

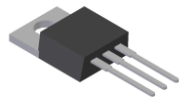
Product Summary (Per Leg)

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

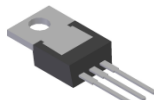
Description and Applications

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:

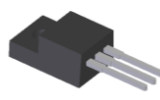
- DC-DC Converters
- AC-DC Adaptors



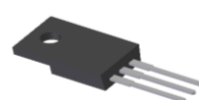
TO220AB
Top View



TO220AB
Bottom



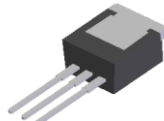
ITO220AB
Top View



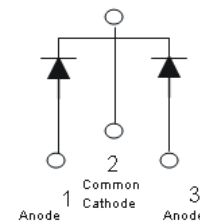
ITO220AB
Bottom View



TO262
Top View



TO262
Bottom View



Package Pin-Out
Configuration

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

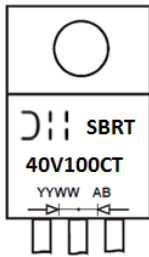
- Case: TO220AB, ITO220AB, TO262
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish; Solderable per MIL-STD-202, Method 208^{Ⓔ3}
- Weight: TO220AB – 1.85 grams (Approximate)
ITO220AB – 1.65 grams (Approximate)
TO262 – 1.355 grams (Approximate)

Ordering Information (Note 4)

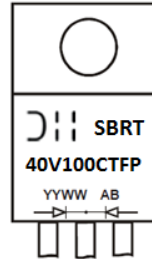
| Part Number | Case | Packaging |
|----------------|----------|----------------|
| SBRT40V100CT | TO220AB | 50 Pieces/Tube |
| SBRT40V100CTFP | ITO220AB | 50 Pieces/Tube |
| SBRT40V100CTE | TO262 | 50 Pieces/Tube |

- 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>.

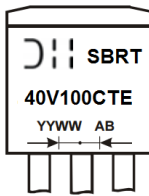
Marking Information



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 | V _{RRM} | 100 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _{RM} | | |
| Average Rectified Output Current (Per Leg) | I _O | 20 | A |
| (Total) | | 40 | |
| 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)

