

# G20E120CTW

## TRENCH SCHOTTKY RECTIFIER

**REVERSE VOLTAGE – 120 Volts**  
**FORWARD CURRENT – 20 Amperes**

### FEATURES

- High efficiency
- Reduced high temperature reverse leakage
- Reduced ultra-low forward voltage drop
- Qualification is according to AEC-Q101 Rev\_C
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. “Green” Device (Note 3)**

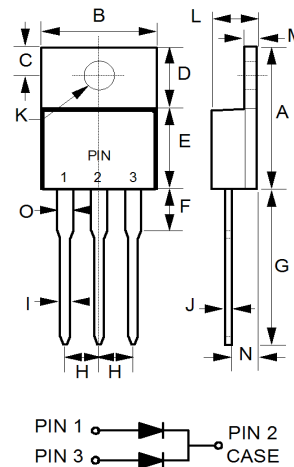
### APPLICATION

- DC to DC converters
- AC to DC adaptors

### MECHANICAL DATA

- Package: JEDEC TO-220AB
- Package Material: “Green” molding compound, UL Flammability classification 94V-0, “Halogen-free”
- Weight: 1.927 grams (Approximate)
- Marking Code: G20E120CTW

### 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  | 1.00  |
| J        | 0.30  | 0.64  |
| K        | 3.53Φ | 4.09Φ |
| L        | 3.56  | 4.83  |
| M        | 1.14  | 1.40  |
| N        | 2.03  | 2.92  |
| O        | 1.14  | 1.37  |

All Dimensions in millimeter

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

### ABSOLUTE RATINGS

| PARAMETER  | SYMBOL                            | VALUE       | UNIT |
|--|-----------------------------------|-------------|------|
| Maximum repetitive peak reverse voltage  | $V_{RRM}$                         | 120         | V    |
| Maximum DC blocking voltage  | $V_{DC}$                          | 120         | V    |
| Maximum average rectified output current   | @ $T_C=100^\circ C$<br>$I_{(AV)}$ | 20          | A    |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load. | $I_{FSM}$                         | 250         | A    |
| Non-repetitive peak reverse current  | $t_p=2\mu s$<br>$I_{RSM}$         | 3           | A    |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$                    | -55 to +150 | °C   |

### STATIC ELECTRICAL CHARACTERISTICS

| PARAMETER                             | TEST CONDITIONS                                     | SYMBOL | TYP        | MAX          | UNIT          |
|---------------------------------------|---|--------|------------|--------------|---------------|
| Forward voltage (Note 4)              | $I_F=10A$<br>$T_J=25^\circ C$<br>$T_J=125^\circ C$  | $V_F$  | --<br>0.66 | 0.83<br>0.76 | V             |
| Leakage current                       | $V_R=120V$<br>$T_J=25^\circ C$<br>$T_J=125^\circ C$ | $I_R$  | --<br>3.92 | 30<br>17     | $\mu A$<br>mA |
| Typical junction capacitance (Note 5) |   | $C_J$  | 380        |              | pF            |

### THERMAL CHARACTERISTICS

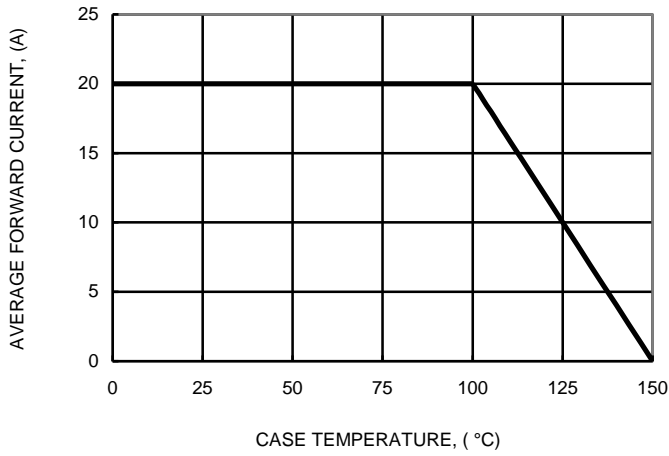
| PARAMETER                               | SYMBOL                   | TYP    | UNIT |
|---|--------------------------|--------|------|
| Typical thermal resistance (Notes 6, 7) | $R_{thJC}$<br>$R_{thJL}$ | 3<br>6 | °C/W |

