

**Product Summary** (Per Leg)

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> Max (V) @ +25°C	I <sub>R</sub> Max (μA) @ +25°C
120	20	0.88	120

**Description and Applications**

The SDT40A120CT, SDT40A120CTFP provide very low V<sub>F</sub> and extremely excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode or blocking diode in:

- DC-DC Converters
- AC-DC Adaptors

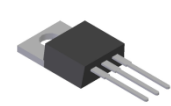
**Features**

- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Soft, Fast Switching Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

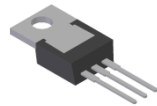
**Mechanical Data**

- Case: TO220AB (Generic), ITO220AB (Type HE)
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 ③
- Weight: TO220AB (Generic) – 1.85 grams (Approximate)  
ITO220AB (Type HE) – 1.69 grams (Approximate)

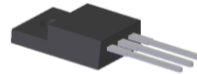
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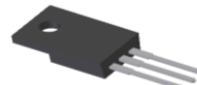
TO220AB (Generic)  
Top View



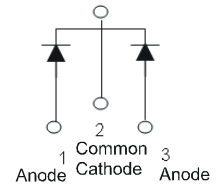
TO220AB (Generic)  
Bottom View



ITO220AB (Type HE)  
Top View



ITO220AB (Type HE)  
Bottom View



Package Pin Out  
Configuration

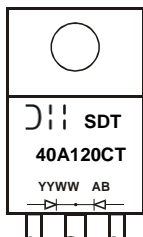
**Ordering Information** (Note 4)

Part Number	Case	Packaging
SDT40A120CT	TO220AB (Generic)	50 Pieces/Tube
SDT40A120CTFP	ITO220AB (Type HE)	50 Pieces/Tube

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

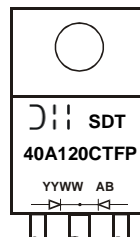
**Marking Information**

TO220AB (Generic)



⌋⌋⌋ = Manufacturer's Marking  
SDT40A120CT = Product Type Marking Code  
AB = Foundry and Assembly Code  
YYWW = Date Code Marking  
YY = Last Two Digits of Year (ex: 17 = 2017)  
WW = Week (01 to 53)

ITO220AB (Type HE)



⌋⌋⌋ = Manufacturer's Marking  
SDT40A120CTFP = Product Type Marking Code  
AB = Foundry and Assembly Code  
YYWW = Date Code Marking  
YY = Last Two Digits of Year (ex: 17 = 2017)  
WW = Week (01 to 53)

**Maximum Ratings** (Per Leg) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>RM</sub>	120	V
Average Rectified Output Current per Device (Per Leg) (Total)	I <sub>o</sub>	20 40	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load Package = TO220AB (Generic) Package = ITO220AB (Type HE)	I <sub>FSM</sub>	250 180	A

**Thermal Characteristics** (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance (Note 5) Package = TO220AB (Generic) Package = ITO220AB (Type HE)	R <sub>θJC</sub>	2 4	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (Per Leg) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V <sub>F</sub>	—	0.81	0.88	V	I <sub>F</sub> = 20A, T <sub>J</sub> = +25°C
		—	0.66	0.73		I <sub>F</sub> = 20A, T <sub>J</sub> = +125°C
Leakage Current (Note 6)	I <sub>R</sub>	—	5	120	μA mA	V <sub>R</sub> = 120V, T <sub>J</sub> = +25°C
		—	4	25		V <sub>R</sub> = 120V, T <sub>J</sub> = +125°C

Notes: 5. With 50mm\*50mm\*23mm Al heatsink.  
6. Short duration pulse test used to minimize self-heating effect.

