

SC10170Y

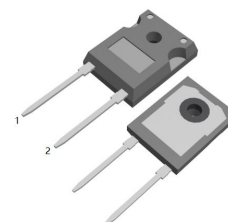
10.0AMPS.SIC SCHOTTKY BARRIER DIODE

FEATURE

- . 1700V Schottky Diode
- . 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-247-2L


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

| Parameter | Symbol | SC10170Y | Units |
|--|----------------|-------------|------------------|
| Maximum Recurrent Peak Reverse Voltage | V_{RRM} | 1700 | V |
| Maximum Surge Peak Reverse Voltage | V_{RSM} | 1700 | V |
| Maximum DC blocking Voltage | V_{DC} | 1700 | V |
| Maximum Average Forward Rectified Current at $T_C = 150^\circ\text{C}$ | $I_{F(AV)}$ | 10 | A |
| Non-Repetitive Peak Forward Surge Current $T_c=25^\circ\text{C}, t_p=8.3 \text{ ms}, \text{ Half Sine Pulse}$ | I_{FSM} | 110 | A |
| Total power dissipation $T_c=25^\circ\text{C}$ | P_D | 300 | W |
| Operation Junction Temperature and Storage Temperature | T_J, T_{STG} | -55 to +175 | $^\circ\text{C}$ |

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

| Parameter | Symbol | Typ | Max | Units | |
|-------------------------|--------|---|-----|-------|---------------|
| Forward voltage | V_F | $I_F=10\text{A}, T_j=25^\circ\text{C}$ | 1.5 | 1.8 | V |
| | | $I_F=10\text{A}, T_j=175^\circ\text{C}$ | 2.1 | 2.5 | |
| Reverse current | I_R | $V_R=1700\text{V}, T_j=25^\circ\text{C}$ | 5 | 50 | μA |
| | | $V_R=1700\text{V}, T_j=175^\circ\text{C}$ | 25 | 200 | |
| Total capacitive charge | Q_c | 106 | --- | nC | |
| Total capacitance | C | $V_R=0\text{V}, T_j=25^\circ\text{C}, f=1\text{MHZ}$ | 990 | --- | pF |
| | | $V_R=800\text{V}, T_j=25^\circ\text{C}, f=1\text{MHZ}$ | 45 | --- | |
| | | $V_R=1700\text{V}, T_j=25^\circ\text{C}, f=1\text{MHZ}$ | 42 | --- | |

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

| Parameter | Symbol | Typ | Max | Units |
|---|------------|-----|------|---------------------------|
| Typical Thermal Resistance Junction to Case | $R_{(JC)}$ | 0.5 | ---- | $^\circ\text{C}/\text{W}$ |

