

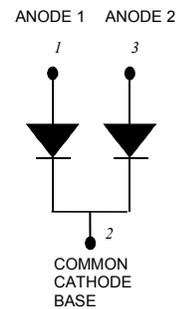
## STW40100C SCHOTTKY RECTIFIER

### Applications:

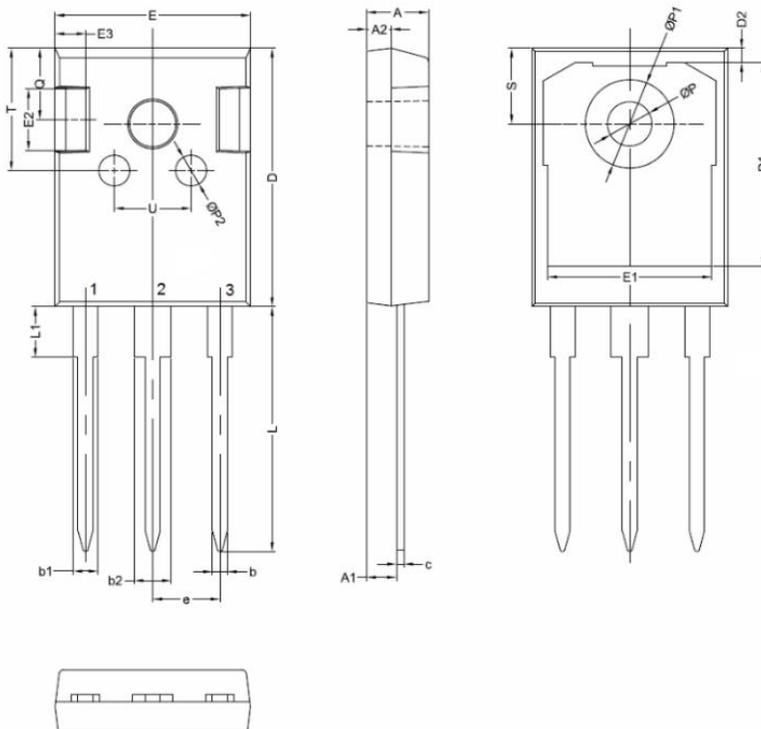
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

### Features:

- 150 °C T<sub>J</sub> operation
- Center tap TO-247AD package
- Ultralow forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- This is a Pb - Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

