

# STPR1020CTW

## SUPER FAST GLASS PASSIVATED RECTIFIER

## REVERSE VOLTAGE – 200Volts FORWARD CURRENT – 10 Amperes

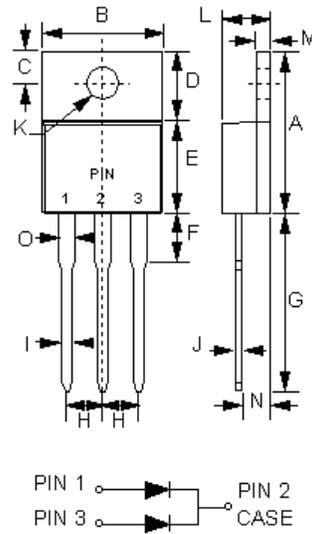
### FEATURES

- 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\_C
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

### MECHANICAL DATA

- Case: JEDEC TO-220AB
- Case Material: Plastic material, UL flammability classification 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Lead Free Plating
- Polarity indicator: As marked on the body
- Weight: 2.24 grams
- 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	STPR1020CTW	UNIT
Device marking code	Note	STPR1020CTW	---
Maximum Repetitive Peak Reverse Voltage	$V_{RRM}$	200	V
Average Rectified Output Current See FIG.1	$I_F$	10	A
Peak Forward Surge Current 8.3ms single half sine-wave	$I_{FSM}$	80	A
Storage temperature range	$T_{STG}$	-55 to +150	°C
Operating junction temperature range	$T_J$	-55 to +150	°C

PARAMETER	TEST CONDITIONS	SYMBOL	Min.	Typ.	Max.	UNIT
Breakdown voltage	$I_R=10\mu A$ $T_J=25^\circ C$	$V_B$	200	---	---	V
Forward Voltage (4)	$I_F=5A$ $T_J=25^\circ C$ $T_J=125^\circ C$	$V_F$	---	0.94	1.10	V
	$I_F=10A$ $T_J=25^\circ C$ $T_J=125^\circ C$		---	1.05	1.25	
	---		---	0.92	1.20	
Leakage Current	$V_R=200V$ $T_J=25^\circ C$ $T_J=100^\circ C$	$I_R$	---	0.05	10	$\mu A$
Reverse recovery time	$I_F=0.5A$ $I_{RR}=0.25A$ $I_R=1.0A$ $T_J=25^\circ C$	$t_{rr}$	---	22	30	ns
Junction Capacitance	$V_R=4V$ Freq.=1MHz $T_J=25^\circ C$	$C_j$	---	30	50	pF

THERMAL CHARACTERISTIC	SYMBOL	Typical	UNIT
Typical thermal resistance, Junction to Ambient (5)	$R_{\theta JA}$	12	°C/W
Typical thermal resistance, Junction to Lead (5)	$R_{\theta JL}$	6.0	°C/W
Typical thermal resistance, Junction to Case (5)	$R_{\theta JC}$	4.2	°C/W

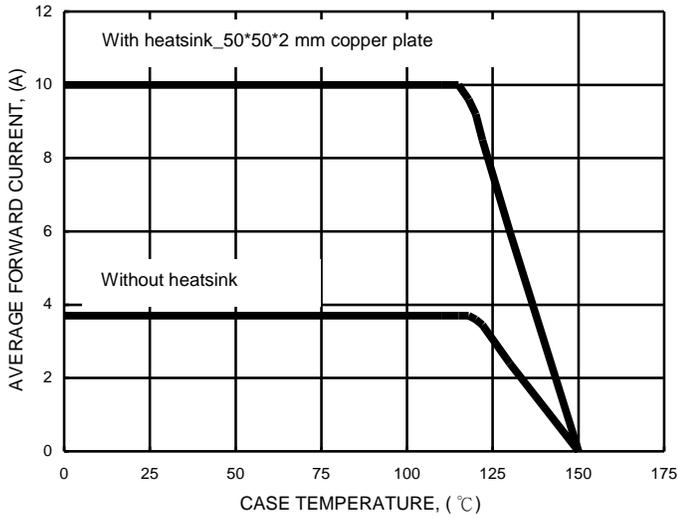
Note: (1) EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3).compliant. All applicable RoHS exemptions applied.