RATING AND CHARACTERISTIC CURVES

FIG.1-FORWARD CHARACTERISTICS

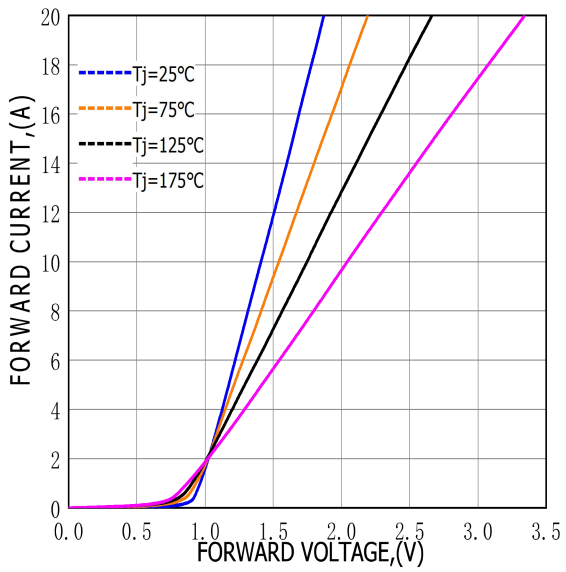


FIG.2-REVERSE CHARACTERISTICS

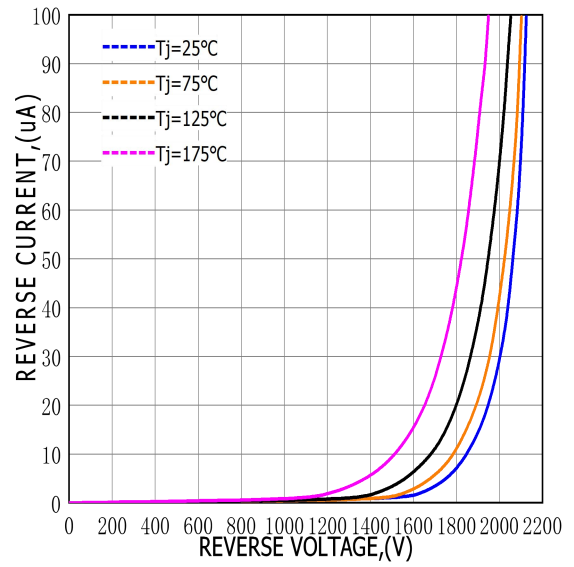


FIG.3-TOTAL CAPACITANCE CHARGE VS REVERSE VOLTAGE

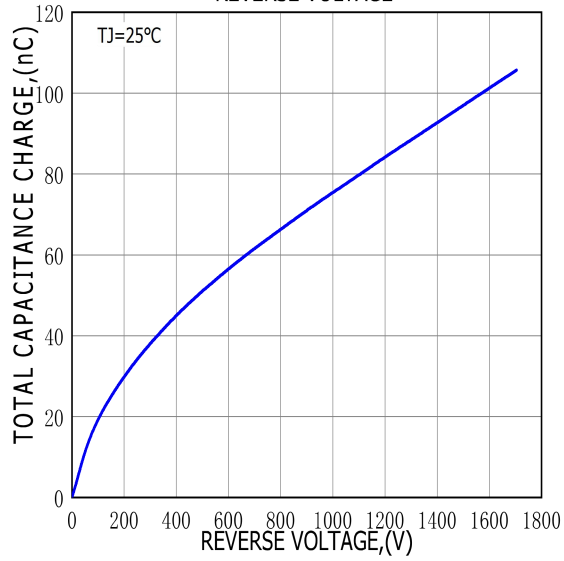
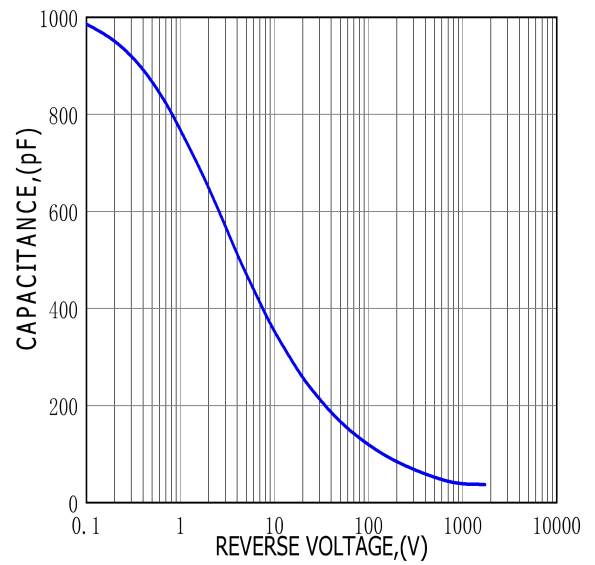
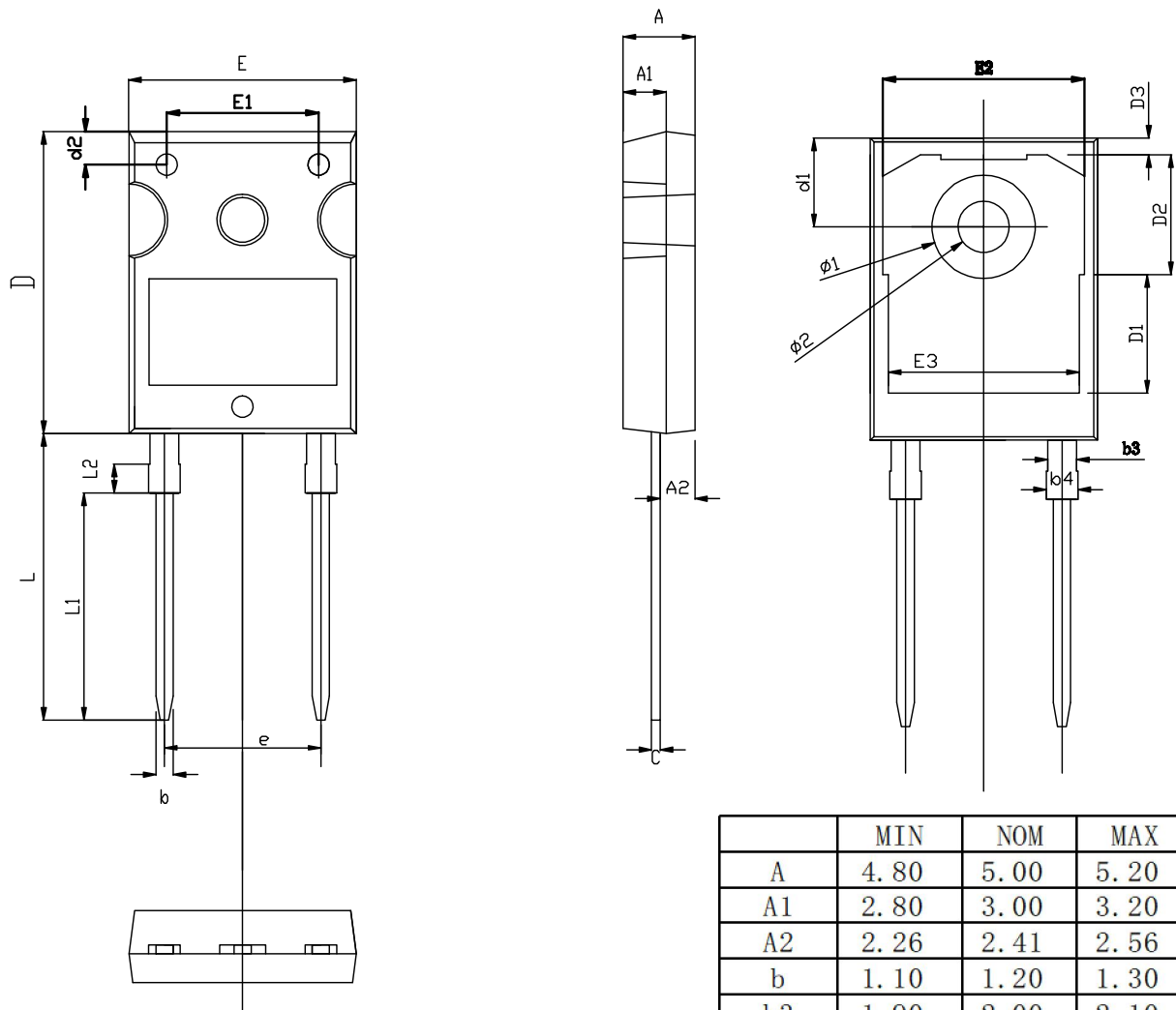