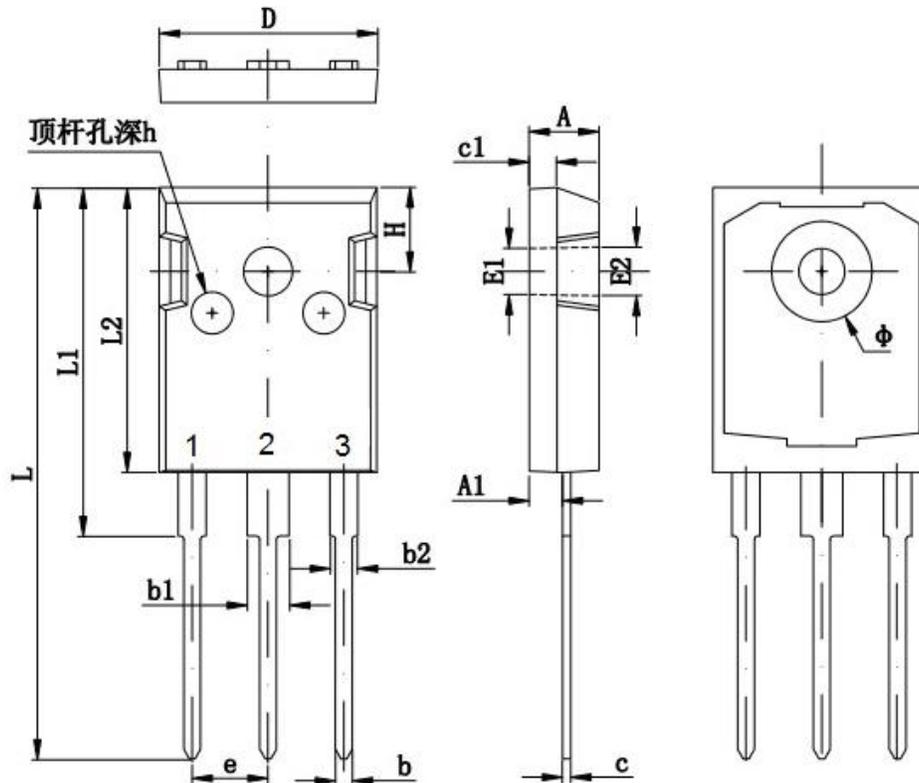


### Mechanical Dimensions: In mm/Inches

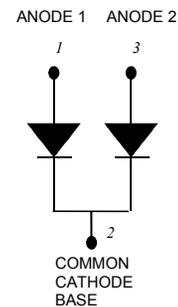


| SYMBOL | MIN.  | TYP.  | MAX.  |
|--------|-------|-------|-------|
| A      | 4.80  | 5.00  | 5.20  |
| A1     | 2.21  | 2.41  | 2.61  |
| A2     | 1.90  | 2.00  | 2.10  |
| b      | 1.10  | 1.20  | 1.35  |
| b1     |       | 2.00  |       |
| b2     |       | 3.00  |       |
| c      | 0.55  | 0.60  | 0.75  |
| D      | 20.80 | 21.00 | 21.20 |
| D1     |       | 16.55 |       |
| D2     |       | 1.20  |       |
| E      | 15.60 | 15.80 | 16.00 |
| E1     |       | 13.30 |       |
| E2     |       | 5.00  |       |
| E3     |       | 2.50  |       |
| e      |       | 5.44  |       |
| L      | 19.42 | 19.92 | 20.42 |
| L1     |       | 4.13  |       |
| P      | 3.50  | 3.60  | 3.70  |
| P1     |       |       | 7.40  |
| P2     |       | 2.50  |       |
| Q      |       | 5.80  |       |
| S      | 6.05  | 6.15  | 6.25  |
| T      |       | 10.00 |       |
| U      |       | 6.20  |       |

### OPTION 1(HD)



| Symbol | Dimensions In Millimeters |        | Dimensions In Inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min                       | Max    | Min                  | Max   |
| A      | 4.850                     | 5.150  | 0.191                | 0.200 |
| A1     | 2.200                     | 2.600  | 0.087                | 0.102 |
| b      | 1.000                     | 1.400  | 0.039                | 0.055 |
| b1     | 2.800                     | 3.200  | 0.110                | 0.126 |
| b2     | 1.800                     | 2.200  | 0.071                | 0.087 |
| c      | 0.500                     | 0.700  | 0.020                | 0.028 |
| c1     | 1.900                     | 2.100  | 0.075                | 0.083 |
| D      | 15.450                    | 15.750 | 0.608                | 0.620 |
| E1     | 3.500 REF                 |        | 0.138 REF            |       |
| E2     | 3.600 REF                 |        | 0.142 REF            |       |
| L      | 40.900                    | 41.300 | 1.610                | 1.626 |
| L1     | 24.800                    | 25.100 | 0.976                | 0.988 |
| L2     | 20.300                    | 20.600 | 0.799                | 0.811 |
| $\Phi$ | 7.100                     | 7.300  | 0.280                | 0.287 |
| e      | 5.450 TYP                 |        | 0.215 TYP            |       |
| H      | 5.980 REF                 |        | 0.235 REF            |       |
| h      | 0.000                     | 0.300  | 0.000                | 0.012 |

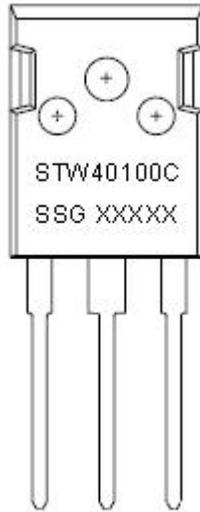


**OPTION 2(CJ)**

**TO-247AD**

Technical Data  
Data Sheet N1516, Rev. -

**Marking Diagram:**



Where XXXXX is YYWWL

S = Device Type  
T = Ultralow VF  
W = Package type  
40 = Forward Current (40A)  
100 = Reverse Voltage (100V)  
C = Configuration  
SSG = SSG  
YY = Year  
WW = Week  
L = Lot Number

**Cautions:** Molding resin  
Epoxy resin UL:94V-0

**Ordering Information:**

| Device    | Package               | Shipping     |
|-----------|-----------------------|--------------|
| STW40100C | TO-247AD<br>(Pb-Free) | 25pcs / tube |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification.

