

**SMDH10C65K4****10.0A SIC SCHOTTKY BARRIER DIODE****FEATURE**

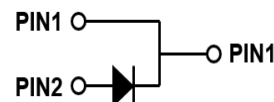
- 650V Schottky Diode,100% avalanche tested\*
- Zero Reverse Recovery/Zero Forward Recovery
- High Efficiency Operation
- Extremely Fast Switching
- Temperature Independent Switching Behavior

**TYPICAL APPLICATIONS**

- Switch mode power supply
- Power factor correction Solar Invertor
- Solar inverter
- Uninterruptible power supply



TO-220AD-2L



\*20% rating current,5 mH inductance.

**MAXIMUM RATINGS** ( $T_C=25^{\circ}\text{C}$  unless otherwise noted)

| Parameter                                                                                            | Symbol         | Value       | Unit               |
|------------------------------------------------------------------------------------------------------|----------------|-------------|--------------------|
| Maximum Recurrent Peak Reverse Voltage                                                               | $V_{RRM}$      | 650         | V                  |
| DC blocking Voltage                                                                                  | $V_{DC}$       | 650         | V                  |
| Maximum Average Forward Rectified Current<br>at $T_C=150^{\circ}\text{C}$                            | $I_{F(AV)}$    | 10          | A                  |
| Non-Repetitive Peak Forward Surge Current<br>$T_C=25^{\circ}\text{C}$ , $t_p=10$ ms, Half Sine Pulse | $I_{FSM}$      | 64          | A                  |
| Minimum Repetitive Pulse Avalanche Energy $L=5\text{mH}$                                             | $E_{AS}$       | 10          | mJ                 |
| Total power dissipation $T_C=25^{\circ}\text{C}$                                                     | $P_D$          | 125         | W                  |
| Operation Junction Temperature and Storage Temperature                                               | $T_J, T_{STG}$ | -40 to +175 | $^{\circ}\text{C}$ |

**ELECTRICAL CHARACTERISTICS** ( $T_C=25^{\circ}\text{C}$  unless otherwise noted)

| Parameter               |                                                          | Symbol | Typ  | Max  | Unit          |
|-------------------------|----------------------------------------------------------|--------|------|------|---------------|
| Forward voltage         | $I_F=10\text{A}, T_j=25^{\circ}\text{C}$                 | $V_F$  | 1.30 | 1.60 | V             |
|                         | $I_F=10\text{A}, T_j=175^{\circ}\text{C}$                |        | 1.50 |      |               |
| Reverse current         | $V_R=650\text{V}, T_j=25^{\circ}\text{C}$                | $I_R$  | 8.0  | 50   | $\mu\text{A}$ |
|                         | $V_R=650\text{V}, T_j=175^{\circ}\text{C}$               |        | 30   |      |               |
| Total capacitive charge | $V_R=400\text{V}$                                        | $Q_c$  | 22.4 | ---  | nC            |
| Total capacitance       | $V_R=0\text{V}, T_j=25^{\circ}\text{C}, f=1\text{MHZ}$   | $C$    | 711  | ---  | pF            |
|                         | $V_R=200\text{V}, T_j=25^{\circ}\text{C}, f=1\text{MHZ}$ |        | 41   | ---  |               |
|                         | $V_R=400\text{V}, T_j=25^{\circ}\text{C}, f=1\text{MHZ}$ |        | 37   | ---  |               |

**THERMAL CHARACTERISTICS** ( $T_C=25^{\circ}\text{C}$  unless otherwise noted)

| Parameter                                   | Symbol     | Typ | Max  | Unit                 |
|---------------------------------------------|------------|-----|------|----------------------|
| Typical Thermal Resistance Junction to Case | $R_{(JC)}$ | 1.2 | ---- | $^{\circ}\text{C/W}$ |



