SDT20120CT/SDT20120CTFP

20A
TRENCH SCHOTTKY RECTIFIER

Product Summary (Per Leg)

V_{RRM} (V)	I_O (A)	V_F Max (V) @ +25°C	I_R Max (μA) @ +25°C
120	10	0.88	80

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)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Description and Applications

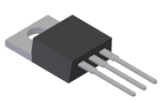
The Trench Schottky rectifier provides very low V_F and extremely excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode or blocking diode in:

- DC-DC converters
- AC-DC adaptors

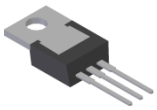
Mechanical Data

- Package: TO220AB, ITO220AB
- Package Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: TO220AB (Generic) - 1.85 grams (Approximate)
  ITO220AB - 1.90 grams (Approximate)
  ITO220AB (Type HE) - 1.90 grams (Approximate)

TO220AB (Generic)

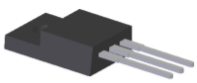


Top View

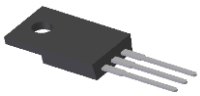


Bottom View

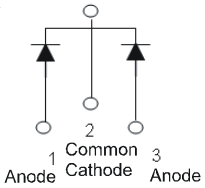
ITO220AB
ITO220AB (Type HE)



Top View



Bottom View



Package Pin Out Configuration

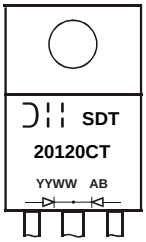
Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
SDT20120CT	TO220AB (Generic)	50 Pieces	Tube
SDT20120CTFP	ITO220AB	50 Pieces	Tube
SDT20120CTFP	ITO220AB (Type HE)	50 Pieces	Tube

Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See https://www.diodes.com/quality/lead-free/ 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/.

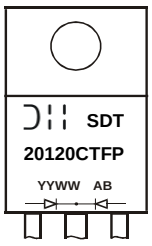
Marking Information

TO220AB (Generic)



= Manufacturer's Marking
SDT20120CT = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 22 = 2022)
WW = Week (01 to 53)

ITO220AB, ITO220AB (Type HE)



= Manufacturer's Marking
SDT20120CTFP = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 22 = 2022)
WW = Week (01 to 53)

Maximum Ratings (Per Leg) (@T_A = +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_{RRM} V_{RWM} V_{RM}	120	V
Average Rectified Output Current per Device (Per Leg) (Total)	I_O	10 20	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	120	A

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance (Note 5) Package = TO220AB (Generic) Package = ITO220AB Package = ITO220AB (Type HE)	$R_{\theta JC}$	2 4 4	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (Per Leg) (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	— — —	0.63 0.82 0.65	— 0.88 0.71	V	I_F = 5A, T_J = +25°C I_F = 10A, T_J = +25°C I_F = 10A, T_J = +125°C
Leakage Current (Note 6)	I_R	— —	3 2	80 20	µA mA	V_R = 120V, T_J = +25°C V_R = 120V, T_J = +125°C

