THE DATASHEET OF

SBRT40V100CTFP

SBRT40V100CT
SBRT40V100CTFP
SBRT40V100CTE

40A Trench SBR
TRENCH SUPER BARRIER RECTIFIER

Product Summary (Per Leg)

V_{RRM} (V)	I_O (A)	V_F Max (V) @ +25°C	I_R Max (mA) @ +25°C
100	20	0.73	0.3

Features and Benefits

- Reduced Ultra-Low Forward Voltage Drop (V_F); Better Efficiency and Cooler Operation
- Reduced High Temperature Reverse Leakage; Increased Reliability against Thermal Runaway Failure in High Temperature Operation
- Patented Trench Super Barrier Rectifier SBR® Technology
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

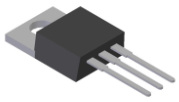
Mechanical Data

- Case: TO220AB, ITO220AB, TO262
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish; Solderable per MIL-STD-202, Method 208 e3
- Weight: TO220AB – 1.85 grams (Approximate)
  ITO220AB – 1.65 grams (Approximate)
  TO262 – 1.355 grams (Approximate)

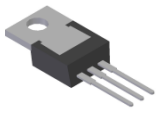
Description and Applications

Packaged in the robust industry-standard TO220AB, ITO220AB and TO262 packages, the SBRT40V100CT, SBRT40V100CTFP and SBRT40V100CTE provide very low V_F and excellent reverse leakage stability at high temperatures. They are ideal for use as a rectifier, freewheel diode or blocking diode in:

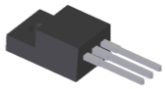
- DC-DC Converters
- AC-DC Adaptors



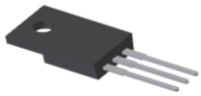
TO220AB
Top View



TO220AB
Bottom



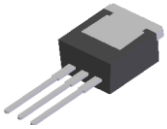
ITO220AB
Top View



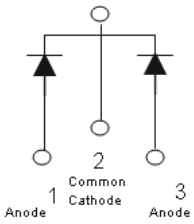
ITO220AB
Bottom View



TO262
Top View



TO262
Bottom View



Package Pin-Out
Configuration

Ordering Information (Note 4)

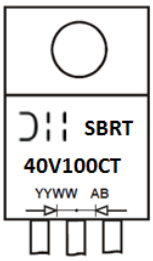
Part Number	Case	Packaging
SBRT40V100CT	TO220AB	50 Pieces/Tube
SBRT40V100CTFP	ITO220AB	50 Pieces/Tube
SBRT40V100CTE	TO262	50 Pieces/Tube

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 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 http://www.diodes.com/products/packages.html.

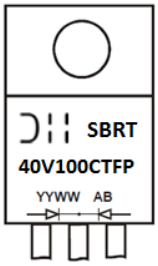
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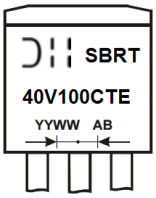
Marking Information



SBRT40V100CT = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 15 = 2015)
WW = Week (01-53)



SBRT40V100CTFP = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 15 = 2015)
WW = Week (01-53)



SBRT40V100CTE = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 15 = 2015)
WW = Week (01-53)

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitance 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}	100	V
Average Rectified Output Current (Per Leg) (Total)	I_O	20 40	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Per Leg)	I_{FSM}	180	A

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case TO220AB (Note 5) ITO220AB (Note 6) TO262 (Note 7)	$R_{\theta JC}$	 2 4 3.3	°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 (Note 8)	V_F	— —	0.41 0.52 0.67 —	— 0.58 0.73 0.65	V	I_F = 5A, T_J = +25°C I_F = 10A, T_J = +25°C I_F = 20A, T_J = +25°C I_F = 20A, T_J = +125°C
Leakage Current (Note 8)	I_R	— —	0.07 20	0.3 45	mA	V_R = 100V, T_J = +25°C V_R = 100V, T_J = +125°C

Notes:
5. Test with additional heatsink (Black Aluminum, 37 x 50 x 15mm).
6. Test with additional heatsink (Aluminum, 80mm x 48mm x 36mm).
7. Test with 2inch*2inch Al board + 50mm*50mm*23mm Al heatsink.
8. Short duration pulse test used to minimize self-heating effect.