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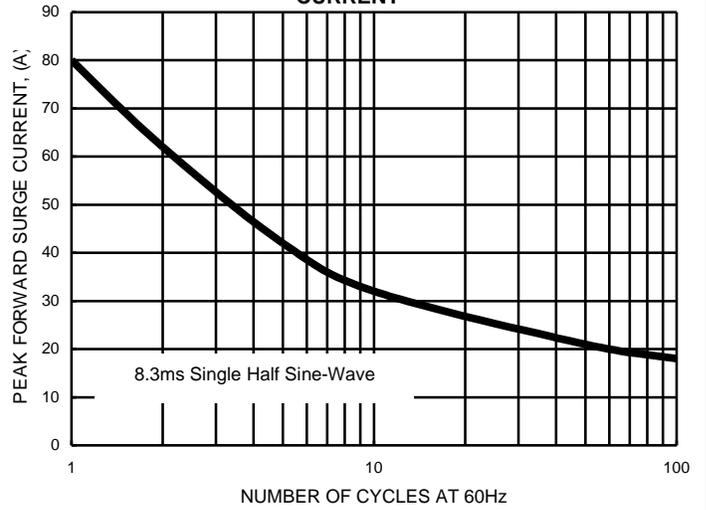
- See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- 300us Pulse Width, 2% Duty Cycle.
- Thermal Resistance test performed in accordance with JESD-51.  $R_{\theta JL}$  is measured at the PIN 2,  $R_{\theta JC}$  is measured at the top centre of body.

**RATING AND CHARACTERISTIC CURVES**  
**STPR1020CTW**

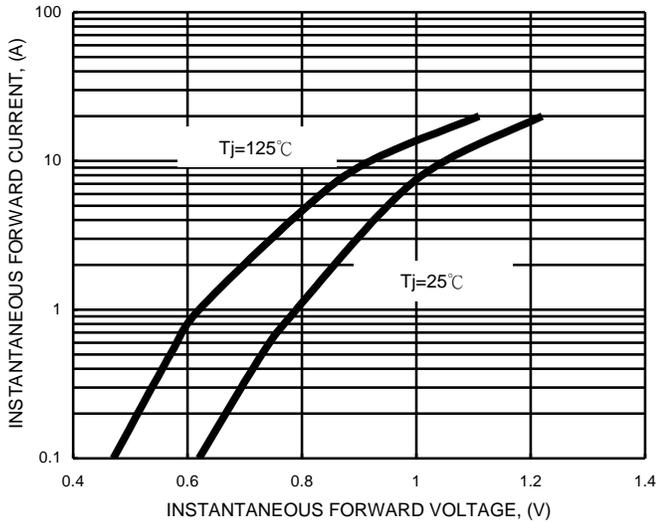
**FIG.1- FORWARD CURRENT DERATING CURVE**



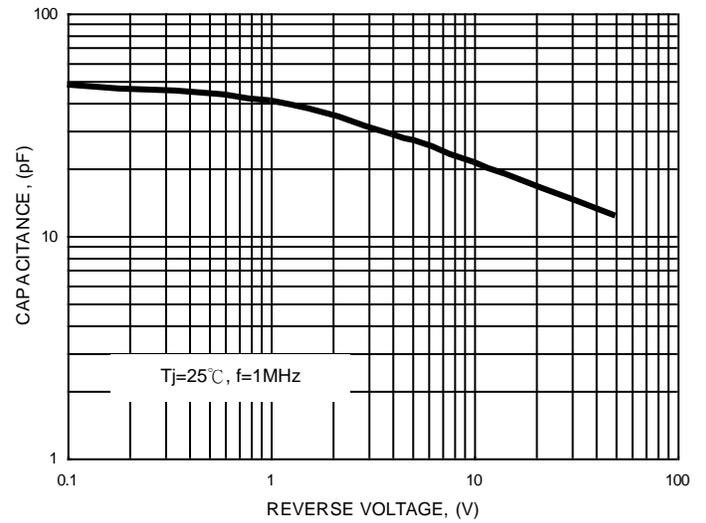
**FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT**