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

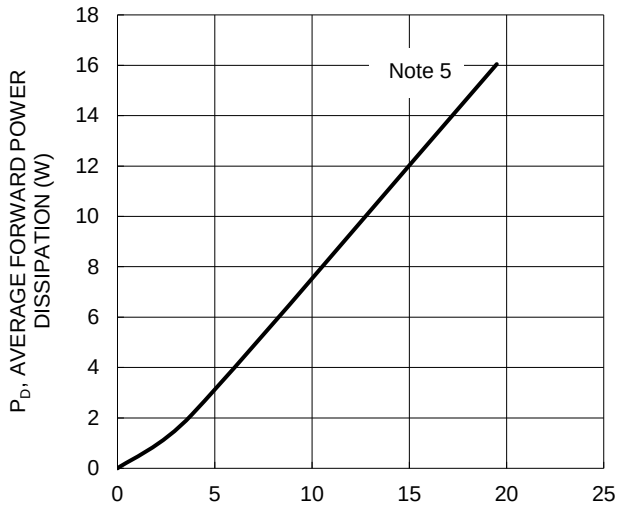


Figure 1. Forward Power Dissipation

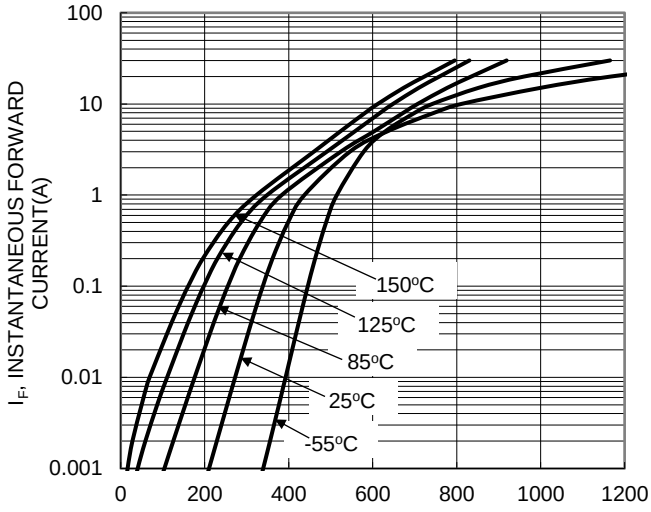


Figure 2. Typical Forward Characteristics

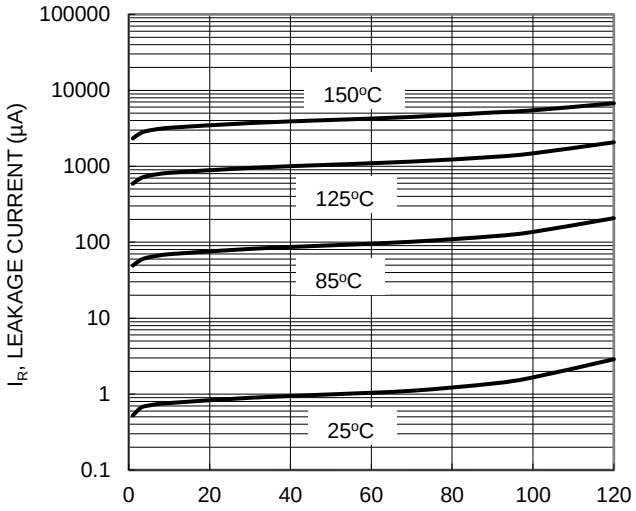


Figure 3. Typical Reverse Characteristics

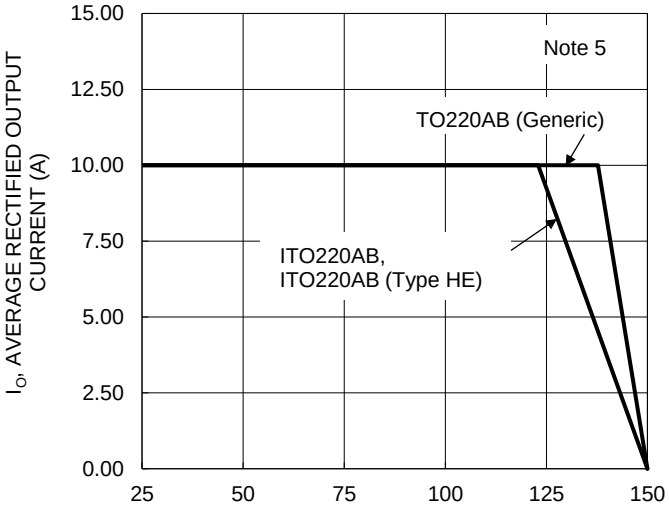


Figure 4. DC Forward Current Derating

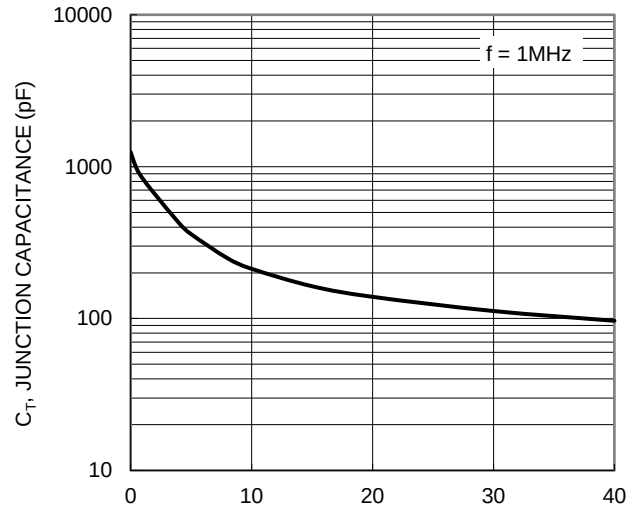


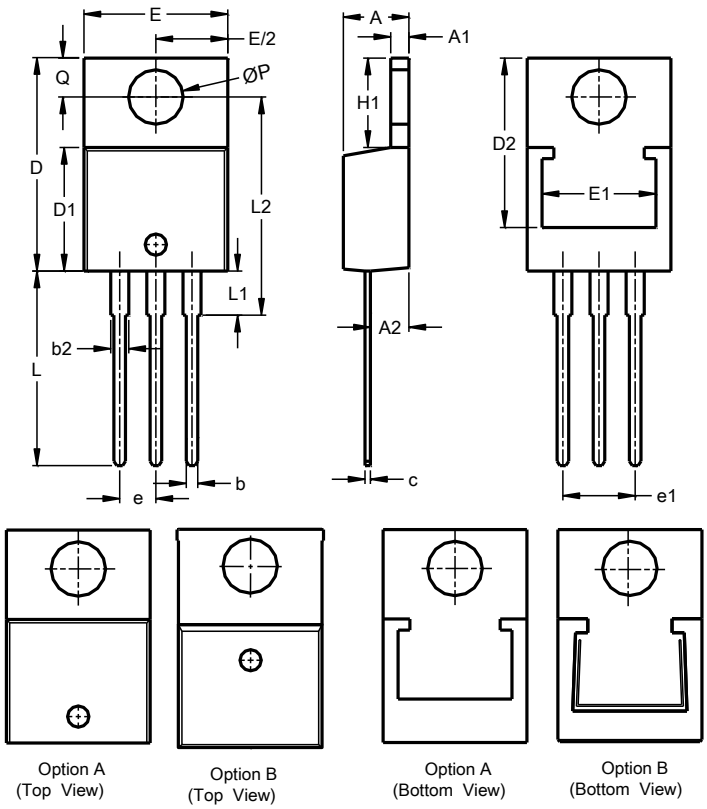
Figure 5. Typical Junction Capacitance