#### Notes:

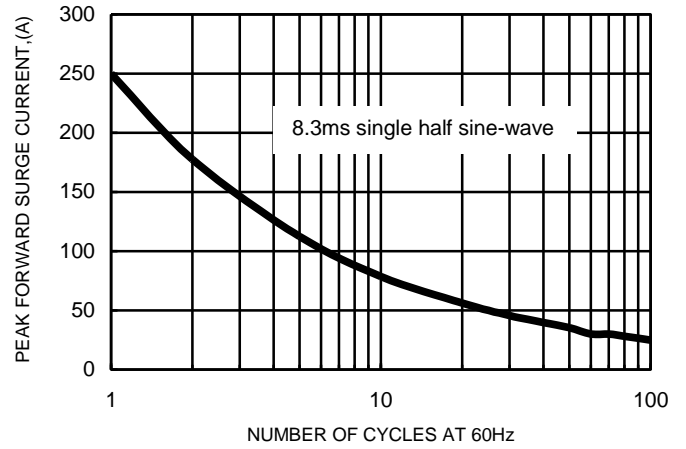
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- 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. Measured at 1.0MHz and applied voltage of 4.0V DC.
6. Thermal resistance test performed in accordance with JESD-51.
7. The unit mounted on aluminum plate heatsink (100.88mm x 75.34mm x 26.78mm).

**RATING AND CHARACTERISTIC CURVES**  
**G20E120CTW**

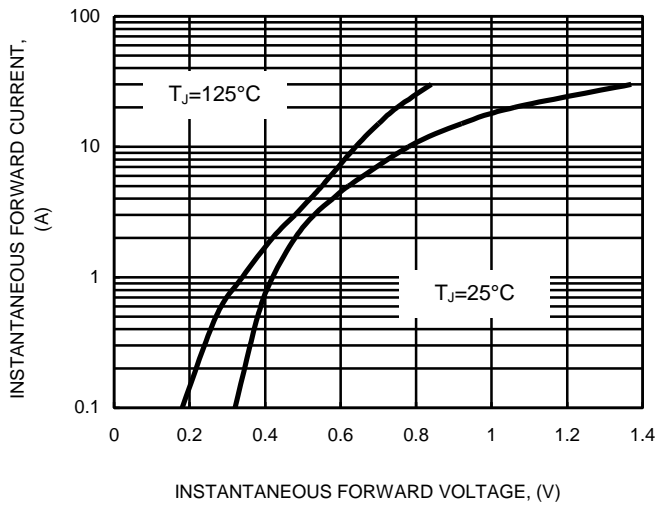
**FIG.1 FORWARD CURRENT DERATING CURVE**



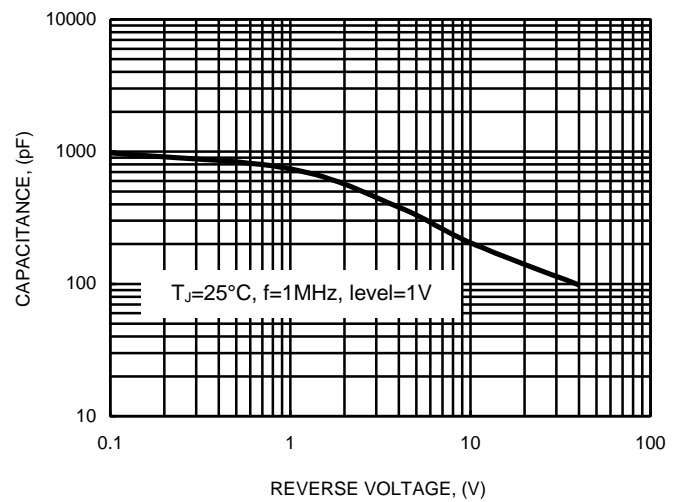
**FIG.2 MAXIMUM NON-REPETITIVE SURGE CURRENT**



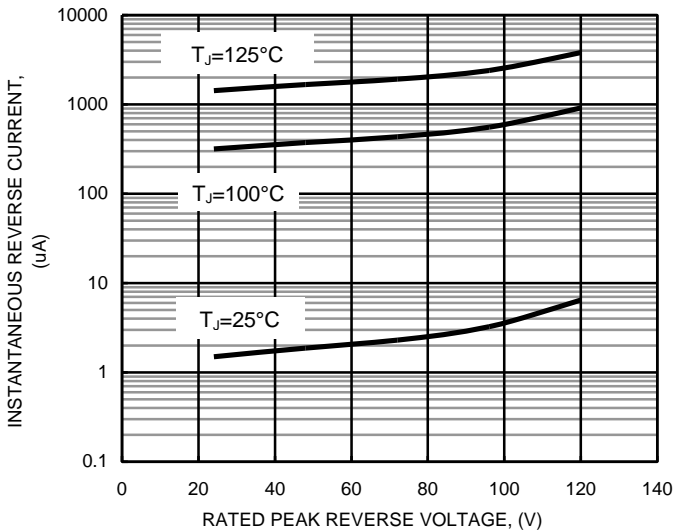
**FIG.3 TYPICAL FORWARD CHARACTERISTICS**



