

**SUPER FAST  
GLASS PASSIVATED RECTIFIER**

**REVERSE VOLTAGE – 400 Volts  
FORWARD CURRENT – 10 Amperes**

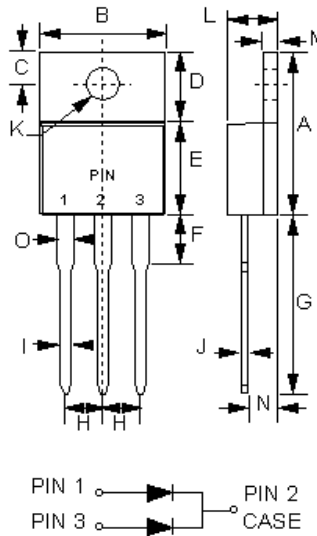
**FEATURES**

- Glass passivated chip
- Superfast switching time for high efficiency
- Low forward voltage drop and high current capability
- Low reverse leakage current
- Qualified according to AEC-Q101 Rev\_D
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

**MECHANICAL DATA**

- Package: JEDEC TO-220AB
- Package Material: Plastic material, UL flammability classification 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating
- Polarity indicator: As marked on the body
- Weight: 0.072 ounces, 2.0275 grams (Approximate)
- Component in accordance to RoHS 2002/95/EC
- ESD capability: HBM\_8KV (JESD22-A114)
- Maximum mounting torque = 0.5 N.m (5.1 Kgf.cm)

**TO-220AB**



TO-220AB		
DIM.	MIN.	MAX.
A	14.40	15.20
B	9.65	10.67
C	2.54	3.43
D	5.84	6.86
E	8.26	9.28
F	-	4.20
G	12.70	14.73
H	2.29	2.79
I	0.51	1.14
J	0.30	0.64
K	3.53 $\varnothing$	4.09 $\varnothing$
L	3.56	4.83
M	1.14	1.40
N	2.03	2.92
O	1.14	1.70

All Dimensions in millimeter

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25°C ambient temperature unless otherwise specified.

PARAMETER	SYMBOL	VALUE	UNIT		
Device marking code	Note	STPR1040CTW	---		
Maximum Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	400	V		
Average Rectified Output Current See FIG.1	I <sub>F</sub>	10	A		
Peak Forward Surge Current 8.3ms single half sine-wave (Per leg)	I <sub>FSM</sub>	80	A		
Storage temperature range	T <sub>STG</sub>	-55 to +150	°C		
Operating junction temperature range	T <sub>J</sub>	-55 to +150	°C		
PARAMETER	TEST CONDITIONS	SYMBOL	Min.	Max.	UNIT
Breakdown voltage	I <sub>R</sub> =10uA T <sub>j</sub> =25°C	V <sub>B</sub>	400	---	V
Forward Voltage (Note 4)	I <sub>F</sub> =5A T <sub>j</sub> =25°C T <sub>j</sub> =125°C	V <sub>F</sub>	---	1.30	V
	I <sub>F</sub> =10A T <sub>j</sub> =25°C T <sub>j</sub> =125°C		---	1.50	
	---		---	1.40	
Leakage Current	V <sub>R</sub> =400V T <sub>j</sub> =25°C T <sub>j</sub> =100°C	I <sub>R</sub>	---	10 250	uA
Reverse recovery time	I <sub>F</sub> = 0.5A I <sub>rr</sub> = 0.25A I <sub>R</sub> =1.0A T <sub>j</sub> =25°C	t <sub>rr</sub>	---	35	ns
Junction Capacitance	V <sub>R</sub> =4V Freq.=1MHz T <sub>j</sub> =25°C	C <sub>j</sub>	---	50	pF
THERMAL CHARACTERISTIC		SYMBOL	Typical		UNIT
Typical thermal resistance_Junction to Case (Note 5)		R <sub>θJC</sub>	4.2		°C/W
Typical thermal resistance_Junction to Lead (Note 5)		R <sub>θJL</sub>	6.0		°C/W