Package Outline Dimensions

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

(1) Package Type: TO220AB (Generic)

TO220AB (Generic)



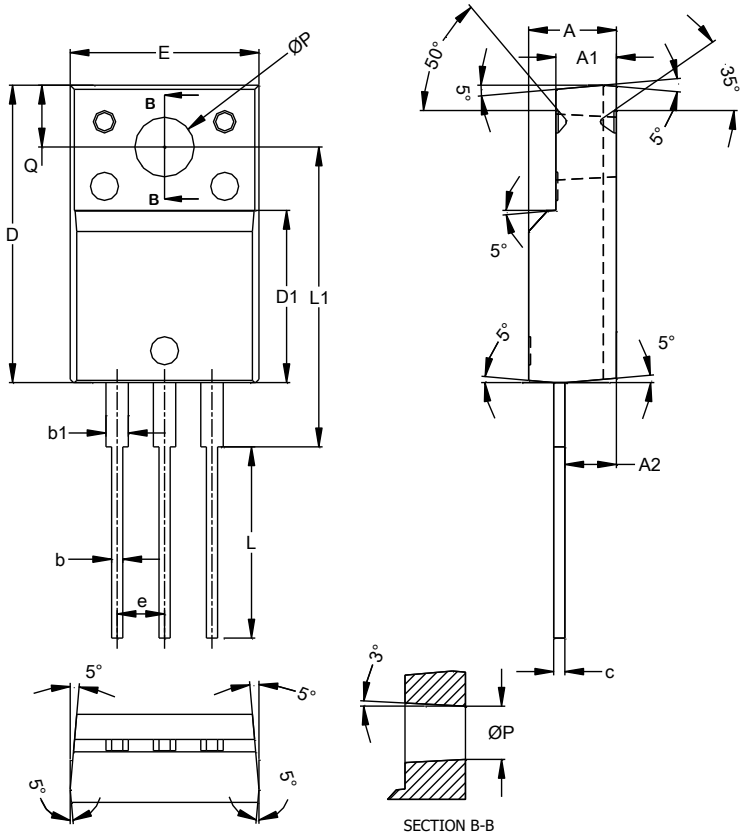
TO220AB (Generic)			
Dim	**Min**	**Max**	**Typ**
A	3.56	4.82	-
A1	0.51	1.39	-
A2	2.04	2.92	-
b	0.39	1.01	0.81
b2	1.15	1.77	1.24
c	0.356	0.61	-
D	14.22	16.51	-
D1	8.39	9.01	-
D2	11.45	12.87	-
e	-	-	2.54
e1	-	-	5.08
E	9.66	10.66	-
E1	6.86	8.89	-
H1	5.85	6.85	-
L	12.70	14.73	-
L1	-	4.42	-
L2	15.80	17.51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