## Typical Characteristics

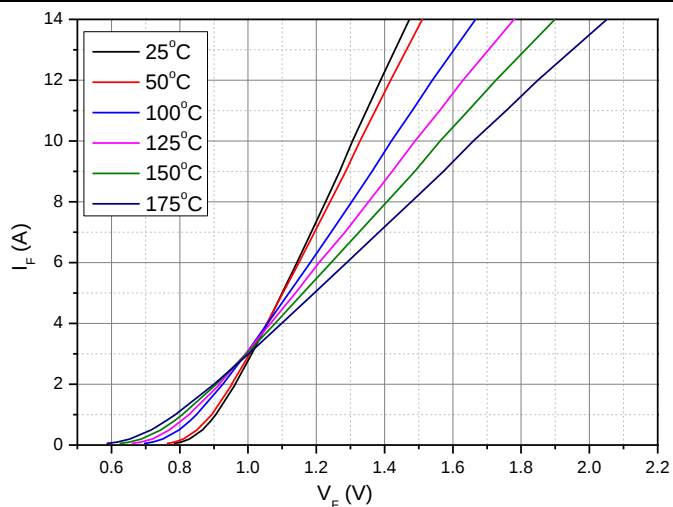


Figure 1. Forward Characteristics

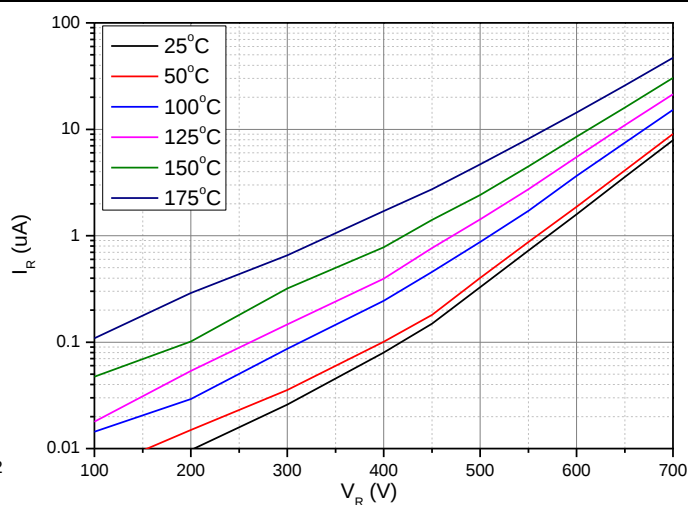


Figure 2. Reverse Characteristics

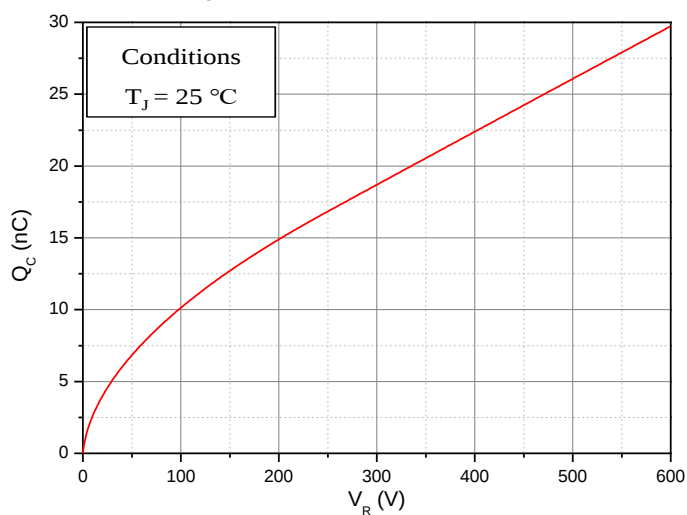


Figure 3. Total Capacitance Charge vs. Reverse Voltage

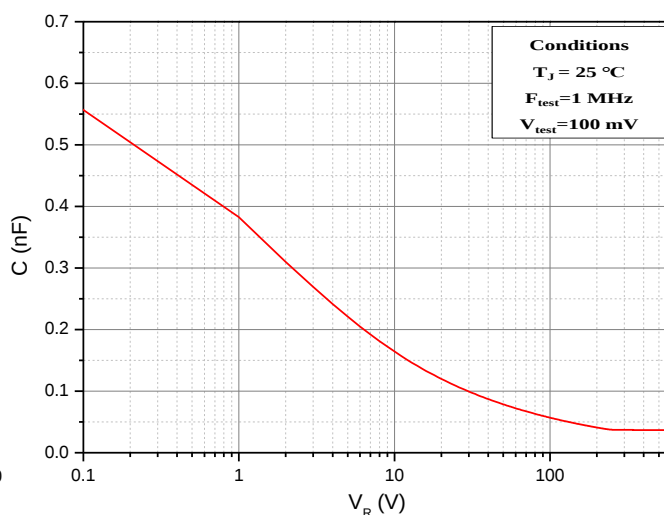
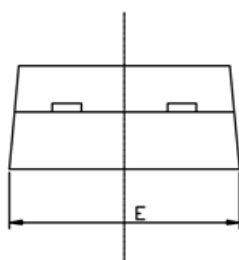
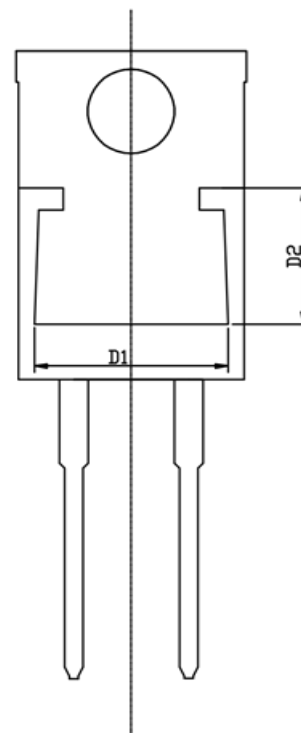
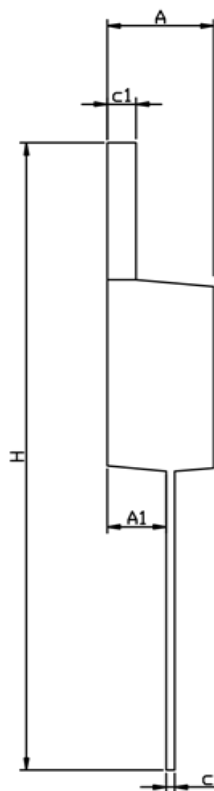
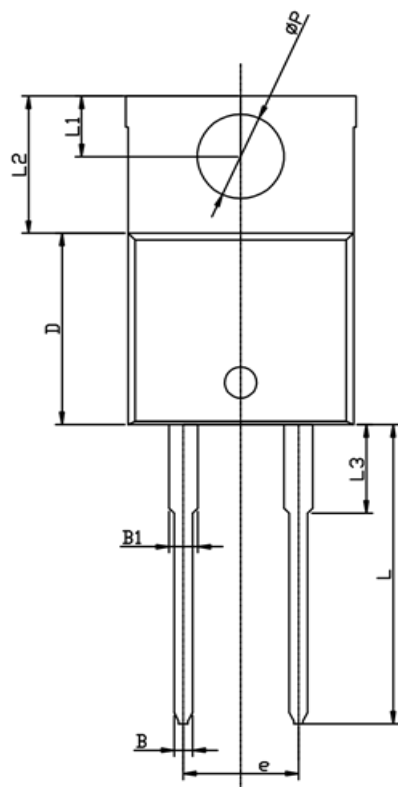


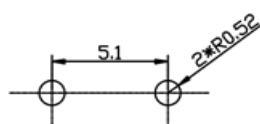
Figure 4. Capacitance vs. Reverse Voltage



## TO-220AD-2L PACKAGE OUTLINE



RECOMMENDED LAND PATTERN



UNIT: mm

|     | MIN   | NOM   | MAX   |
|-----|-------|-------|-------|
| A   | 4.50  | 4.70  | 4.90  |
| A1  | 2.45  | 2.60  | 2.70  |
| B   | 0.72  | 0.82  | 0.92  |
| B1  | 1.12  | 1.27  | 1.42  |
| c   | 0.28  | 0.38  | 0.48  |
| c1  | 1.17  | 1.27  | 1.37  |
| D   | 8.46  | 8.66  | 8.86  |
| D1  | 7.70  | 7.90  | 8.40  |
| D2  | 5.00  | 5.20  | 5.40  |
| e   |       | 5.10  |       |
| E   | 9.85  | 10.15 | 10.45 |
| H   | 28.00 | 28.50 | 29.00 |
| Φ P |       | 3.84  |       |
| L   | 13.1  | 13.6  | 14.1  |
| L1  | 2.54  | 2.74  | 2.94  |
| L2  | 6.04  | 6.24  | 6.44  |
| L3  | 3.85  | 4.05  | 4.35  |