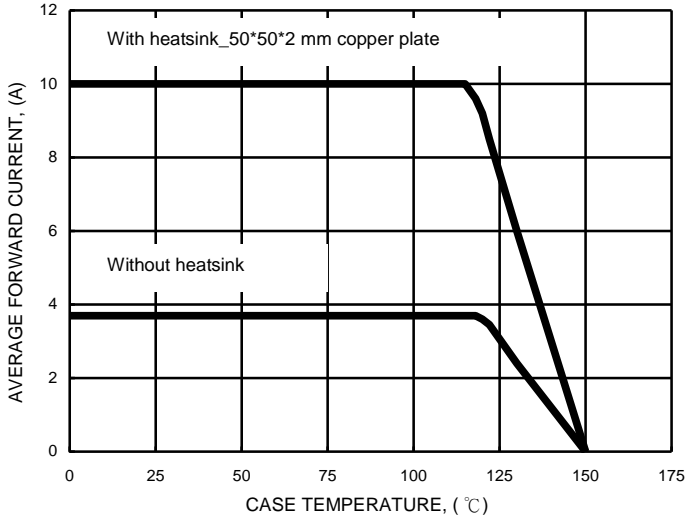
**Notes:**

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. 300us Pulse Width, 2% Duty Cycle.
5. Thermal Resistance test performed in accordance with JESD-51. R<sub>θJL</sub> is measured at the PIN 2, R<sub>θJC</sub> is measured at the top centre of body.

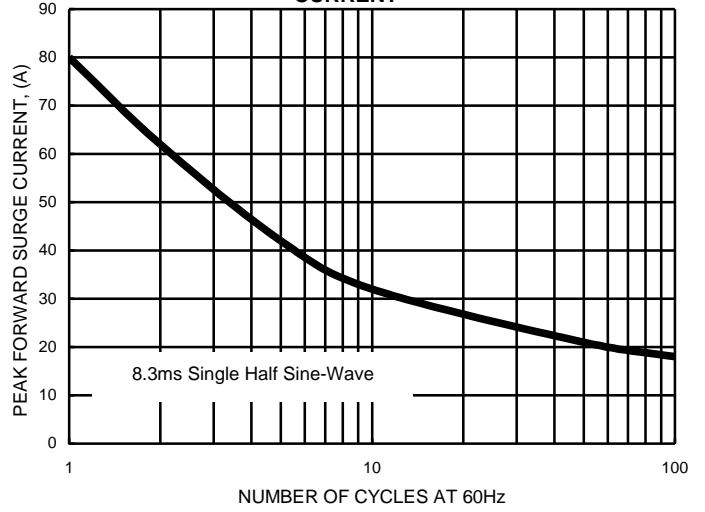
**RATING AND CHARACTERISTIC CURVES**

**STPR1040CTW**

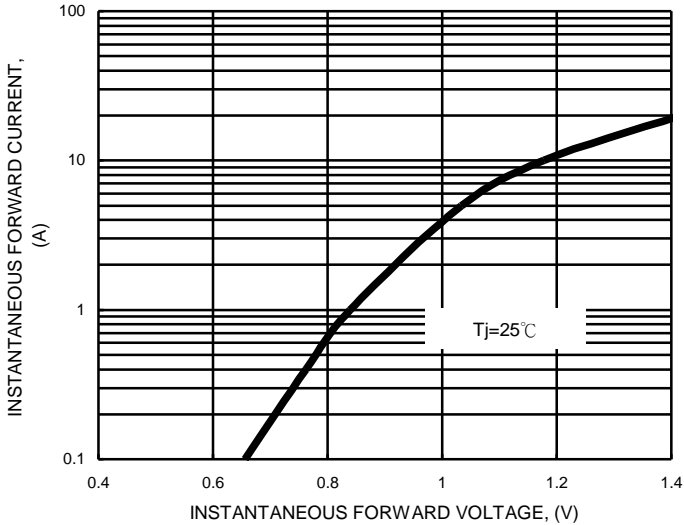
**FIG.1- FORWARD CURRENT DERATING CURVE**



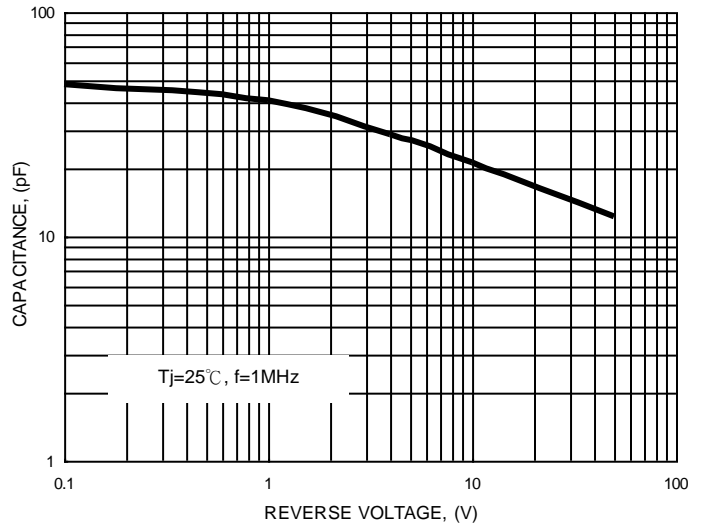
**FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT**