Package Outline Dimensions (continued)

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

(2) Package Type: ITO220AB

ITO220AB



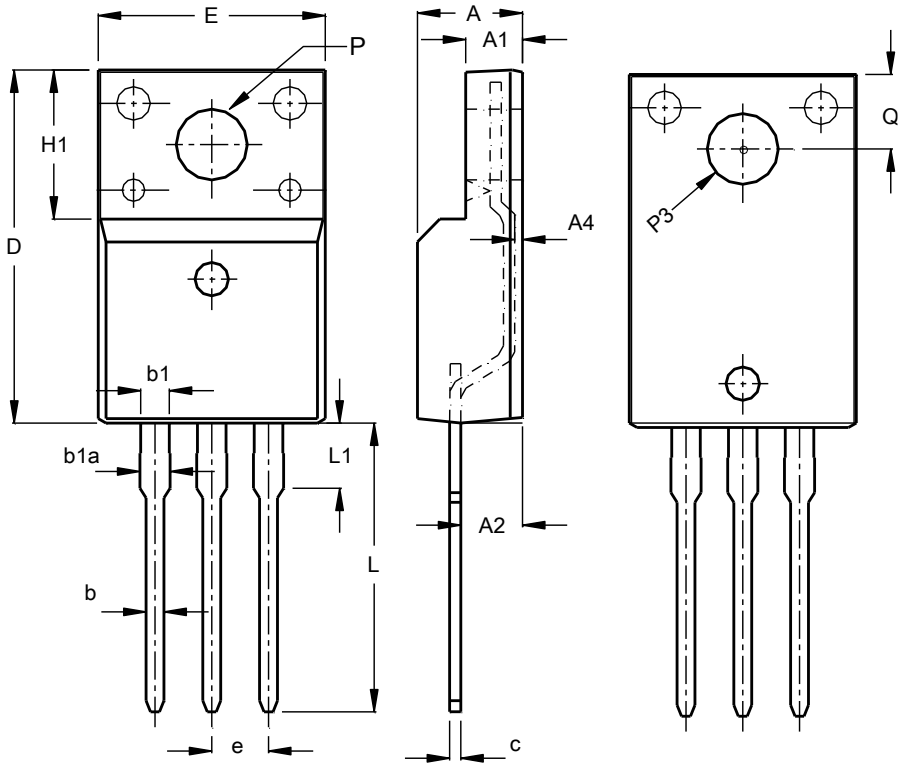
ITO220AB			
Dim	**Min**	**Max**	**Typ**
A	4.50	4.90	4.70
A1	3.04	3.44	3.24
A2	2.56	2.96	2.76
b	0.50	0.75	0.60
b1	1.10	1.35	1.20
c	0.50	0.70	0.60
D	15.67	16.07	15.87
D1	8.99	9.39	9.19
E	9.91	10.31	10.11
e	--	--	2.54
L	9.45	10.05	9.75
L1	15.80	16.20	16.00
P	2.98	3.38	3.18
Q	3.10	3.50	3.30
All Dimensions in mm			

Package Outline Dimensions (continued)

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

(3) Package Type: ITO220AB (Type HE)

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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