

## Product Summary (Per Leg)

<b>V<sub>RRM</sub> (V)</b>	<b>I<sub>o</sub> (A)</b>	<b>V<sub>F</sub> Max (V) @ +25°C</b>	<b>I<sub>R</sub> Max (mA) @ +25°C</b>
100	20	0.73	0.3

## Features and Benefits

- Reduced Ultra-Low Forward Voltage Drop (V<sub>F</sub>); 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<sup>®</sup> Technology
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)**

## Description and Applications

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

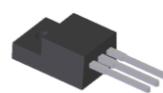
- DC-DC Converters
- AC-DC Adaptors



TO220AB  
Top View



TO220AB  
Bottom



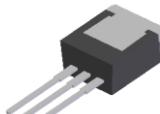
ITO220AB  
Top View



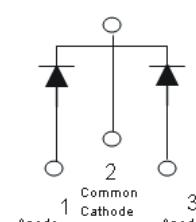
ITO220AB  
Bottom View



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:

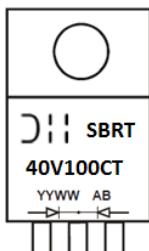
- EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
- See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green"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

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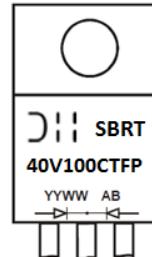
**SBRT40V100CT/CTFP/CTE**

Document number: DS36246 Rev. 9 - 2

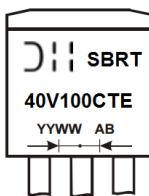
## Marking Information



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 (@ $T_A = +25^\circ\text{C}$ , 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	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	100	V
DC Blocking Voltage	$V_{RM}$		
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) (@ $T_A = +25^\circ\text{C}$ , 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	$I_F = 5\text{A}, T_J = +25^\circ\text{C}$ $I_F = 10\text{A}, T_J = +25^\circ\text{C}$ $I_F = 20\text{A}, T_J = +25^\circ\text{C}$ $I_F = 20\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 8)	$I_R$	—	0.07 20	0.3 45	mA	$V_R = 100\text{V}, T_J = +25^\circ\text{C}$ $V_R = 100\text{V}, T_J = +125^\circ\text{C}$

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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**SBRT40V100CT/CTFP/CTE**  
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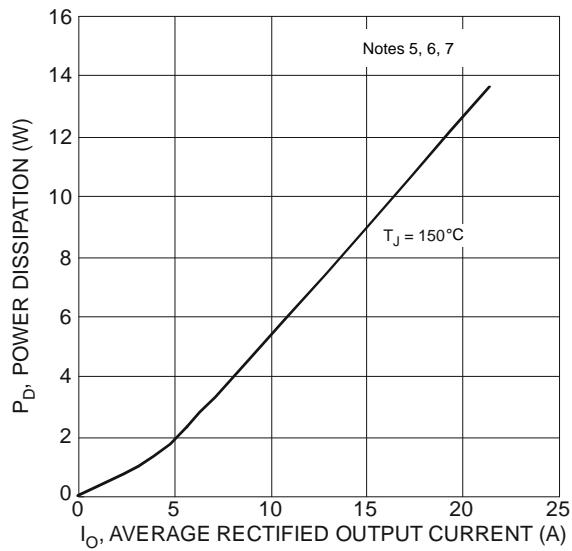