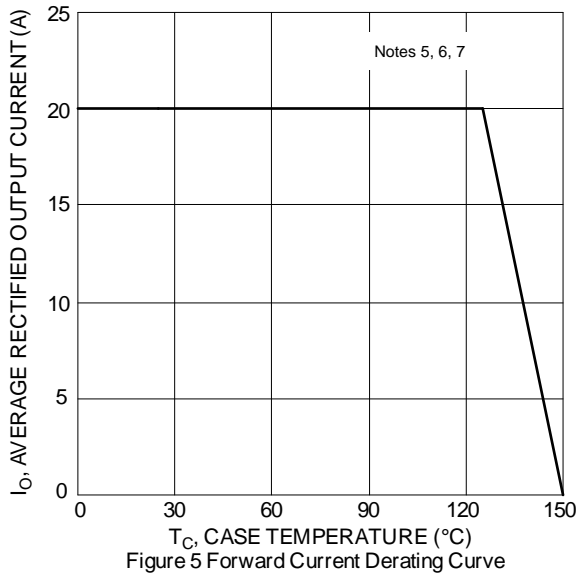
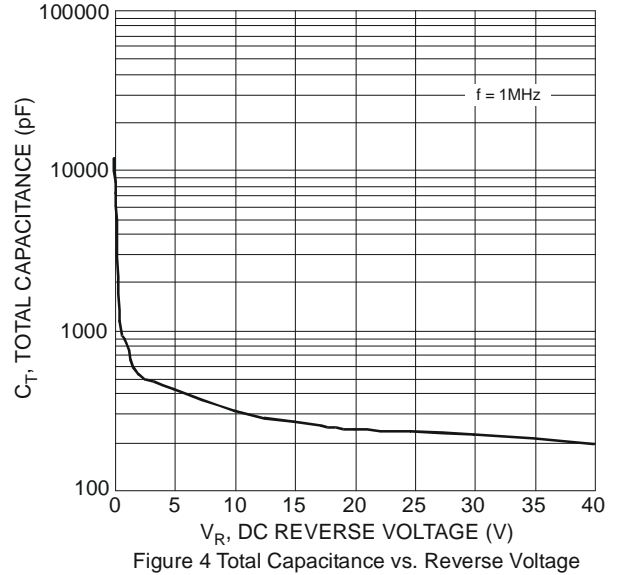
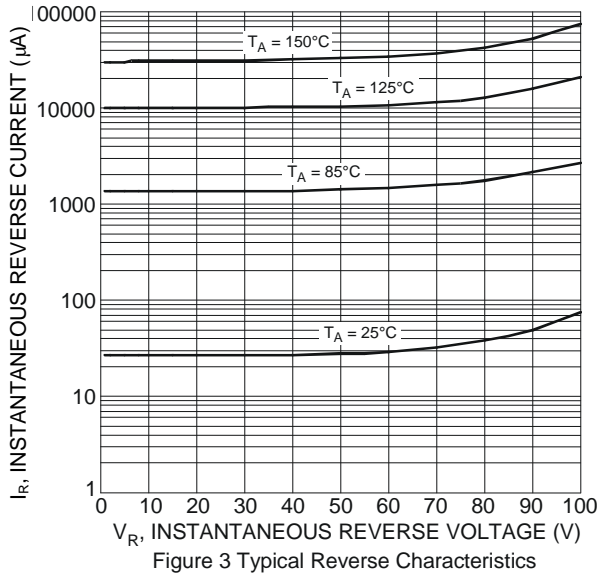
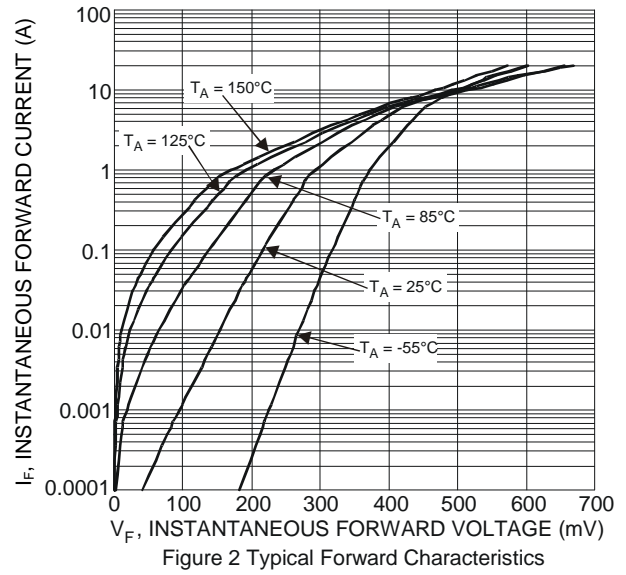
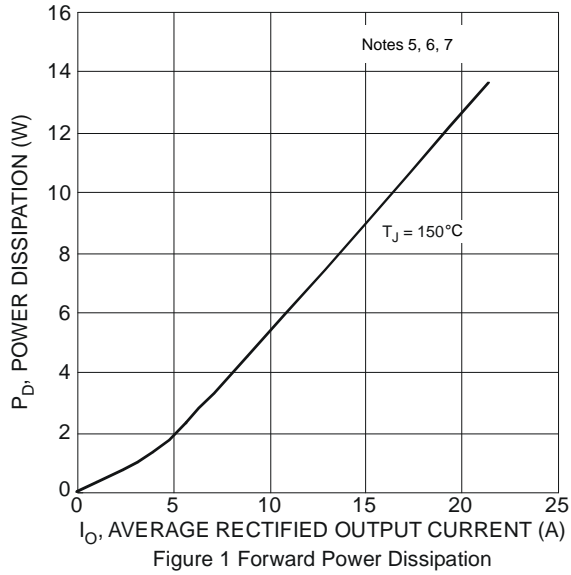
| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Case | R _{θJC} | 2 | °C/W |
| TO220AB (Note 5) | | 4 | |
| ITO220AB (Note 6) | | 3.3 | |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 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 | — | V | I _F = 5A, T _J = +25°C |
| | | | 0.52 | 0.58 | | I _F = 10A, T _J = +25°C |
| | | | 0.67 | 0.73 | | I _F = 20A, T _J = +25°C |
| | | | — | 0.65 | | I _F = 20A, T _J = +125°C |
| Leakage Current (Note 8) | I _R | — | 0.07 | 0.3 | mA | V _R = 100V, T _J = +25°C |
| | | | 20 | 45 | | 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.