**Maximum Ratings:**

| Characteristics                                                                        | Symbol                          | Condition                                                                 | Max. | Units |
|----------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------|------|-------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | -                                                                         | 100  | V     |
| Average Rectified Forward Current                                                      | $I_{F(AV)}$                     | 50% duty cycle @ $T_C=105\text{ }^\circ\text{C}$<br>rectangular wave form | 40   | A     |
| Peak One Cycle Non-Repetitive Surge Current (per leg)                                  | $I_{FSM}$                       | 8.3 ms, half Sine pulse                                                   | 300  | A     |

**Electrical Characteristics:**

| Characteristics                           | Symbol          | Condition                                                                                         | Typ.           | Max.    | Units |
|-------------------------------------------|-----------------|---------------------------------------------------------------------------------------------------|----------------|---------|-------|
| Forward Voltage Drop (per leg)*           | V <sub>F1</sub> | @ 5A, Pulse, T <sub>J</sub> = 25 °C                                                               | 0.47           | -       | V     |
|                                           |                 | @ 10A, Pulse, T <sub>J</sub> = 25 °C                                                              | 0.54           | -       |       |
|                                           |                 | @ 20A, Pulse, T <sub>J</sub> = 25 °C                                                              | 0.68           | 0.75    |       |
|                                           | V <sub>F2</sub> | @ 5A, Pulse, T <sub>J</sub> = 125 °C                                                              | 0.38           | -       | V     |
| @ 10A, Pulse, T <sub>J</sub> = 125 °C     | 0.51            | -                                                                                                 |                |         |       |
| @ 20A, Pulse, T <sub>J</sub> = 125 °C     | 0.64            | 0.70                                                                                              |                |         |       |
| Reverse Current at DC condition (per leg) | I <sub>R1</sub> | @V <sub>R</sub> = 70V, T <sub>J</sub> = 25 °C<br>@V <sub>R</sub> = 100V, T <sub>J</sub> = 25 °C   | 0.012<br>0.030 | -<br>1  | mA    |
| Reverse Current (per leg) *               | I <sub>R2</sub> | @V <sub>R</sub> = 70V, T <sub>J</sub> = 125 °C<br>@V <sub>R</sub> = 100V, T <sub>J</sub> = 125 °C | 10<br>15       | -<br>75 | mA    |
| Junction Capacitance (per leg)            | C <sub>T</sub>  | @V <sub>R</sub> = 5V, T <sub>C</sub> = 25 °C<br>f <sub>SIG</sub> = 1MHz                           | 845            | -       | pF    |
| Voltage Rate of Change                    | dv/dt           | -                                                                                                 | -              | 10,000  | V/μs  |

\* Pulse Width < 300μs, Duty Cycle <2%

**Thermal-Mechanical Specifications:**

| Characteristics                                       | Symbol           | Condition    | Specification | Units |
|-------------------------------------------------------|------------------|--------------|---------------|-------|
| Junction Temperature                                  | T <sub>J</sub>   | -            | -55 to +150   | °C    |
| Storage Temperature                                   | T <sub>stg</sub> | -            | -55 to +150   | °C    |
| Typical Thermal Resistance Junction to Case (per leg) | R <sub>θJC</sub> | DC operation | 1.5           | °C/W  |
| Approximate Weight                                    | wt               | -            | 6.7           | g     |
| Case Style                                            | TO-247AD         |              |               |       |

