STPR1040

10A SUPER-FAST RECTIFIER

Product Summary (Per Leg, @ T_A = +25°C)

V_{RRM} (V)	I_O (A)	V_F (V)	I_R (µA)
400	5	1.3	10

Features and Benefits

- Super-Fast Switching Capability
- Glass Passivated Die Construction
- Rating to 400V Peak Reverse Voltage
- High Current Capability
- 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 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 e3
- Polarity: See Diagram
- Weight: 2.0275 grams (Approximate)

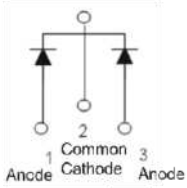
TO220AB (Type WX)



Top View



Bottom View



Package Pin Out Configuration

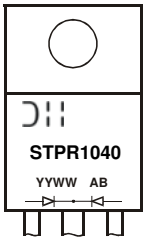
Ordering Information (Note 4)

Part Number	Qualification	Package	Packing	
			Qty.	Carrier
STPR1040	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)



STPR1040 = 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

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Maximum Ratings (@ T_A = +25°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 (Fig. 1)	(Per Leg) (Total)	I_O	5 10	A
Peak Forward Surge Current, 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 (Note 5, 6)	$R_{\theta JC}$	4.2	°C/W
Typical Thermal Resistance Junction to Lead (Note 5, 6)	$R_{\theta JL}$	6.0	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	400	—	—	V	I_R = 10μA
Forward Voltage (Note 8)	V_F	— —	— —	1.30 1.20	V	I_F = 5A, T_J = +25°C I_F = 5A, T_J = +125°C
		— —	— —	1.50 1.40	V	I_F = 10A, T_J = +25°C I_F = 10A, T_J = +125°C
Reverse Leakage Current (Note 7)	I_R	— —	— —	10 250	μA μA	V_R = 400V, T_J = +25°C V_R = 400V, T_J = +100°C
Typical Total Capacitance	C_T	—	—	50	pF	V_R = 4V, f = 1.0MHz
Reverse Recovery Time	t_{RR}	—	—	35	ns	I_F = 0.5A, I_R = 1.0A, I_{RR} = 0.25A

Notes:
5. Thermal resistance test performed in accordance with JESD-51.
6. The unit mounted on copper heatsink 50mm x 50mm x 2mm.
7. Short duration pulse test used to minimize self-heating effect.
8. 300μs pulse width, 2% duty cycle.

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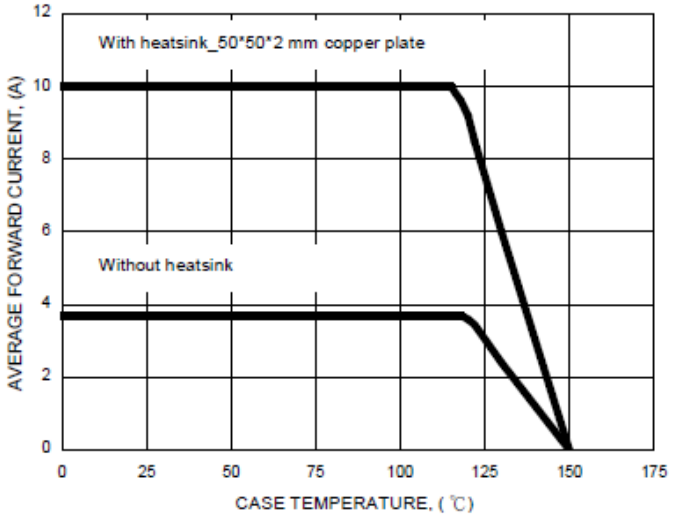