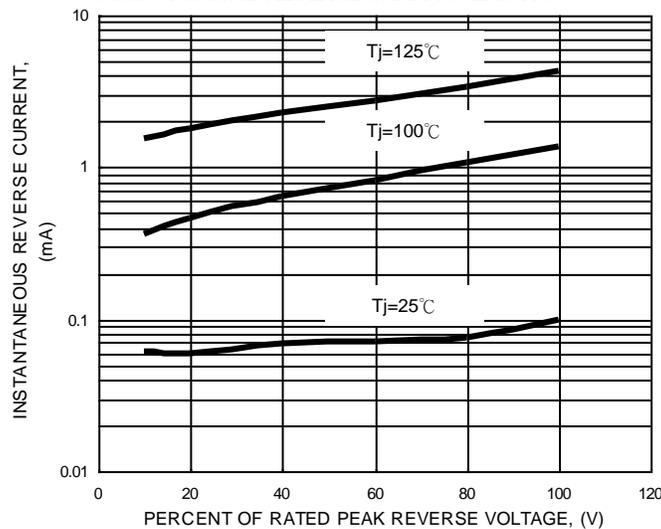
**FIG.3- TYPICAL FORWARD CHARACTERISTICS**



**FIG.4- TYPICAL JUNCTION CAPACITANCE**



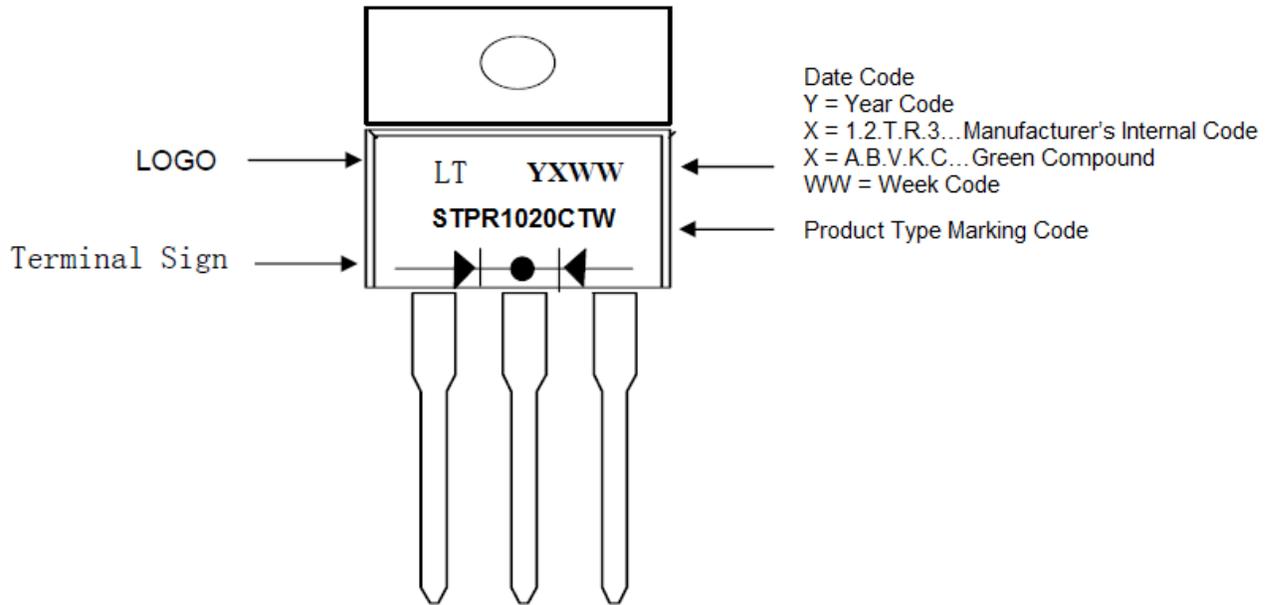
**FIG.5- TYPICAL REVERSE CHARACTERISTICS**



**Ordering Information :**

Part Number	Case	Packaging
STPR1020CTW	TO-220AB	50pcs/Tube

**Marking Information :**



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