## Product Summary (Per Leg)

| $V_{RRM}$ (V) | $I_O$ (A) | $V_F$ Max (V) @ +25°C | $I_R$ Max (μA) @ +25°C |
|---|---|---|---|
| 100 | 20 | 0.72 | 120 |

## 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/**

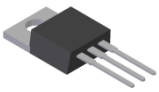
## Description and Applications

The DIODES™ SDT40A100CT/SDT40A100CTFP 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:

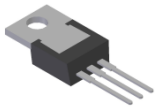
- DC-DC converters
- AC-DC adaptors

## Mechanical Data

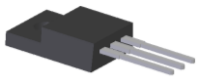
- Package: TO220AB (Generic), ITO220AB, ITO220AB (Type HE)
- Package Material: Molded Plastic.
  UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: TO220AB (Generic) - 1.85 grams (Approximate)
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



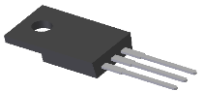
TO220AB (Generic)
Top View



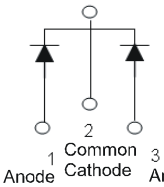
TO220AB (Generic)
Bottom View



ITO220AB
ITO220AB (Type HE)
Top View



ITO220AB
ITO220AB (Type HE)
Bottom View




Package Pin Out
Configuration

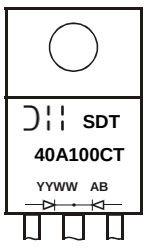
## Ordering Information (Note 4)

| Part Number | Package | Packing | |
|---|---|---|---|
| | | Qty. | Carrier |
| SDT40A100CT | TO220AB (Generic) | 50 | Pieces/Tube |
| SDT40A100CTFP | ITO220AB | 50 | Pieces/Tube |
| SDT40A100CTFP | ITO220AB (Type HE) | 50 | Pieces/Tube |

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
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/.

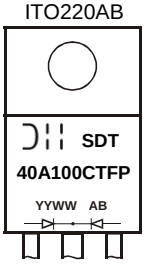
## Marking Information

TO220AB (Generic)




= Manufacturer's Marking
SDT40A100CT = 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)
ITO220AB




= Manufacturer's Marking
SDT40A100CTFP = 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) (@$T_A$ = +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<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_{RM}$ | 100 | V |
| Average Rectified Output Current Per Device (Per Leg)<br>(Total) | $I_O$ | 20<br>40 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load<br>Package = TO220AB (Generic)<br>Package = ITO220AB<br>Package = ITO220AB (Type HE) | $I_{FSM}$ | <br><br>250<br>180<br>180 | A |

## Thermal Characteristics (Per Leg)

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Typical Thermal Resistance (Note 5)<br>Package = TO220AB (Generic)<br>Package = ITO220AB<br>Package = ITO220AB (Type HE) | $R_{\theta JC}$ | <br>2<br>4<br>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 | $V_F$ | —<br>—<br>—<br>— | 0.48<br>0.55<br>0.66<br>0.62 | —<br>—<br>0.72<br>0.68 | V | $I_F$ = 5A, $T_J$ = +25°C<br>$I_F$ = 10A, $T_J$ = +25°C<br>$I_F$ = 20A, $T_J$ = +25°C<br>$I_F$ = 20A, $T_J$ = +125°C |
| Leakage Current (Note 6) | $I_R$ | —<br>— | 11<br>5.5 | 120<br>25 | µA<br>mA | $V_R$ = 100V, $T_J$ = +25°C<br>$V_R$ = 100V, $T_J$ = +125°C |