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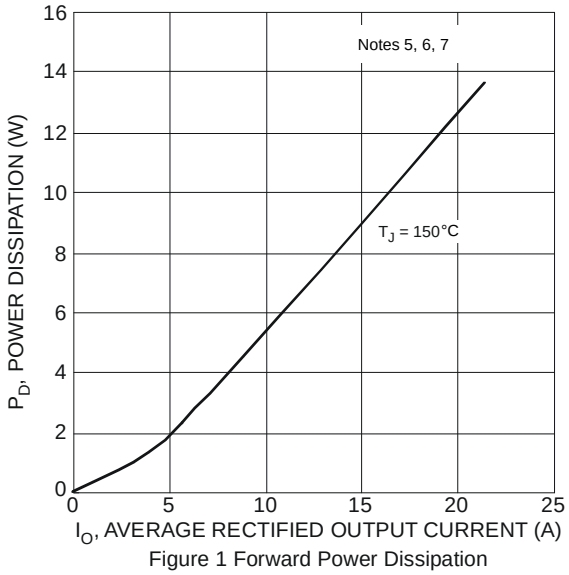


Figure 1 Forward Power Dissipation

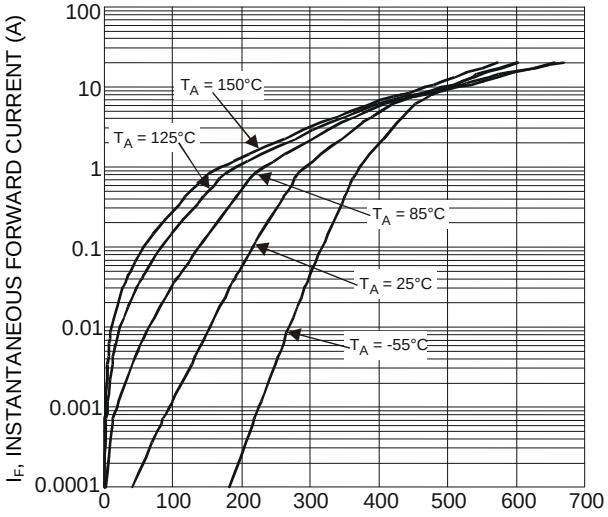


Figure 2 Typical Forward Characteristics

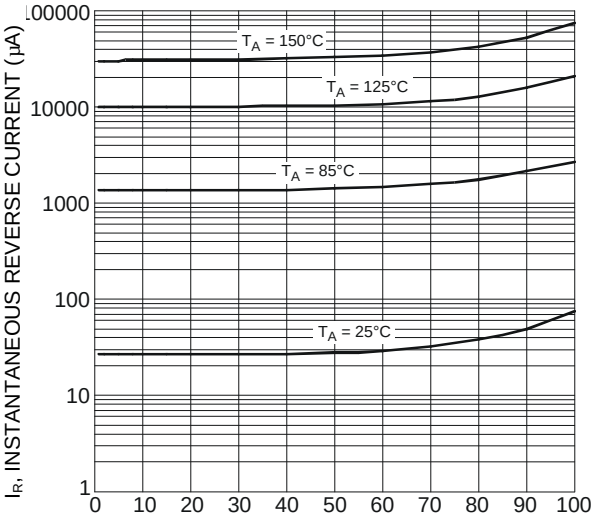


Figure 3 Typical Reverse Characteristics

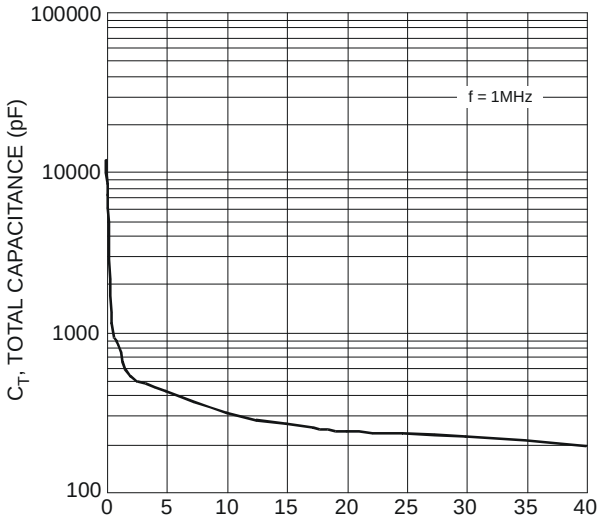


Figure 4 Total Capacitance vs. Reverse Voltage

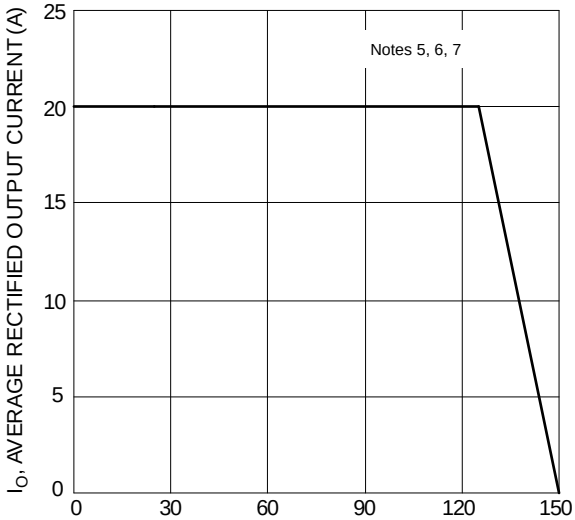


Figure 5 Forward Current Derating Curve

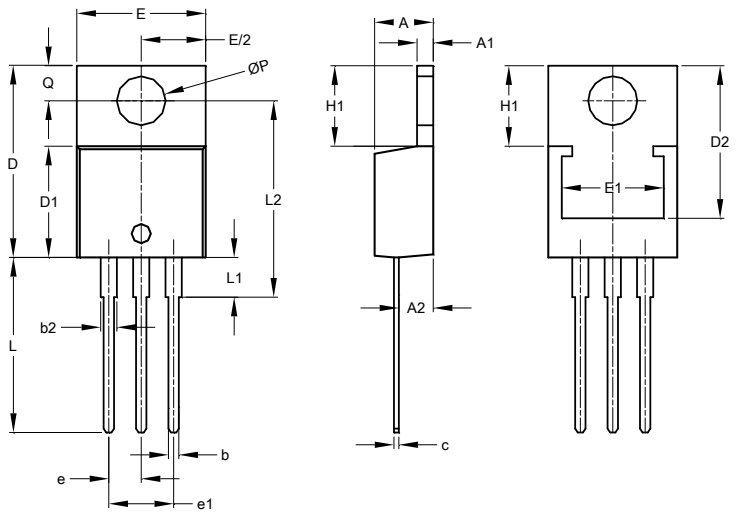
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Package Outline Dimensions

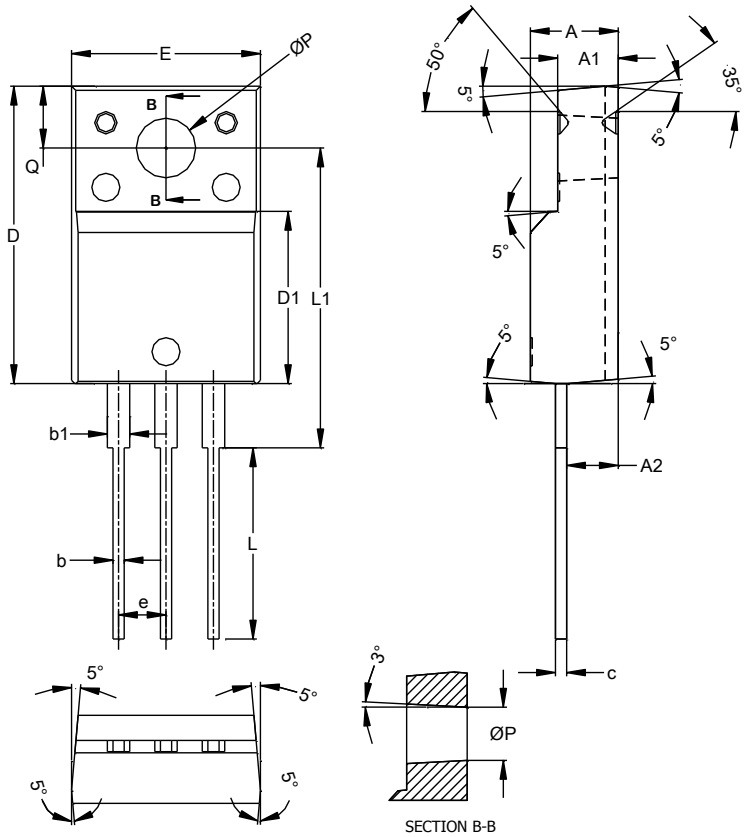
Please see AP02001 at http://www.diodes.com/_files/datasheets/ap02001.pdf for the latest version.

TO220AB



TO220AB			