**FIG.4 TYPICAL JUNCTION CAPACITANCE**



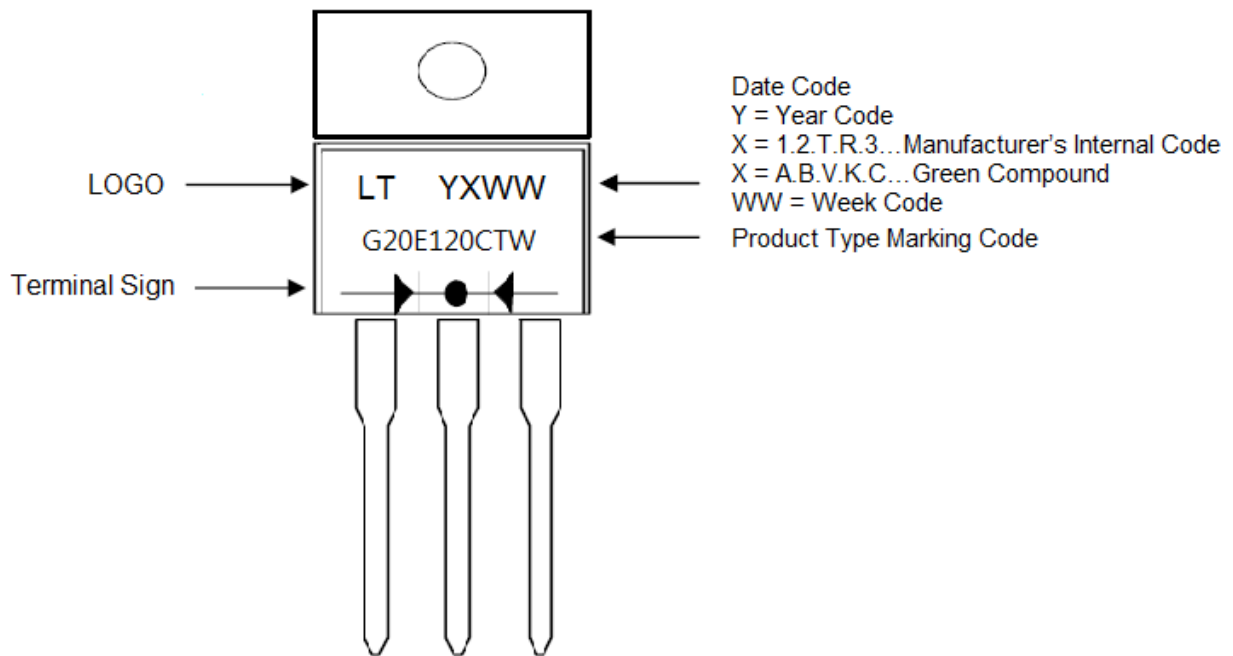
**FIG.5 TYPICAL REVERSE CHARACTERISTICS**



**Ordering Information:**

| Part Number | Package  | Packing |         |
|-------------|----------|---------|---------|
|             |          | Qty.    | Carrier |
| G20E120CTW  | TO-220AB | 50 pcs  | Tube    |