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

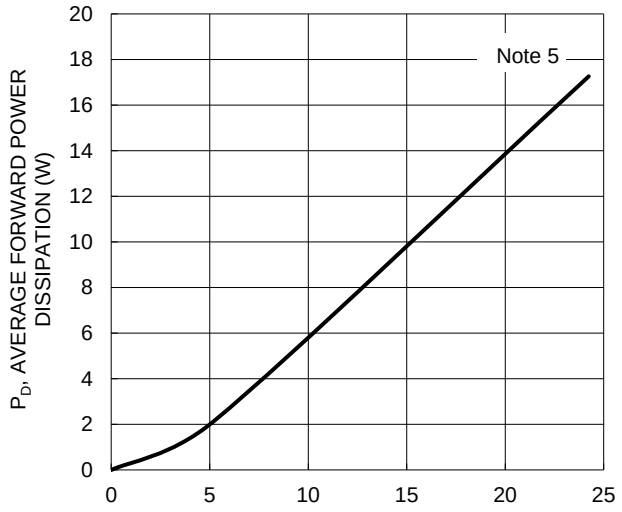



Figure 1. Forward Power Dissipation

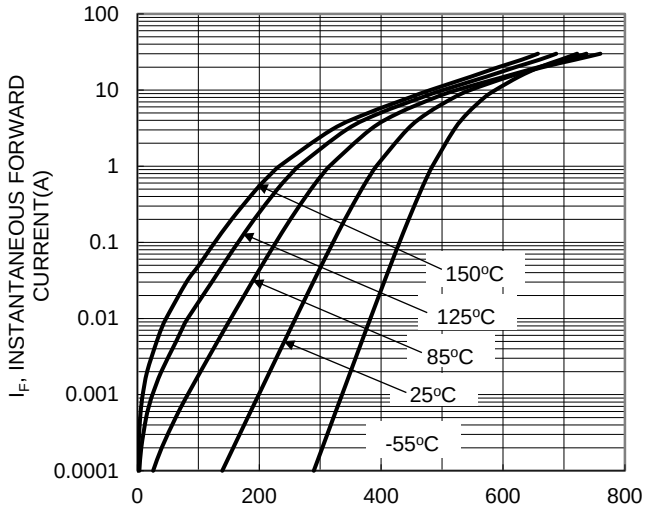



Figure 2. Typical Forward Characteristics

