

**Product Summary** (Per Leg, @  $T_A = +25^\circ\text{C}$ )

| $V_{RRM}$ (V) | $I_O$ (A) | $V_F$ (V) | $I_R$ ( $\mu\text{A}$ ) |
|---------------|-----------|-----------|-------------------------|
| 400           | 5         | 1.3       | 10                      |

**Features and Benefits**

- Super-Fast Switching Capability
- Glass Passivated Die Construction
- Rating to 400V Peak Reverse Voltage
- High Surge Capacity
- Low Forward Voltage Drop
- Low Reverse Leakage Current
- **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-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

**Description and Applications**

- Switched Mode Power Supplies
- High Frequency DC to DC Converters

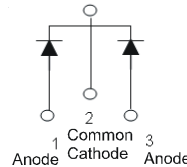
**Mechanical Data**

- Package: ITO220AB
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Finish – Matte Tin Plated Leads Solderable per MIL-STD-202, Method 208  $\text{\textcircled{3}}$
- Polarity: See Diagram
- Weight: 1.558 grams (Approximate)

**ITO220AB (Type WX2)**


Top View

Bottom View

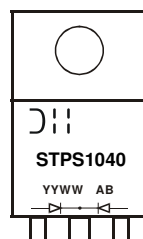


Package Pin Out Configuration

**Ordering Information** (Note 4)

| Part Number | Qualification | Package             | Packing |         |
|-------------|---------------|---------------------|---------|---------|
|             |               |                     | Qty.    | Carrier |
| STPS1040    | Commercial    | ITO220AB (Type WX2) | 50pcs   | 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**
**ITO220AB (Type WX2)**


STPS1040 = Product Type Marking Code  
 DII = Manufacturer's Marking  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 21 for 2021)  
 WW = Week Code (01 to 53)  
 AB = Foundry and Assembly Code

**Maximum Ratings** (@  $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

| Characteristic                                                                                      | Symbol             | Value   | Unit |
|-----------------------------------------------------------------------------------------------------|--------------------|---------|------|
| Peak Repetitive Reverse Voltage<br>DC Blocking Voltage                                              | $V_{RRM}$<br>$V_R$ | 400     | V    |
| Average Rectified Output Current, @ $T_C = +105^\circ\text{C}$<br>(Per Leg)<br>(Total)              | $I_O$              | 5<br>10 | A    |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$          | 80      | A    |

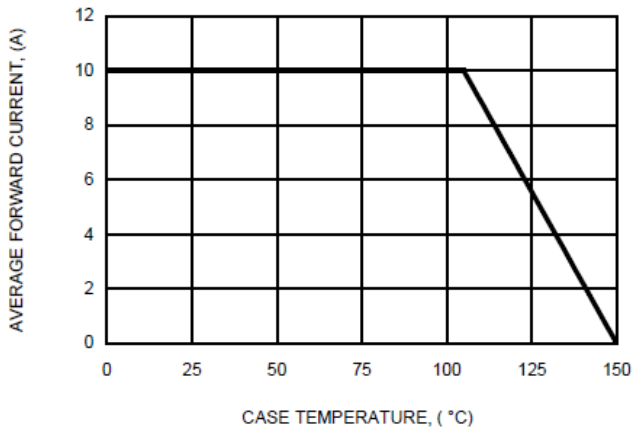
**Thermal Characteristics**

| Characteristic                                            | Symbol          | Value       | Unit               |
|-----------------------------------------------------------|-----------------|-------------|--------------------|
| Typical Thermal Resistance Junction to Case (Notes 5 & 6) | $R_{\theta JC}$ | 4           | $^\circ\text{C/W}$ |
| Typical Thermal Resistance Junction to Lead (Notes 5 & 6) | $R_{\theta JL}$ | 4           | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range                   | $T_J, T_{STG}$  | -55 to +150 | $^\circ\text{C}$   |