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	-	6.35	-
L2	15.80	16.20	16.00
P	3.54	4.08	-
Q	2.54	3.42	-
All Dimensions in mm			

ITO-220AB



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			

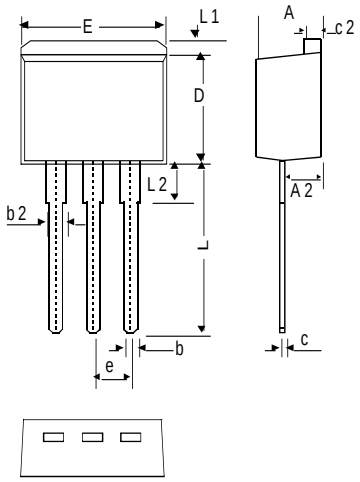
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Package Outline Dimensions (Cont.)

Please see AP02001 at http://www.diodes.com/_files/datasheets/ap02001.pdf for the latest version.

TO262



TO262			
Dim	**Min**	**Max**	**Typ**
A	4.06	4.83	4.57
A2	2.03	2.79	2.67
b	0.64	0.99	-
b2	1.14	1.40	1.24
c	0.356	0.74	-
c2	1.14	1.40	1.27
D	8.64	9.65	8.70
E	9.65	10.29	10.11
e	2.54 Typ		
L	12.70	14.73	13.60
L1	-	1.67	-
L2	-	4.00	-
All Dimensions in mm			

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