

**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	8	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/>

**Applications**

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

**Mechanical Data**

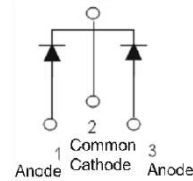
- Package: TO220AB (Type WX)
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Finish – Matte Tin Plated Leads Solderable per MIL-STD-202, Method 208 @3
- Polarity: See Diagram
- Weight: 1.927 grams (Approximate)

**TO220AB (Type WX)**


Top View



Bottom View

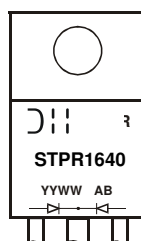


Package Pin Out Configuration

**Ordering Information** (Note 4)

Part Number	Qualification	Package	Packing	
			Qty.	Carrier
STPR1640	Commercial	TO220AB (Type WX)	50 pcs	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**
**TO220AB (Type WX)**


- STPR1640 = Product Type Marking Code
- ⌋⌋⌋ = 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 DC Blocking Voltage	$V_{RRM}$ $V_R$	400	V
Average Rectified Output Current, @ $T_C = +110^\circ\text{C}$ (Per Leg) (Total)	$I_O$	8 16	A
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	100	A

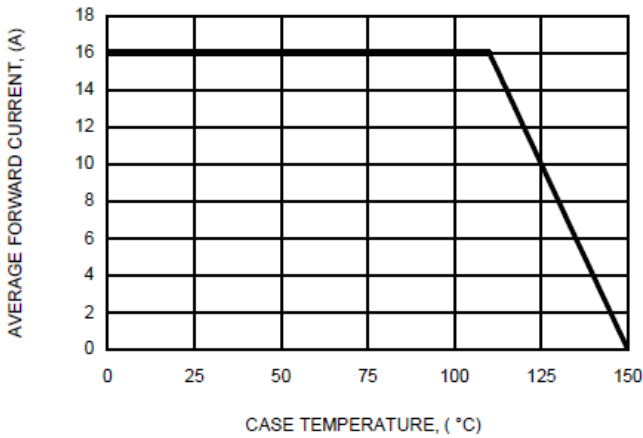
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 5, 6)	$R_{\theta JC}$	2	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Lead (Note 5, 6)	$R_{\theta JL}$	2	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

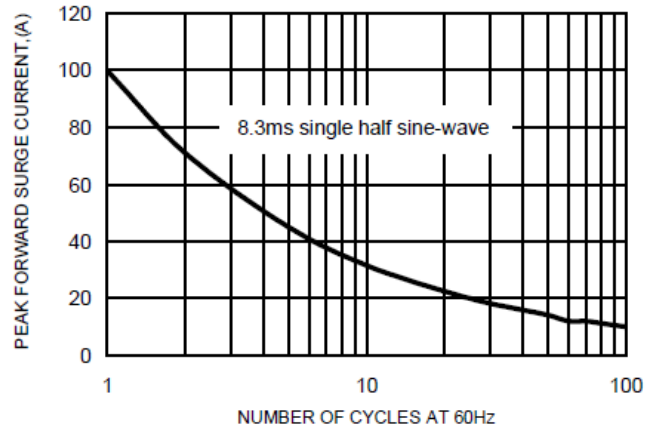
**Electrical Characteristics** (@  $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

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	$I_F = 8\text{A}, T_J = +25^\circ\text{C}$
		—	0.98	1.20	V	$I_F = 8\text{A}, T_J = +125^\circ\text{C}$
		—	—	1.50	V	$I_F = 16\text{A}, T_J = +25^\circ\text{C}$
		—	1.17	1.40	V	$I_F = 16\text{A}, T_J = +125^\circ\text{C}$
Reverse Leakage Current (Note 7)	$I_R$	—	—	10	$\mu\text{A}$	$V_R = 400\text{V}, T_J = +25^\circ\text{C}$
		—	1.87	500	$\mu\text{A}$	$V_R = 400\text{V}, T_J = +100^\circ\text{C}$
Typical Total Capacitance	$C_T$	—	45	—	pF	$V_R = 4\text{V}, f = 1.0\text{MHz}$
Reverse Recovery Time	$t_{RR}$	—	—	35	ns	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{RR} = 0.25\text{A}$

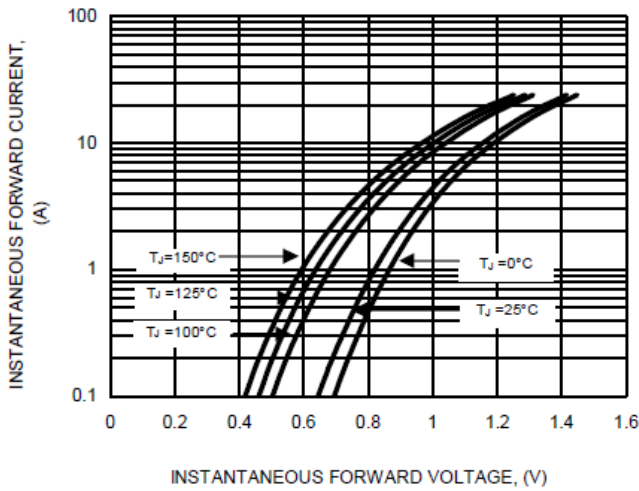
- Notes:
5. Thermal resistance test performed in accordance with JESD-51.
  6. The unit mounted on copper heatsink 100mm x 100mm x 1.98mm.
  7. Short duration pulse test used to minimize self-heating effect.
  8. 300 $\mu\text{s}$  pulse width, 2% duty cycle.