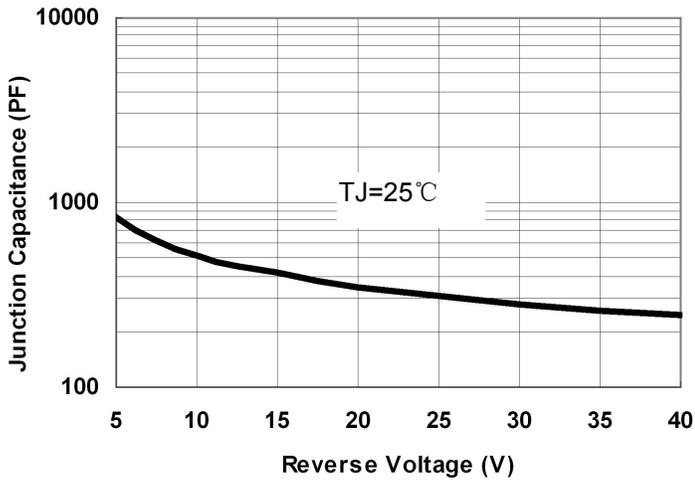


Fig.1-Typical Junction Capacitance

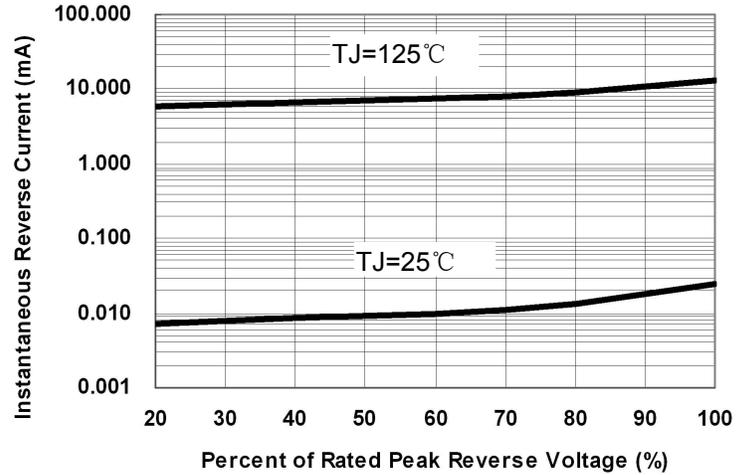


Fig.2-Typical Reverse Characteristics

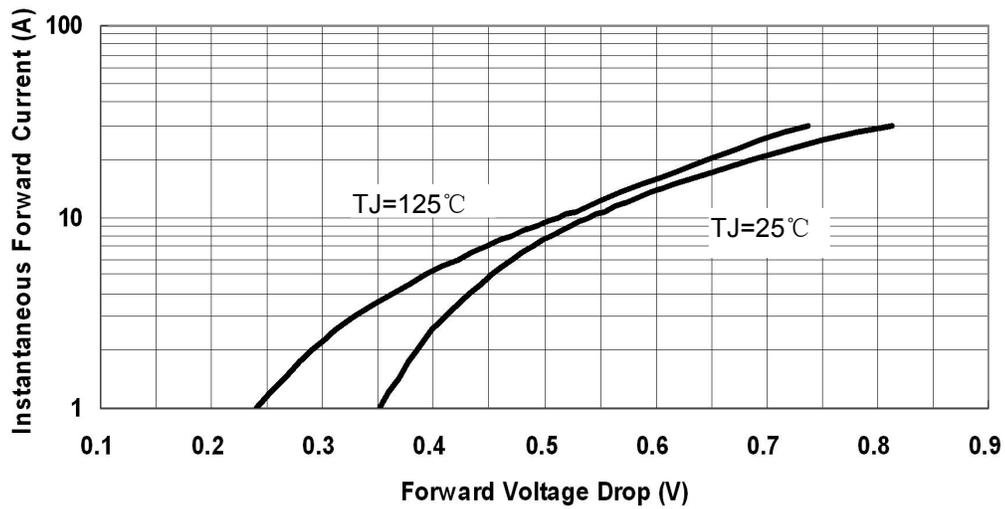


Fig.3-Typical Instantaneous Forward Voltage Characteristics

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