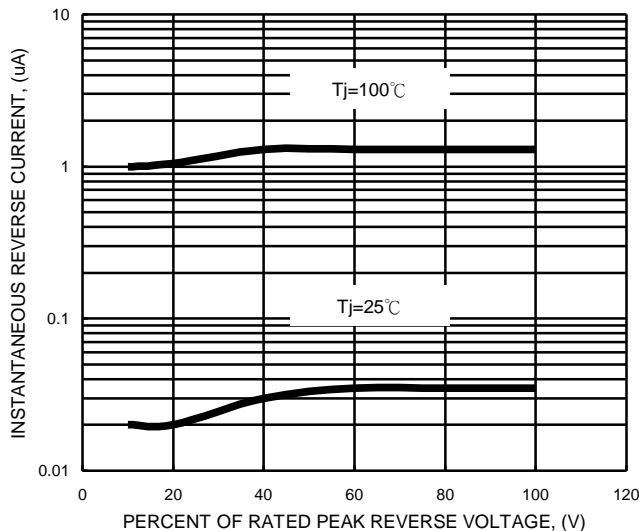
**FIG.3- TYPICAL FORWARD CHARACTERISTICS**



**FIG.4- TYPICAL JUNCTION CAPACITANCE**



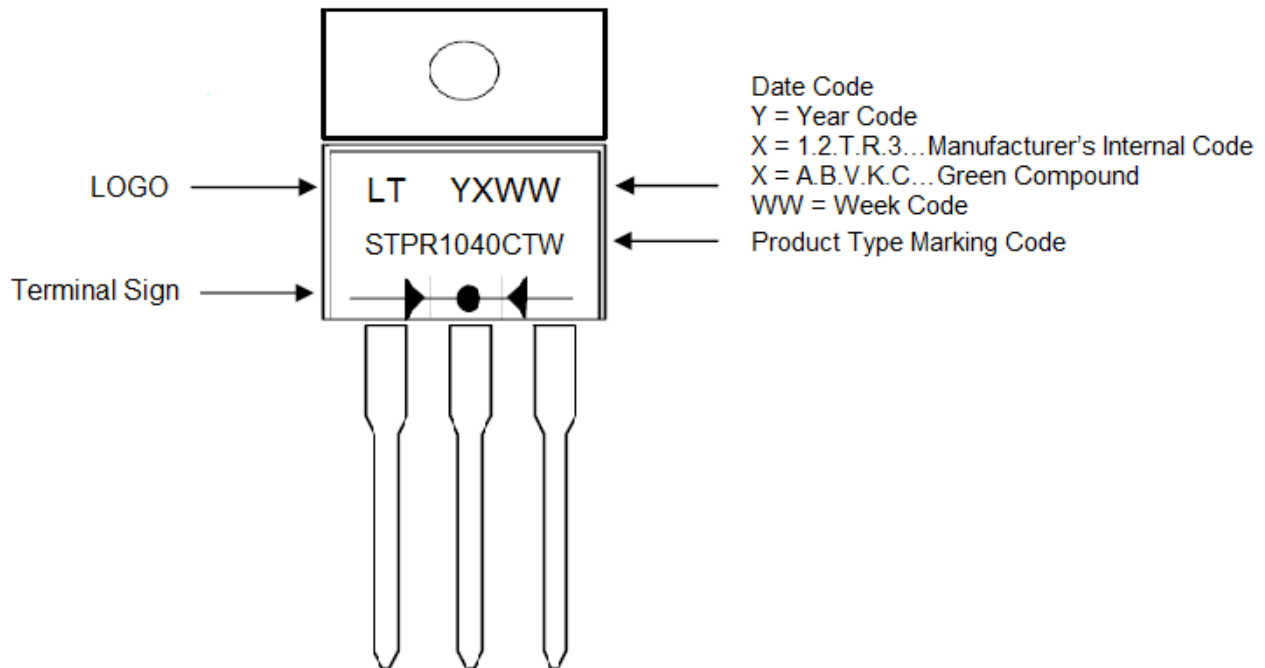
**FIG.5- TYPICAL REVERSE CHARACTERISTICS**



### Ordering Information :

Part Number	Package	Packing	
		Qty.	Carrier
STPR1040CTW	TO-220AB	50 pcs	Tube

### Marking Information :



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