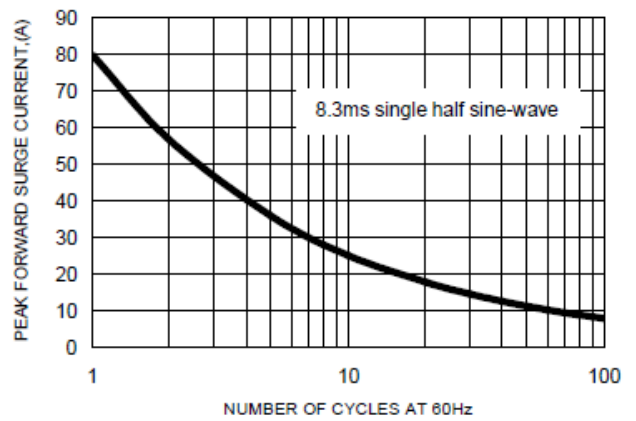
**Electrical Characteristics** (@  $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

| Characteristic                     | Symbol      | Min | Typ  | Max  | Unit          | Test Condition                                                |
|------------------------------------|-------------|-----|------|------|---------------|---------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 7) | $V_{(BR)R}$ | 400 | —    | —    | V             | $I_R = 10\mu\text{A}$                                         |
| Forward Voltage (Note 8)           | $V_F$       | —   | —    | 1.30 | V             | $I_F = 5\text{A}, T_J = +25^\circ\text{C}$                    |
|                                    |             | —   | 0.94 | 1.20 | V             | $I_F = 5\text{A}, T_J = +125^\circ\text{C}$                   |
| Reverse Leakage Current (Note 7)   | $I_R$       | —   | —    | 10   | $\mu\text{A}$ | $V_R = 400\text{V}, T_J = +25^\circ\text{C}$                  |
|                                    |             | —   | 1.95 | 250  | $\mu\text{A}$ | $V_R = 400\text{V}, T_J = +100^\circ\text{C}$                 |
| Typical Total Capacitance          | $C_T$       | —   | 27   | —    | pF            | $V_R = 4\text{V}, f = 1.0\text{MHz}$                          |
| Reverse Recovery Time              | $t_{RR}$    | —   | —    | 35   | ns            | $I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{RR} = 0.25\text{A}$ |

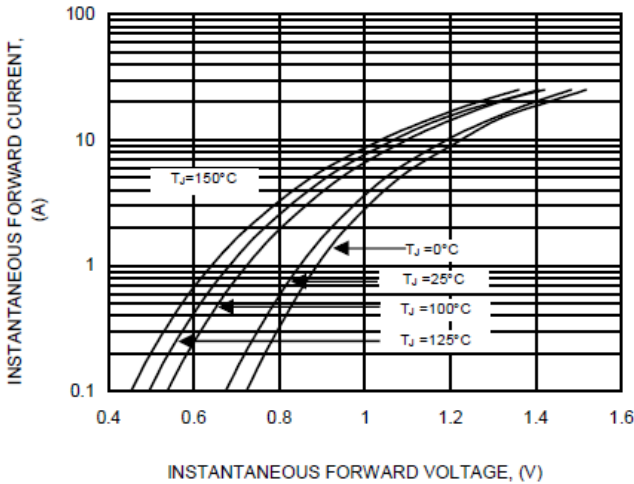
- Notes:
5. Thermal resistance test performed in accordance with JESD-51.
  6. The unit mounted on Aluminum plate 29.6mm x 23.9mm x 1.87mm and copper heatsink 100mm x 100mm x 1.9mm.
  7. Short duration pulse test used to minimize self-heating effect.
  8. 300 $\mu\text{s}$  pulse width, 2% duty cycle.



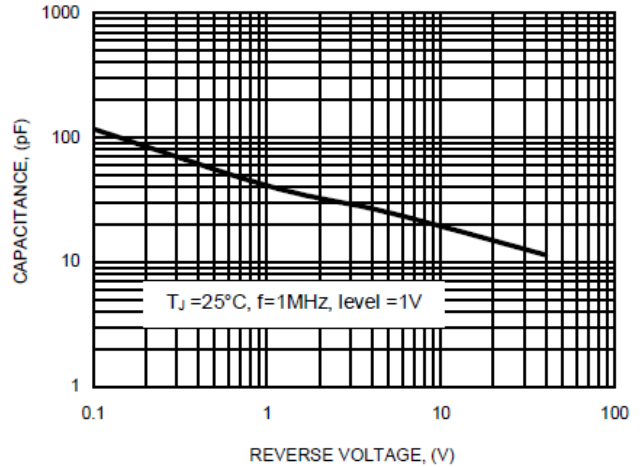
**Fig. 1 FORWARD CURRENT DERATING CURVE**