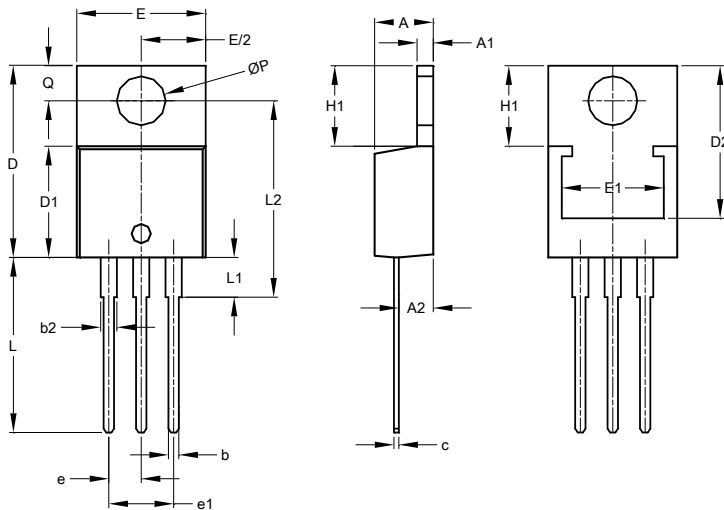
**SBRT40V100CT
SBRT40V100CTFP
SBRT40V100CTE**



Package Outline Dimensions

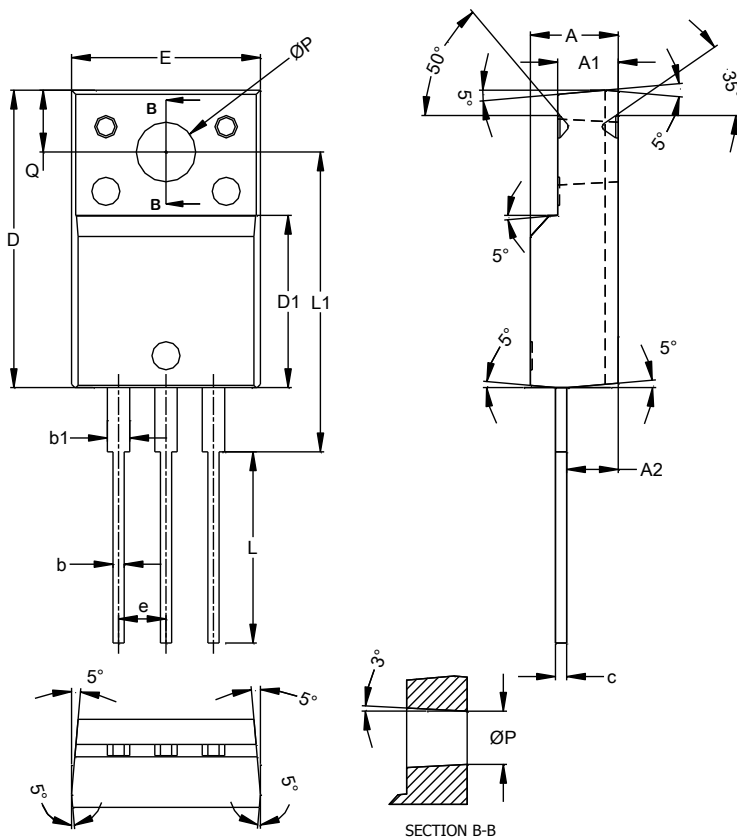
Please see AP02001 at http://www.diodes.com/_files/datasheets/ap02001.pdf for the latest version.

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

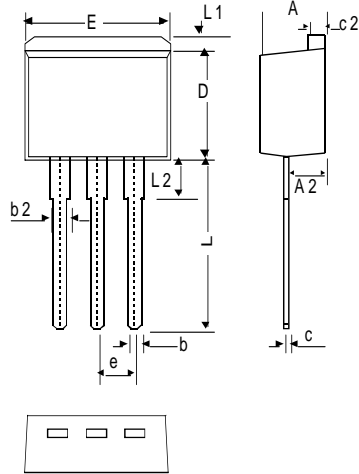


| ITO220AB | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | 4.50 | 4.90 | 4.70 |
| A1 | 3.04 | 3.44 | 3.24 |
| A2 | 2.56 | 2.96 | 2.76 |
| b | 0.50 | 0.75 | 0.60 |
| b1 | 1.10 | 1.35 | 1.20 |
| c | 0.50 | 0.70 | 0.60 |
| D | 15.67 | 16.07 | 15.87 |
| D1 | 8.99 | 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 | | | |

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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