	4.30	4.70
I	2.90	3.30
J	2.50	2.90
K	6.50	7.10
M	0.40	0.80
O	-----	4.00
P	2.90	3.50
All Dimensions in millimeter		

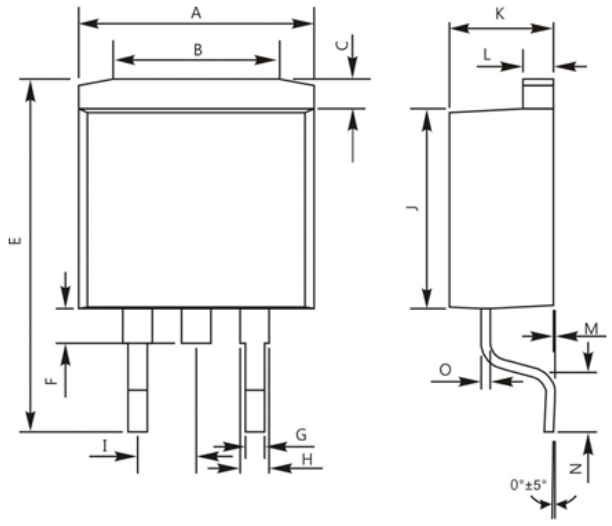
Package Outline Dimensions millimeters

TO-262 (I^2PAK)



Dim.	Min.	Max.
A	-----	10.40
B	23.44	24.20
C	13.25	14.25
D	1.27 Ref.	
E	-----	4.10
F	1.14	1.40
G	0.76	1.00
H	4.95	5.20
I	2.54 Ref.	
J	4.40	4.80
K	1.25	1.45
L	8.60	9.00
M	2.50	2.80
N	0.35	0.56
All Dimensions in millimeter		

TO-263 (D^2PAK)



Dim.	Min.	Max.
A	9.65	10.69
B	7.30 Ref.	
C	1.30 Ref.	
E	14.70	15.90
F	1.5 Ref.	
G	0.76	1.00
H	1.14	1.70
I	2.54 Ref.	
J	8.55	9.50
K	4.40	4.85
L	1.25	1.50
M	----	0.25
N	2.30	2.80
O	0.36	0.60
All Dimensions in millimeter		

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.