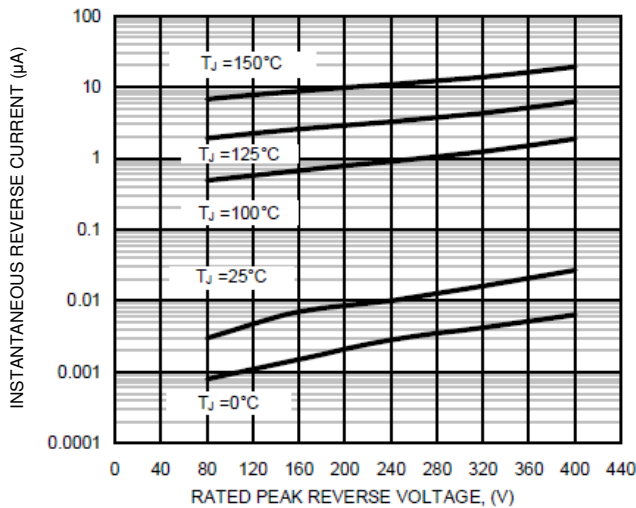
**Fig. 2 MAXIMUM NON-REPETITIVE SURGE CURRENT**



**Fig. 3 TYPICAL FORWARD CHARACTERISTICS**



**Fig. 4 TYPICAL TOTAL CAPACITANCE**

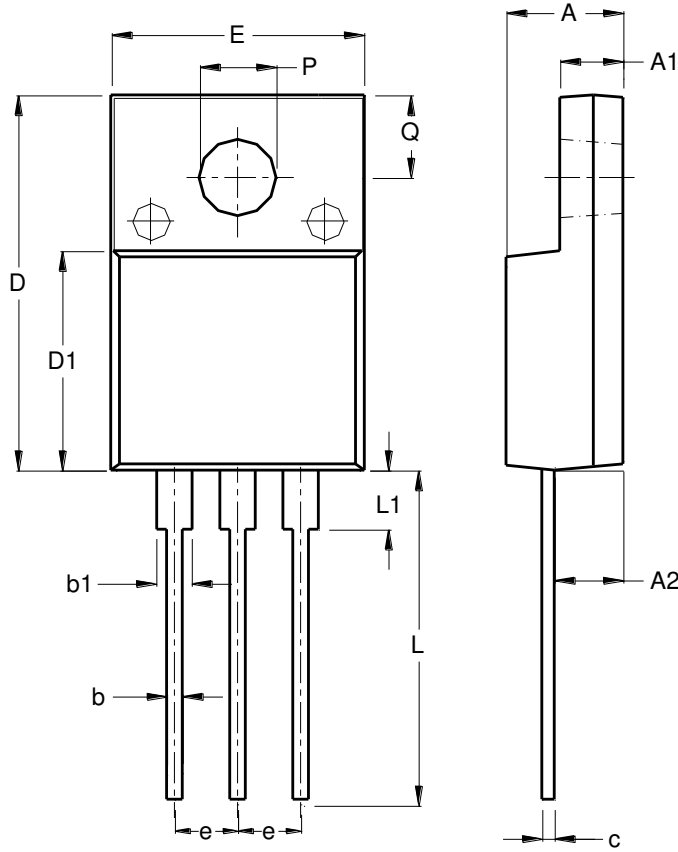


**Fig. 5 TYPICAL REVERSE CHARACTERISTICS**

**Package Outline Dimensions**

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

**ITO220AB (Type WX2)**



| ITO220AB<br>(Type WX2)      |       |       |
|-----------------------------|-------|-------|
| Dim                         | Min   | Max   |
| A                           | 4.46  | 4.87  |
| A1                          | 2.48  | 2.80  |
| A2                          | 2.50  | 2.80  |
| b                           | 0.50  | 0.80  |
| b1                          | 1.15  | 1.70  |
| c                           | 0.45  | 0.70  |
| D                           | 14.95 | 15.95 |
| D1                          | 8.50  | 8.80  |
| E                           | 10.00 | 10.40 |
| e                           | 2.40  | 2.70  |
| L                           | 13.00 | 13.70 |
| L1                          | 2.10  | 2.50  |
| Q                           | 2.76  | 3.36  |
| P                           | 3.00  | 3.30  |
| <b>All Dimensions in mm</b> |       |       |

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