

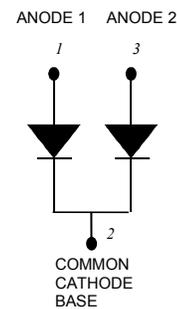
## 30CPQ050/30CPQ060 SCHOTTKY RECTIFIER

### Applications:

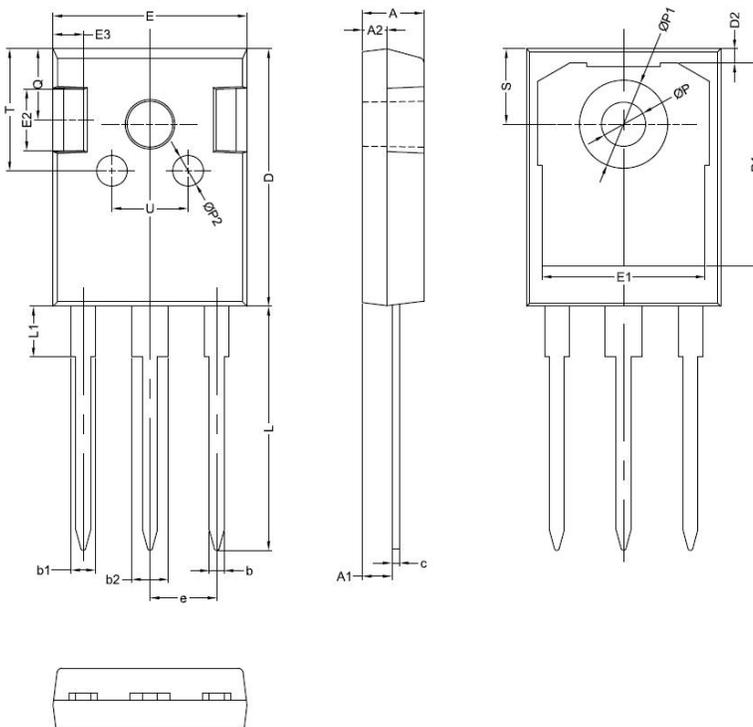
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

### Features:

- 150 °C T<sub>J</sub> operation
- Center tap TO-247AD package
- Low 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
- Green Products in Compliance with the RoHS Directive
- 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

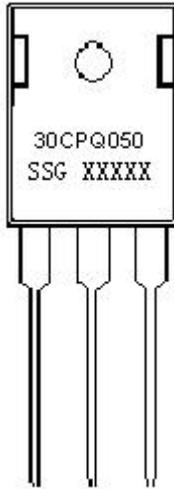


| SYMBOL | MIN.  | TYP.  | MAX.  |
|--------|-------|-------|-------|
| A      | 4.80  | 5.00  | 5.20  |
| A1     | 2.21  | 2.41  | 2.61  |
| A2     | 1.90  | 2.00  | 2.10  |
| b      | 1.10  | 1.20  | 1.35  |
| b1     |       | 2.00  |       |
| b2     |       | 3.00  |       |
| c      | 0.55  | 0.60  | 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  |       |

### TO-247AD

- China - Germany - Korea - Singapore - United States •
- <http://www.smc-diodes.com> - [sales@smc-diodes.com](mailto:sales@smc-diodes.com) •

**Marking Diagram:**



Where XXXXX is YYWWL

30 = Forward Current (30A)  
C = Configuration  
PQ = Device Type  
050 = Reverse Voltage (50V)  
SSG = SSG  
YY = Year  
WW = Week  
L = Lot Number

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

**Ordering Information:**

| Device   | Package            | Shipping    |
|----------|--------------------|-------------|
| 30CPQ050 | TO-247AD (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>$V_R$ | -   | 50(30CPQ050)<br>60(30CPQ060) | V     |
| Average Forward Current  | $I_{F(AV)}$                     | 50% duty cycle @ $T_C = 112^\circ\text{C}$ ,<br>rectangular wave form | 30                           | A     |
| Peak One Cycle Non-Repetitive<br>Surge Current<br>(peg leg)                            | $I_{FSM}$                       | 8.3 ms, half Sine pulse   | 315                          | A     |