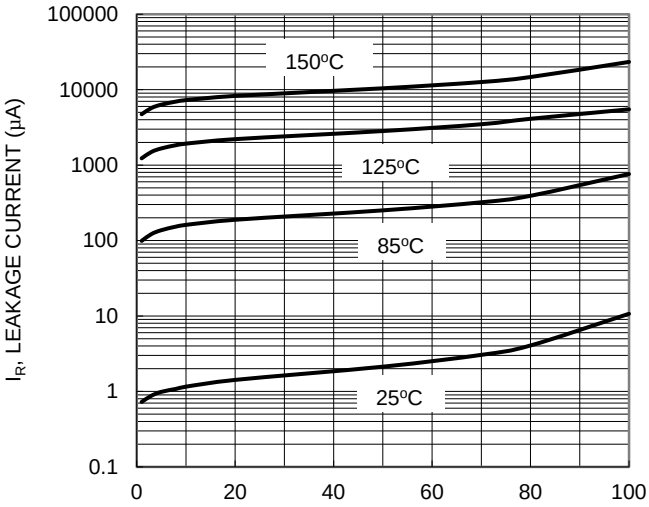



Figure 3. Typical Reverse Characteristics

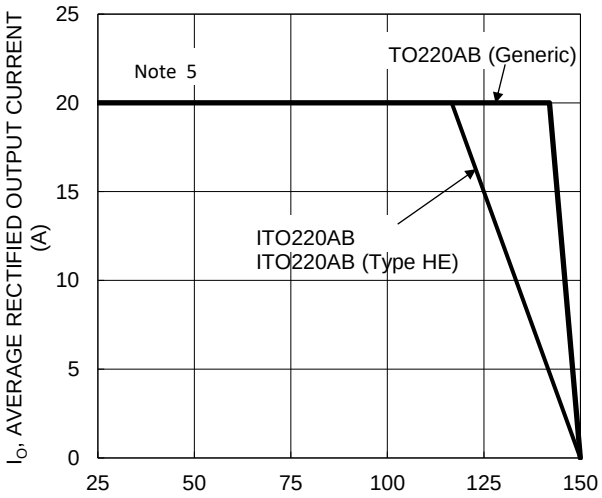



Figure 4 DC Forward Current Derating

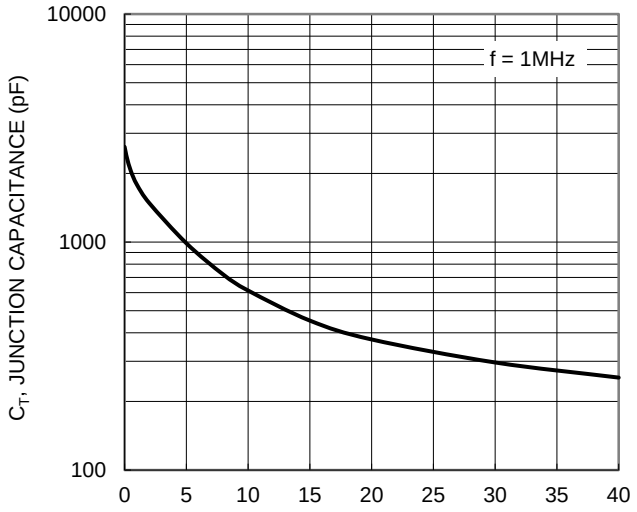
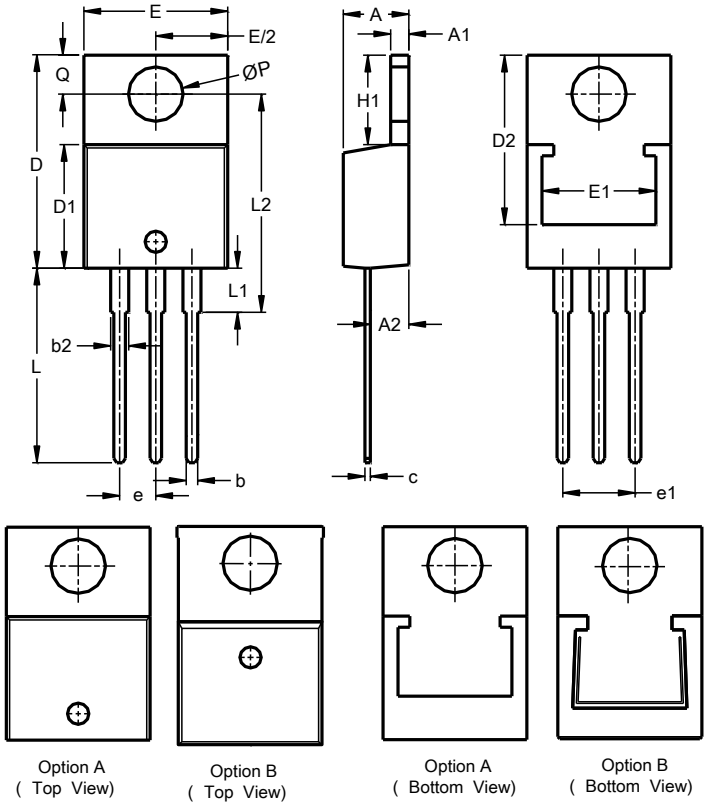