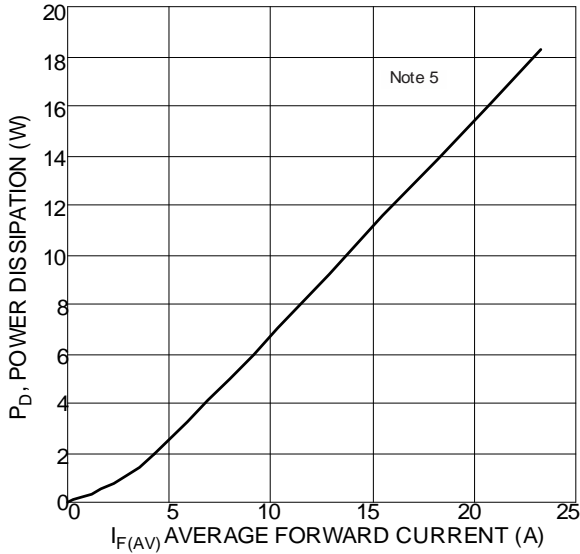


Figure 1 Forward Power Dissipation

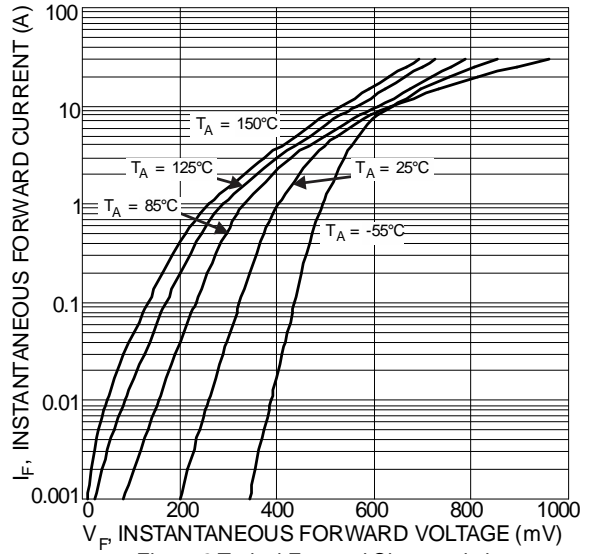


Figure 2 Typical Forward Characteristics

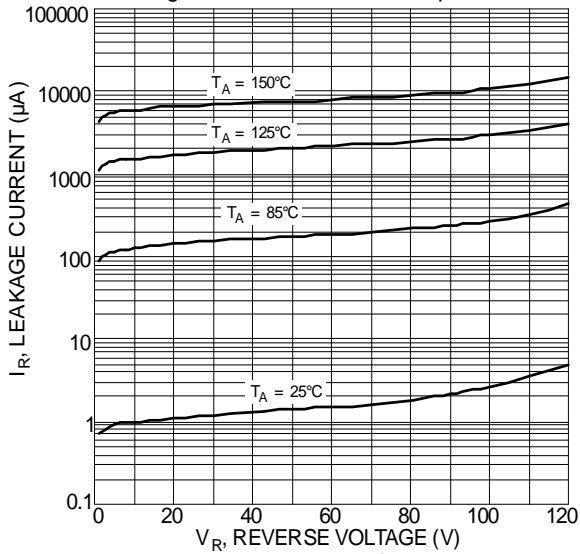


Figure 3 Typical Reverse Characteristics

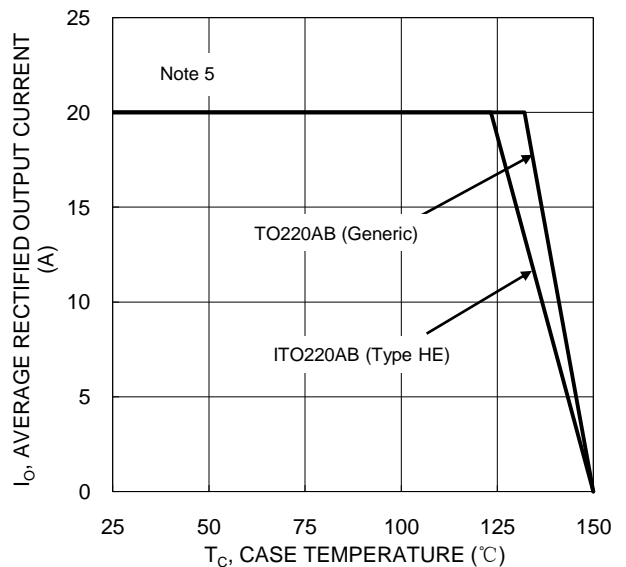


Figure 4 DC Forward Current Derating

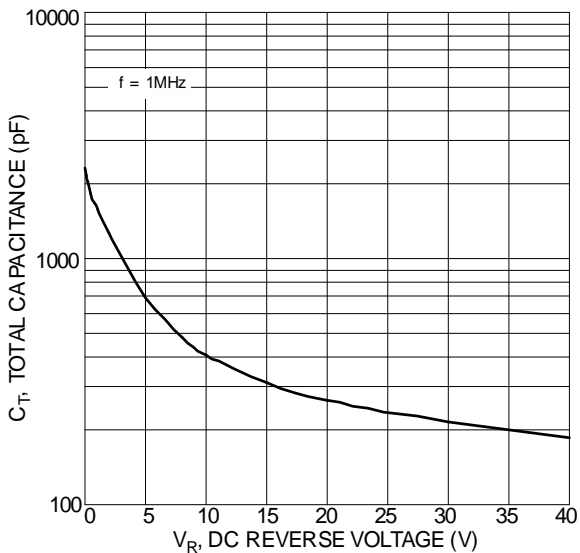
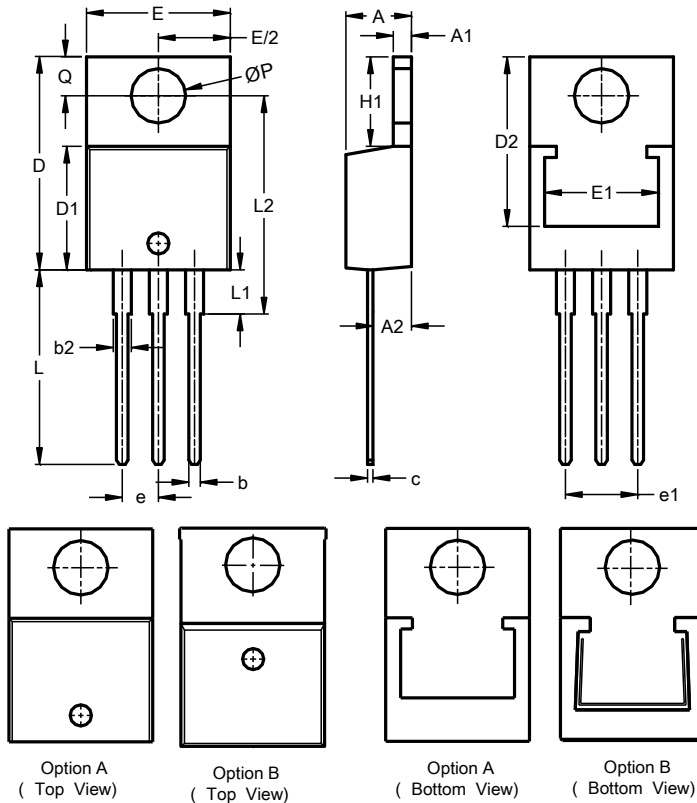