Fig. 1 FORWARD CURRENT DERATING CURVE

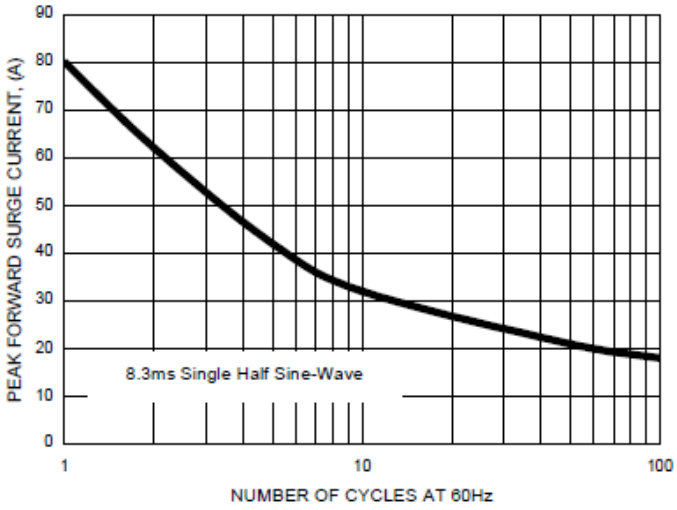


Fig. 2 MAXIMUM NON-REPETITIVE SURGE CURRENT

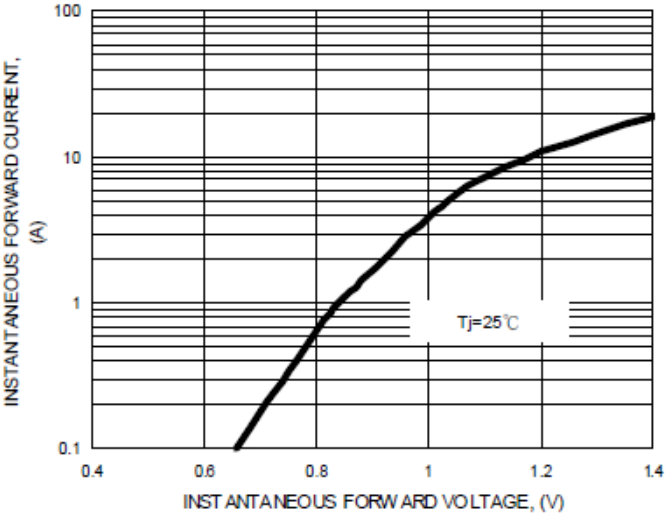


Fig. 3 TYPICAL FORWARD CHARACTERISTICS

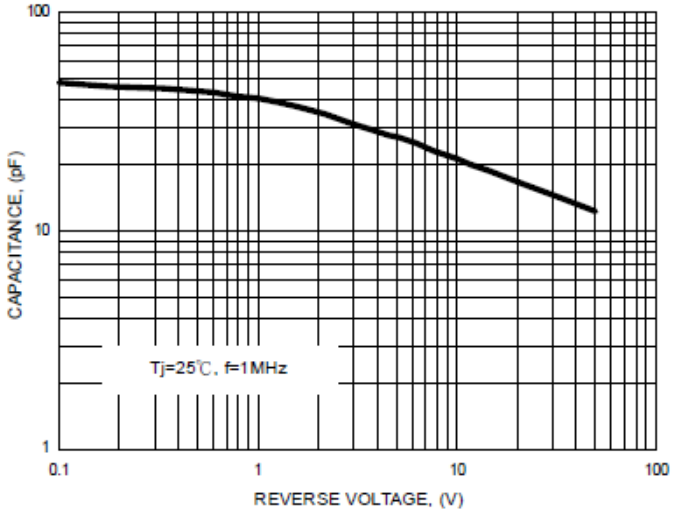


Fig. 4 TYPICAL TOTAL CAPACITANCE

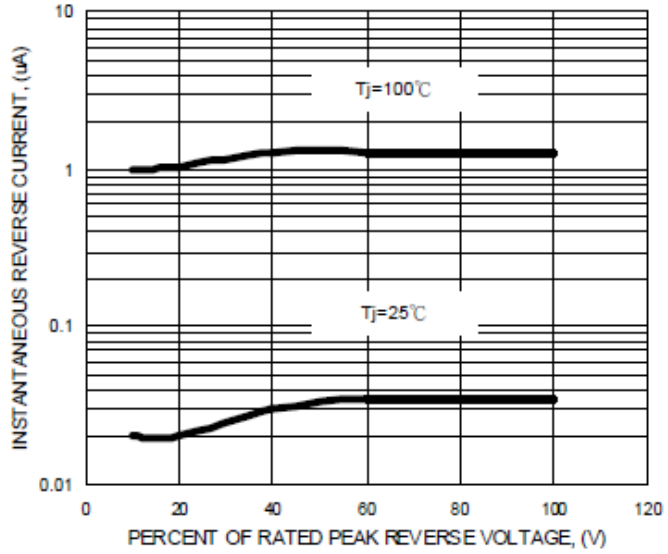


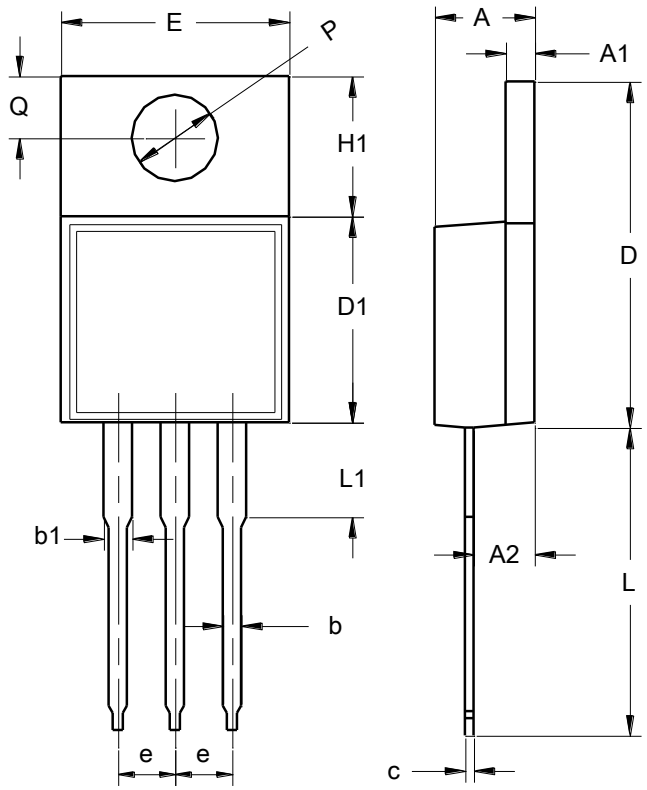
Fig. 5 TYPICAL REVERSE CHARACTERISTICS

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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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