**Electrical Characteristics:**

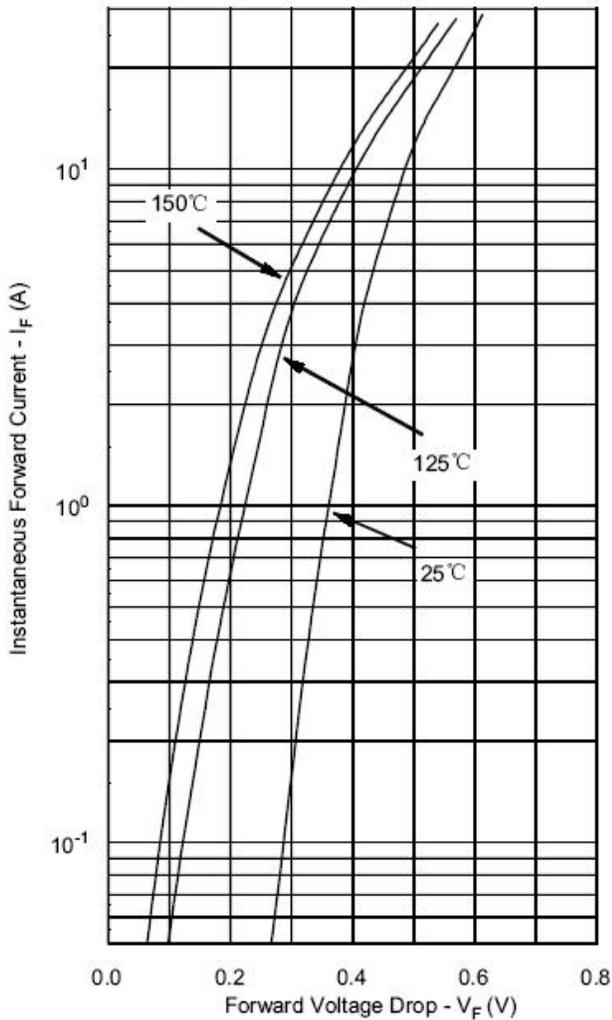
| Characteristics                     | Symbol   | Condition   | Max.   | Units            |
|-------------------------------------|----------|---|--------|------------------|
| Forward Voltage Drop (per leg) *    | $V_{F1}$ | @ 15A, Pulse, $T_J = 25\text{ }^\circ\text{C}$                                    | 0.60   | V                |
|                                     |          | @ 30A, Pulse, $T_J = 25\text{ }^\circ\text{C}$                                    | 0.80   |                  |
|                                     | $V_{F2}$ | @ 15A, Pulse, $T_J = 125\text{ }^\circ\text{C}$                                   | 0.56   | V                |
|                                     |          | @ 30A, Pulse, $T_J = 125\text{ }^\circ\text{C}$                                   | 0.70   |                  |
| Reverse Current (per leg) *         | $I_{R1}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 25\text{ }^\circ\text{C}$                   | 0.8    | mA               |
|                                     | $I_{R2}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 125\text{ }^\circ\text{C}$                  | 45     | mA               |
| Junction Capacitance (per leg)      | $C_T$    | @ $V_R = 5\text{V}$ , $T_C = 25\text{ }^\circ\text{C}$<br>$f_{SIG} = 1\text{MHz}$ | 720    | pF               |
| Typical Series Inductance (per leg) | $L_S$    | Measured lead to lead 5 mm from package body                                      | 7.5    | nH               |
| Voltage Rate of Change              | dv/dt    | -   | 10,000 | V/ $\mu\text{s}$ |

\* Pulse Width < 300 $\mu\text{s}$ , Duty Cycle <2%

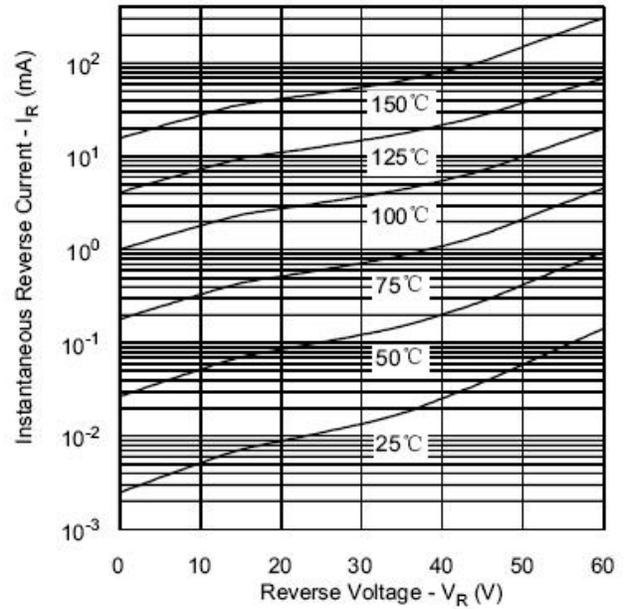
**Thermal-Mechanical Specifications:**

| Characteristics                                       | Symbol          | Condition                            | Specification    | Units              |
|---|-----------------|--------------------------------------|------------------|--------------------|
| Junction Temperature                                  | $T_J$           | -                                    | -55 to +150      | $^\circ\text{C}$   |
| Storage Temperature                                   | $T_{stg}$       | -                                    | -55 to +150      | $^\circ\text{C}$   |
| Typical Thermal Resistance Junction to Case (per leg) | $R_{\theta JC}$ | DC operation                         | 2.2(peg leg)     | $^\circ\text{C/W}$ |
|   |                 |                                      | 1.10(peg device) |                    |
| Typical Thermal Resistance, case to Heat Sink         | $R_{\theta cs}$ | Mounting surface, smooth and greased | 0.24             | $^\circ\text{C/W}$ |
| Approximate Weight                                    | wt              | -                                    | 6.7              | g                  |
| Case Style  | TO-247AD        |                                      |                  |                    |

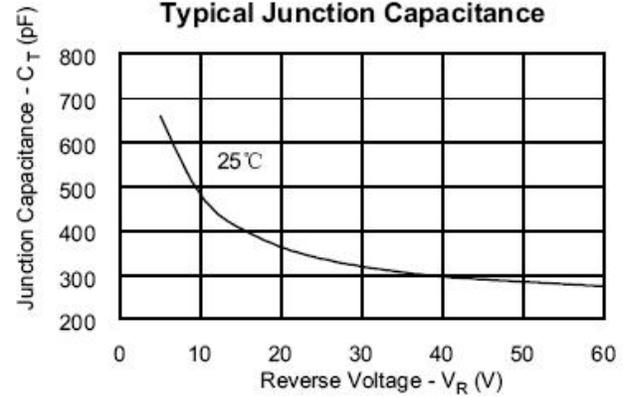
**Typical Forward Characteristics**



**Typical Reverse Characteristics**



**Typical Junction Capacitance**



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