Figure 1 Forward Power Dissipation

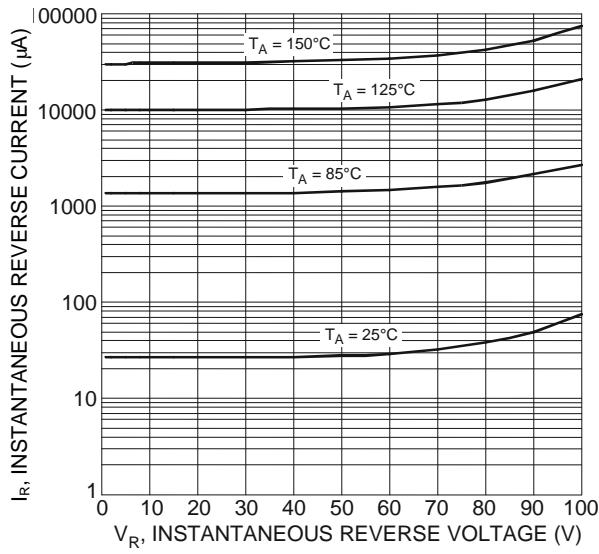


Figure 3 Typical Reverse Characteristics

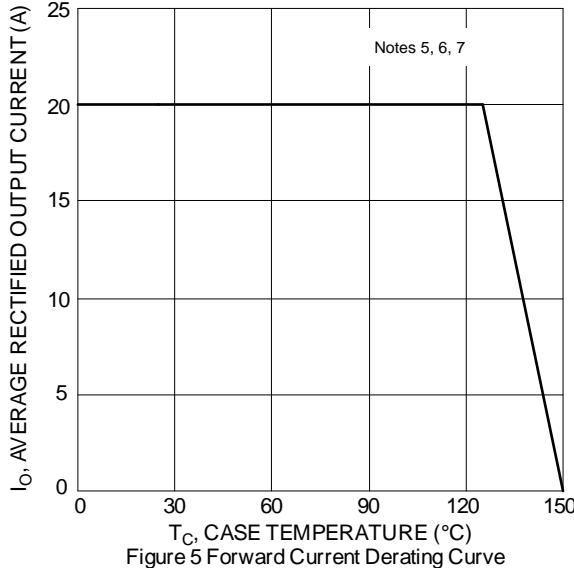


Figure 5 Forward Current Derating Curve

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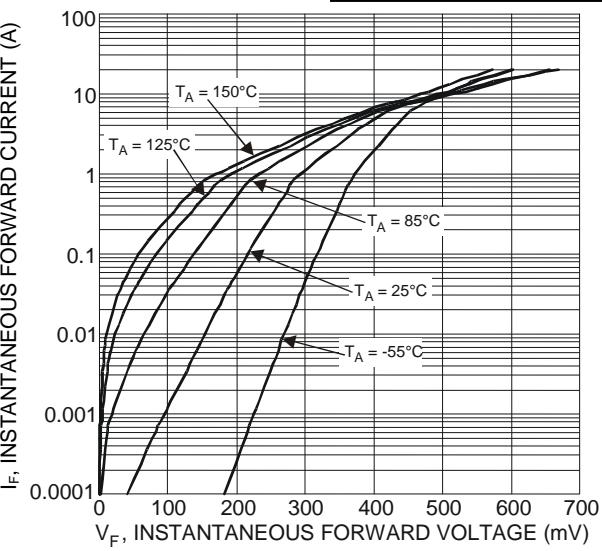


Figure 2 Typical Forward Characteristics

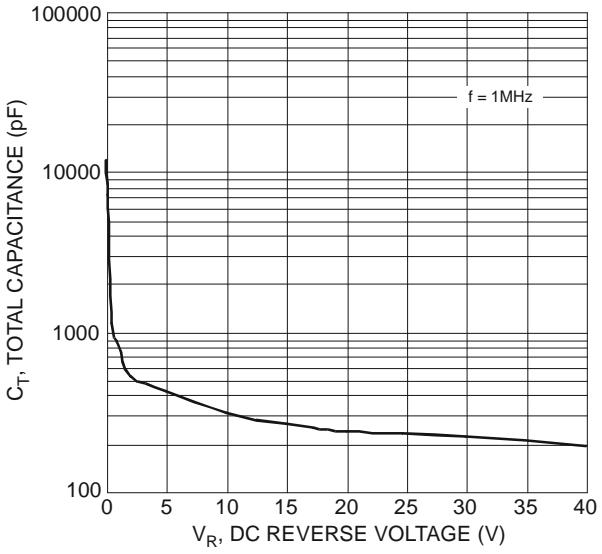
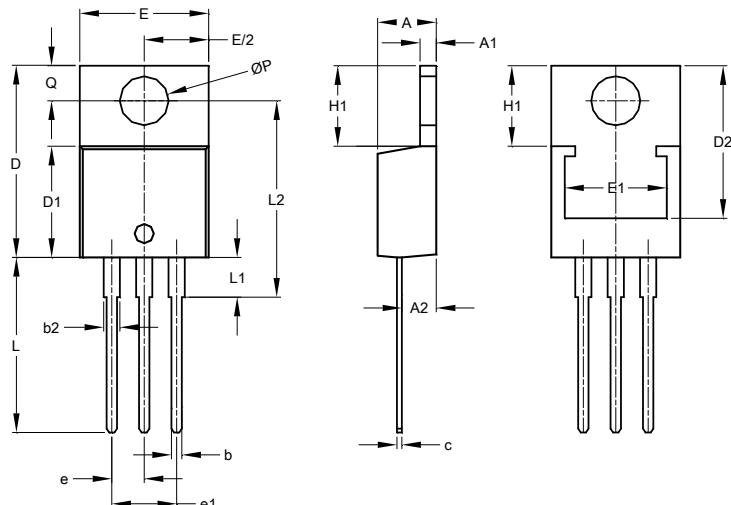


Figure 4 Total Capacitance vs. Reverse Voltage

## Package Outline Dimensions

Please see AP02001 at [http://www.diodes.com/\\_files/datasheets/ap02001.pdf](http://www.diodes.com/_files/datasheets/ap02001.pdf) for the latest version.