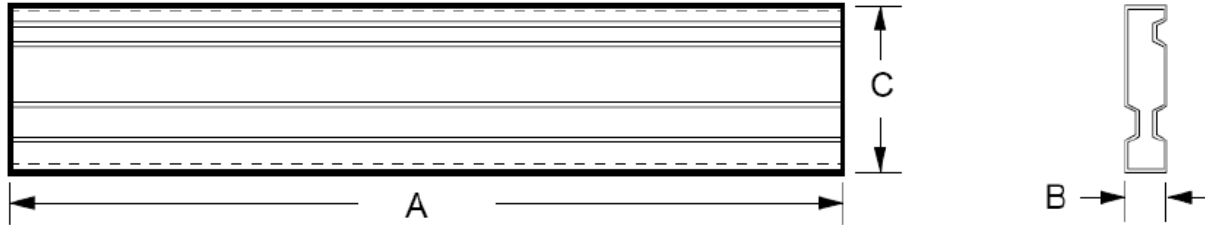
**Marking Information:**



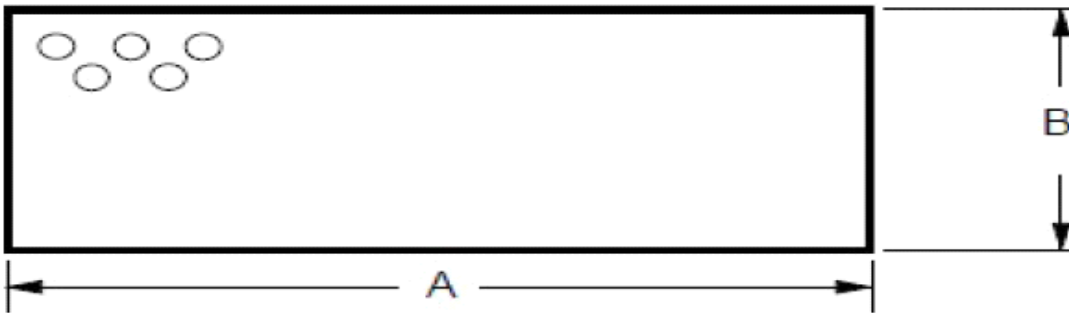
**PACKAGING INFORMATION**  
**G20E120CTW**

**Packaging Information:**

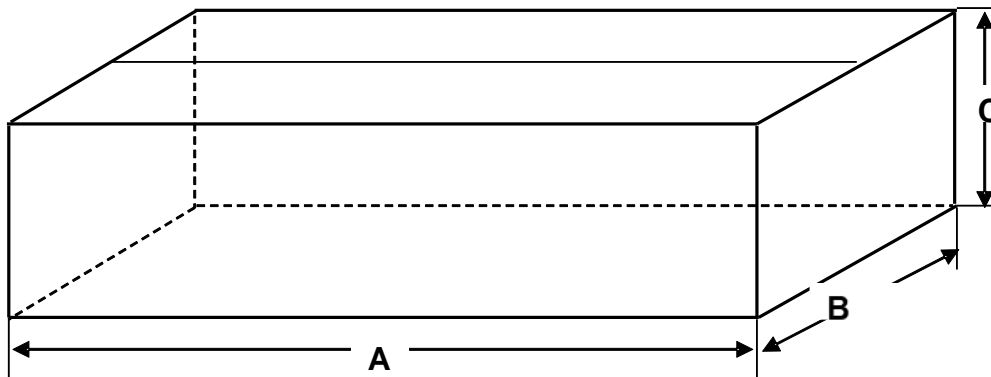
**1. TUBE**



**2. AIR BAG**



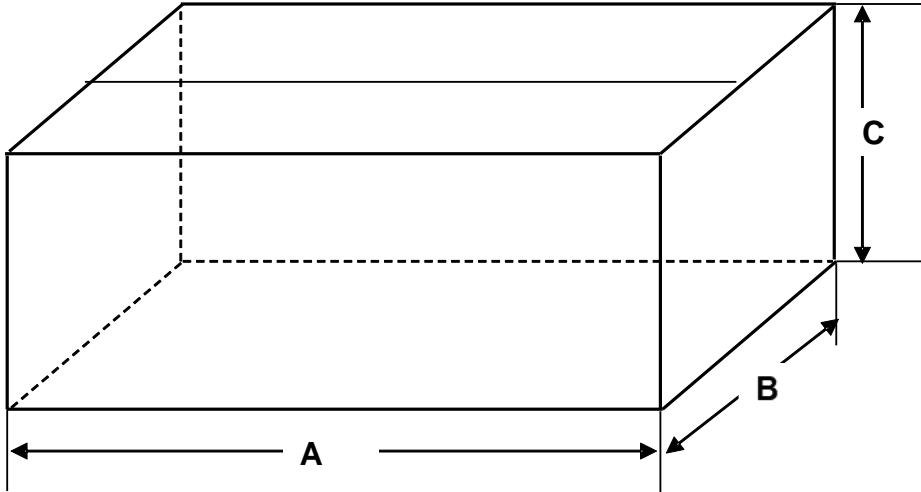
**3. INNERBOX**



**PACKAGING INFORMATION**  
**G20E120CTW**

**Packaging Information:**

**4. CARTON**



Unit:mm

| P/N      | DIMENSION<br>"A" | DIMENSION<br>"B" | DIMENSION<br>"C" | Q'ty/per | REMARK         |
|----------|------------------|------------------|------------------|----------|----------------|
| TUBE     | 536              | 5.6              | 31.8             | 50       | /              |
| AIR BAG  | 800              | 550              | /                | /        | /              |
| INNERBOX | 555              | 165              | 105              | 2000     | 40TUBE         |
| CARTON   | 575              | 179              | 225              | 4K       | 2 INNER<br>BOX |

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