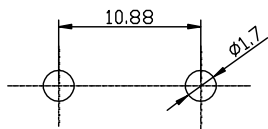
FIG.4-CAPACITANCE VS REVERSE VOLTAGE



TO-247-2L PACKAGE OUTLINE



RECOMMENDED LAND PATTERN



UNIT: mm

| | MIN | NOM | MAX |
|----|-------|-------|-------|
| A | 4.80 | 5.00 | 5.20 |
| A1 | 2.80 | 3.00 | 3.20 |
| A2 | 2.26 | 2.41 | 2.56 |
| b | 1.10 | 1.20 | 1.30 |
| b3 | 1.90 | 2.00 | 2.10 |
| b4 | 2.00 | - | 2.20 |
| c | 0.50 | 0.60 | 0.70 |
| D | 20.80 | 21.00 | 21.20 |
| D1 | | 8.23 | |
| D2 | | 8.32 | |
| D3 | | 1.17 | |
| d1 | 6.00 | 6.15 | 6.30 |
| d2 | 2.20 | 2.30 | 2.40 |
| E | 15.60 | 15.80 | 16.00 |
| E1 | | 10.50 | |
| E2 | | 14.02 | |
| E3 | | 13.50 | |
| e | | 10.88 | |
| L | 19.72 | 19.92 | 20.12 |
| L1 | | 15.79 | |
| L2 | | 1.98 | |
| ∅1 | 7.10 | 7.19 | 7.30 |
| ∅2 | 3.50 | 3.60 | 3.70 |