Figure 5 Total Capacitance vs. Reverse Voltage

**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**TO220AB (Generic)**



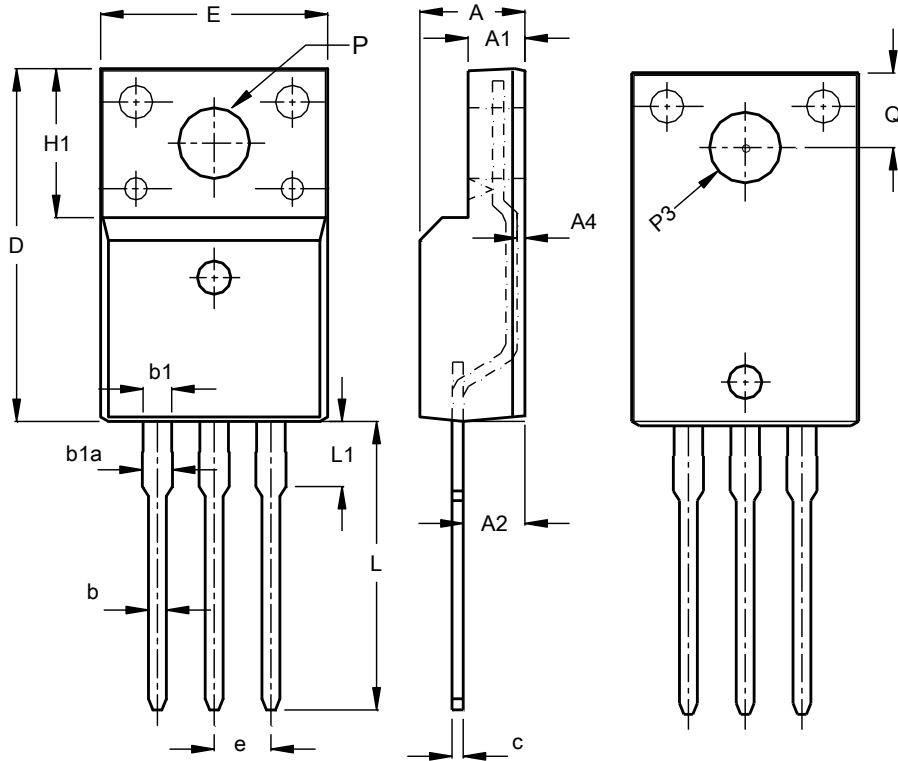
TO220AB (Generic)			
Dim	Min	Max	Typ
A	3.56	4.82	-
A1	0.51	1.39	-
A2	2.04	2.92	-
b	0.39	1.01	0.81
b2	1.15	1.77	1.24
c	0.356	0.61	-
D	14.22	16.51	-
D1	8.39	9.01	-
D2	11.45	12.87	-
e	-	-	2.54
e1	-	-	5.08
E	9.66	10.66	-
E1	6.86	8.89	-
H1	5.85	6.85	-
L	12.70	14.73	-
L1	-	4.42	-
L2	15.80	17.51	16.00
P	3.54	4.08	-
Q	2.54	3.42	-
All Dimensions in mm			

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**Package Outline Dimensions (Cont.)**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**ITO220AB (Type HE)**



ITO220AB (Type HE)			
Dim	Min	Max	Typ
A	4.50	4.90	4.70
A1	2.34	2.74	2.54
A2	2.56	2.96	2.76
A4	0.30	0.60	0.45
b	0.70	0.95	0.80
b1	1.18	1.43	1.28
b1a	1.25	1.55	1.35
c	0.45	0.60	0.50
D	15.57	16.17	15.87
e	2.54 BSC		
E	9.96	10.36	10.16
H1	6.70 REF		
L	12.68	13.28	12.98
L1	3.03	3.43	3.23
Q	3.15	3.45	3.30
ØP	3.03	3.38	3.18
ØP3	3.15	3.65	3.45
All Dimensions in mm			

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