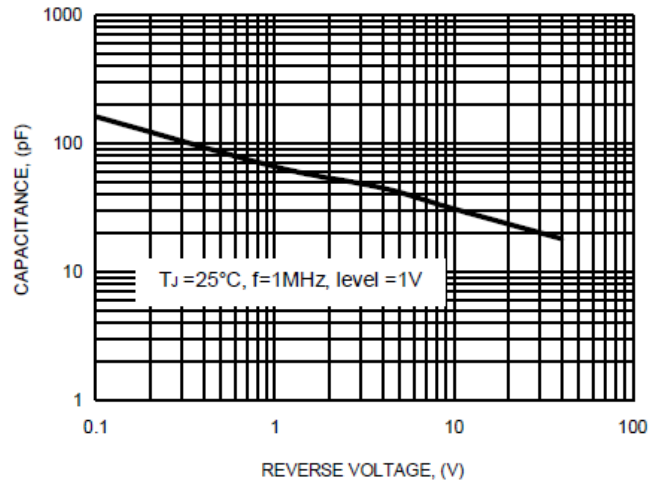
**Fig. 1 FORWARD CURRENT DERATING CURVE**



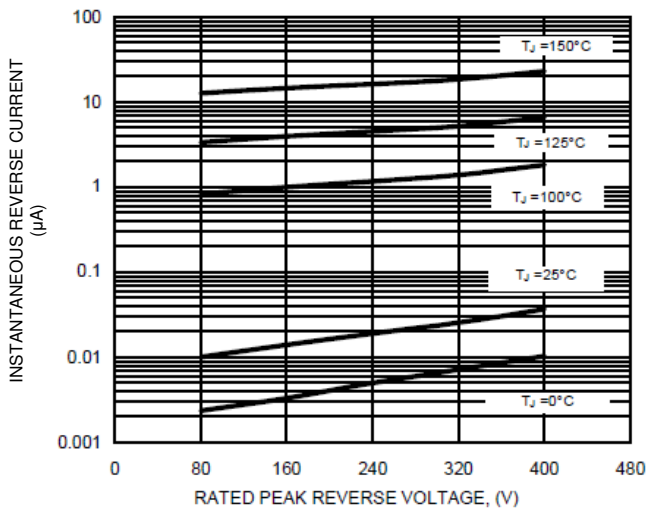
**Fig. 2 MAXIMUM NON-REPETITIVE SURGE CURRENT**



**Fig. 3 TYPICAL FORWARD CHARACTERISTICS**



**Fig. 4 TYPICAL TOTAL CAPACITANCE**

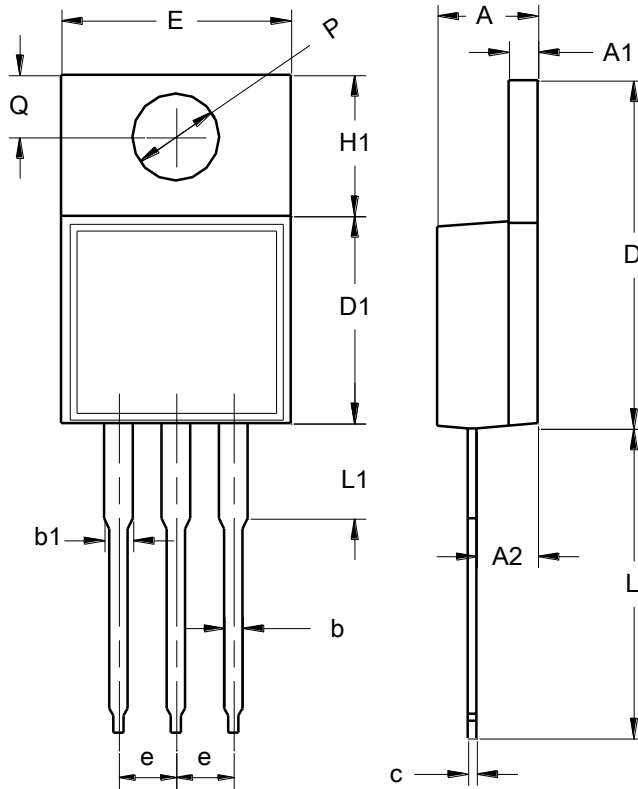


**Fig. 5 TYPICAL REVERSE CHARACTERISTICS**

**Package Outline Dimensions**

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

TO220AB (Type WX)



TO220AB (Type WX)		
Dim	Min	Max
A	3.56	4.83
A1	1.14	1.40
A2	2.03	2.92
b	0.51	1.14
b1	1.14	1.70
c	0.30	0.64
D	14.40	15.20
D1	8.26	9.28
E	9.65	10.67
e	2.29	2.79
H1	5.84	6.86
L	12.70	14.73
L1	--	4.20
PØ	3.53	4.09
Q	2.54	3.43
All Dimensions in mm		

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