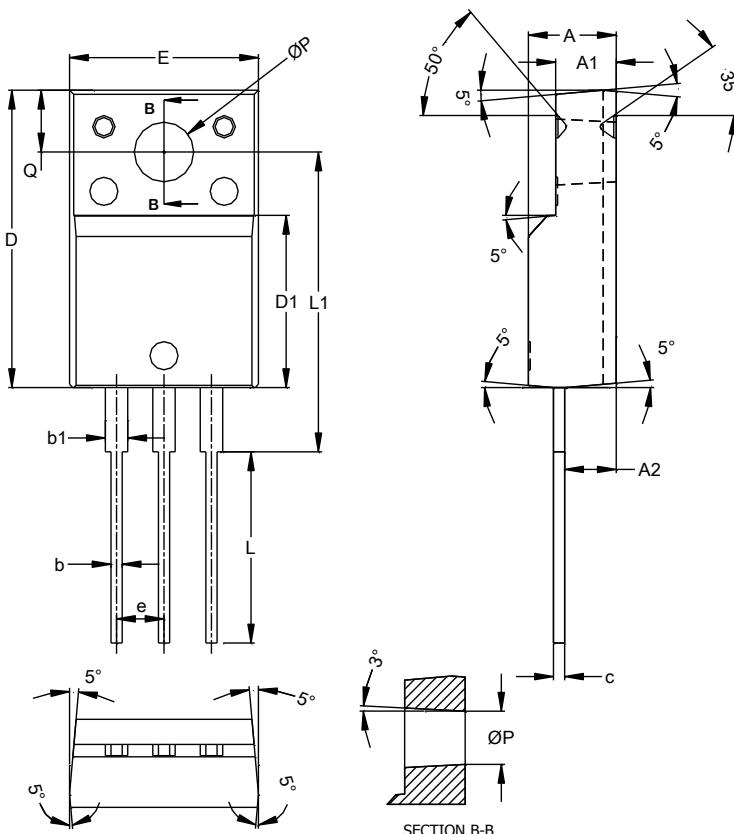
**TO220AB**



<b>TO220AB</b>			
Dim	Min	Max	Typ
<b>A</b>	3.56	4.82	-
<b>A1</b>	0.51	1.39	-
<b>A2</b>	2.04	2.92	-
<b>b</b>	0.39	1.01	0.81
<b>b2</b>	1.15	1.77	1.24
<b>c</b>	0.356	0.61	-
<b>D</b>	14.22	16.51	-
<b>D1</b>	8.39	9.01	-
<b>D2</b>	11.45	12.87	-
<b>e</b>	-	-	2.54
<b>e1</b>	-	-	5.08
<b>E</b>	9.66	10.66	-
<b>E1</b>	6.86	8.89	-
<b>H1</b>	5.85	6.85	-
<b>L</b>	12.70	14.73	-
<b>L1</b>	-	6.35	-
<b>L2</b>	15.80	16.20	16.00
<b>P</b>	3.54	4.08	-
<b>Q</b>	2.54	3.42	-

**All Dimensions in mm**

**ITO-220AB**



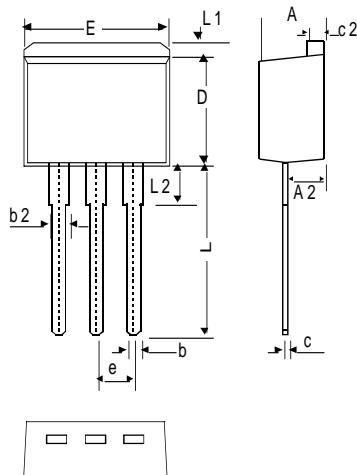
<b>ITO220AB</b>			
Dim	Min	Max	Typ
<b>A</b>	4.50	4.90	4.70
<b>A1</b>	3.04	3.44	3.24
<b>A2</b>	2.56	2.96	2.76
<b>b</b>	0.50	0.75	0.60
<b>b1</b>	1.10	1.35	1.20
<b>c</b>	0.50	0.70	0.60
<b>D</b>	15.67	16.07	15.87
<b>D1</b>	8.99	9.39	9.19
<b>E</b>	9.91	10.31	10.11
<b>e</b>	--	--	2.54
<b>L</b>	9.45	10.05	9.75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

**All Dimensions in mm**

## Package Outline Dimensions (Cont.)

Please see AP02001 at [http://www.diodes.com/\\_files/datasheets/ap02001.pdf](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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