Figure. 5 Typical Junction Capacitance

## Package Outline Dimensions

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

**TO220AB (Generic)**

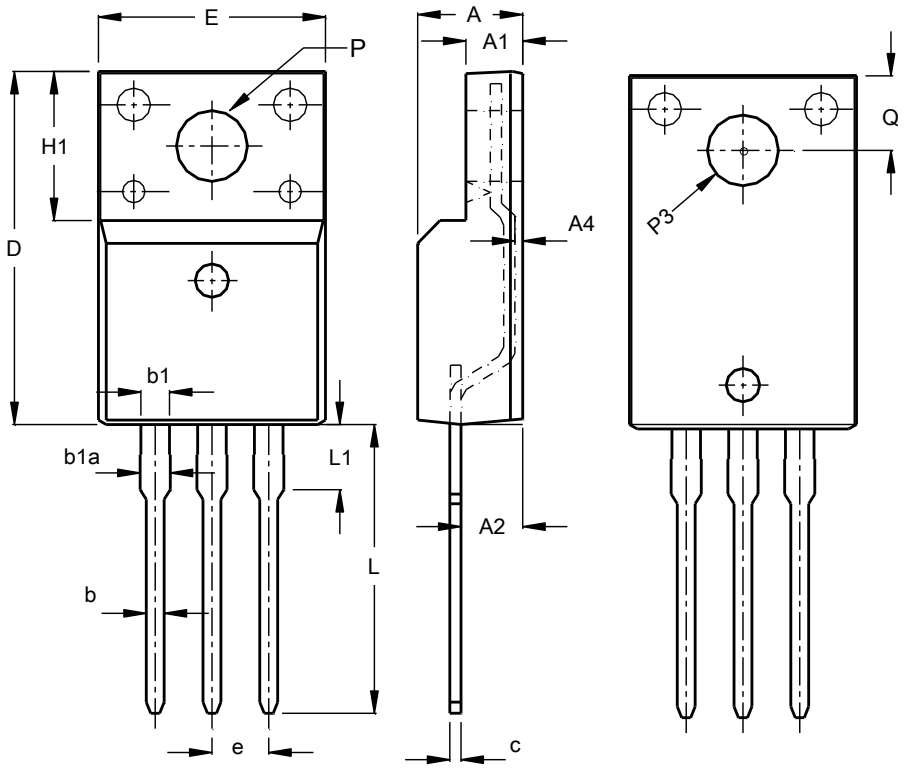



| TO220AB (Generic) | | | |
|---|---|---|---|
| **Dim** | **Min** | **Max** | **Typ** |
| **A** | 3.56 | 4.82 | - |
| **A1** | 0.51 | 1.39 | - |
| **A2** | 2.04 | 2.92 | - |
| **b** | 0.39 | 1.01 | 0.81 |
| **b2** | 1.15 | 1.77 | 1.24 |
| **c** | 0.356 | 0.61 | - |
| **D** | 14.22 | 16.51 | - |
| **D1** | 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.

**ITO220AB (Type HE)**

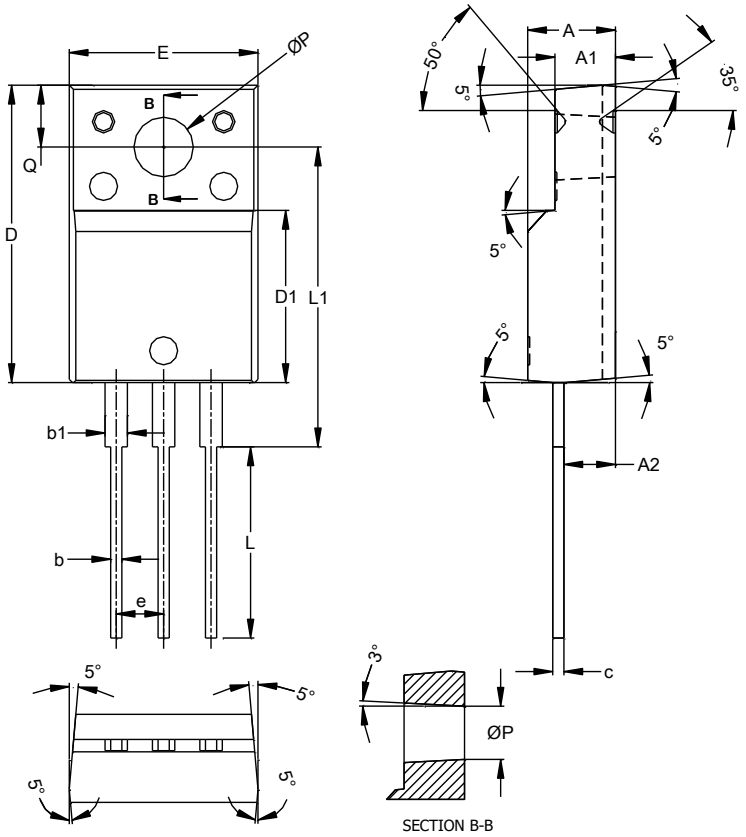



| ITO220AB (Type HE) | | | |
|---|---|---|---|
| **Dim** | **Min** | **Max** | **Typ** |
| **A** | 4.50 | 4.90 | 4.70 |
| **A1** | 2.34 | 2.74 | 2.54 |
| **A2** | 2.56 | 2.96 | 2.76 |
| **A4** | 0.30 | 0.60 | 0.45 |
| **b** | 0.70 | 0.95 | 0.80 |
| **b1** | 1.18 | 1.43 | 1.28 |
| **b1a** | 1.25 | 1.55 | 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** | | | |

## Package Outline Dimensions (continued)

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

**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** | | | |

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