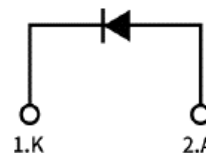


## Features

- Zero Forward Recovery Voltage
- Zero Reverse Recovery Current
- Excellent Surge Current Capability
- Temperature Independent Switching
- Positive Temperature Coefficient on VF
- High Frequency Operation



TO-247-2L

## Application

- Parallel Devices Without Thermal Runaway
- Power Factor Correction
- DC-AC Inverters
- DC-DC Inverters



Halogen-Free

## Maximum Ratings(Ta=25°C unless otherwise noted)

| Symbol         | Parameter                                                                | Test condition                                                          | Value    | Unit |
|----------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------|----------|------|
| $V_{RRM}$      | Repetitive Peak Reverse Voltages                                         | $T_C=25^{\circ}C$                                                       | 1200     | V    |
| $I_F$          | Continuous Forward Current                                               | $T_C=25^{\circ}C$                                                       | 54       | A    |
|                |                                                                          | $T_C=110^{\circ}C$                                                      | 30       |      |
|                |                                                                          | $T_C=155^{\circ}C$                                                      | 15       |      |
| $I_{FSM}$      | Non-Repetitive Forward Surge Current (Half Sine Pulse)                   | $T_C=25^{\circ}C, t_p=10ms$                                             | 110      | A    |
|                |                                                                          | $T_C=110^{\circ}C, t_p=10ms$                                            | 100      |      |
| $I_{FRM}$      | Repetitive Forward Surge Current, Sine Half-Wave (Freq= 0.1Hz, 50cycles) | $T_C=25^{\circ}C, t_p=10ms$                                             | 100      | A    |
|                |                                                                          | $T_C=110^{\circ}C, t_p=10ms$                                            | 80       |      |
| $E_{AS}$       | Single Pulse Avalanche Energy                                            | $T_C = 25^{\circ}C$ ,<br>L= 0.5mH,<br>$V_{DD}= 50V$ ,<br>$I_{peak}=26A$ | 170      | mJ   |
| $T_J, T_{stg}$ | Operating Junction and Storage Temperature                               |                                                                         | -55~+175 | °C   |

## Ordering Information (Example)

| Type     | Package   | Marking  | Minimum Package(pcs) | Inner Box Quantity(pcs) | Outer Carton Quantity(pcs) | Delivery Mode |
|----------|-----------|----------|----------------------|-------------------------|----------------------------|---------------|
| DA15C12A | TO-247-2L | DA15C12A | /                    | /                       | /                          | /             |

| Symbol          | Parameter                                | Value | Unit |
|-----------------|------------------------------------------|-------|------|
| $R_{\theta JC}$ | Thermal Resistance from Junction to Case | 0.59  | °C/W |

## Electrical Characteristics( $T_{vj}=25^{\circ}\text{C}$ unless otherwise noted)

| Symbol   | Parameter                 | Test conditions                             | Min. | Typ. | Max. | Unit          |
|----------|---------------------------|---------------------------------------------|------|------|------|---------------|
| $V_{DC}$ | DC Blocking Voltage       | $I_R=100\mu\text{A}$                        | 1200 | -    | -    | V             |
| $V_F$    | Forward Voltage           | $I_F=15\text{A}, T_J=25^{\circ}\text{C}$    | -    | 1.38 | 1.80 | V             |
|          |                           | $I_F=15\text{A}, T_J=175^{\circ}\text{C}$   | -    | 1.98 | -    |               |
| $I_R$    | Reverse Current           | $V_R=1200\text{V}, T_J=25^{\circ}\text{C}$  | -    | 3.0  | 180  | $\mu\text{A}$ |
|          |                           | $V_R=1200\text{V}, T_J=175^{\circ}\text{C}$ | -    | 23   | -    |               |
| C        | Total Capacitance         | $V_R=1\text{V}, f=1\text{MHz}$              | -    | 824  | -    | pF            |
|          |                           | $V_R=400\text{V}, f=1\text{MHz}$            | -    | 72   | -    |               |
|          |                           | $V_R=800\text{V}, f=1\text{MHz}$            | -    | 60   | -    |               |
| $E_C$    | Capacitance stored energy | $V_R=800\text{V}$                           | -    | 23   | -    | $\mu\text{J}$ |
| $Q_C$    | Total Capacitive Charge   | $V_R=800\text{V}$                           | -    | 78   | -    | nC            |

## Typical Operating Characteristics

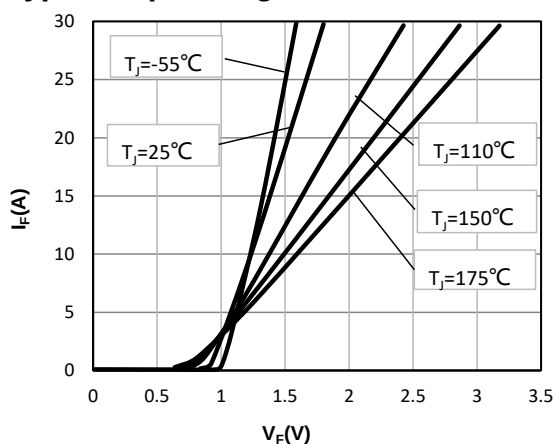


Fig1. Forward Characteristics

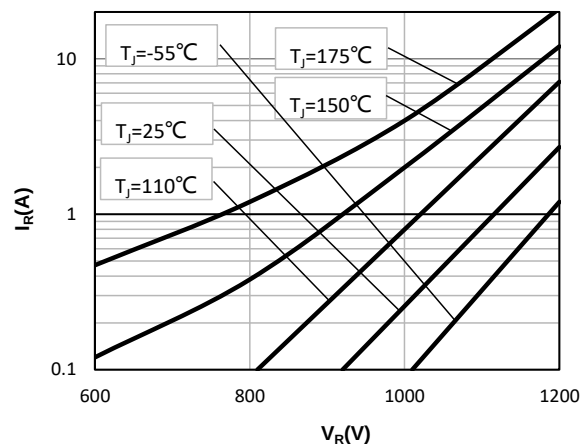


Fig2. Reverse Characteristics

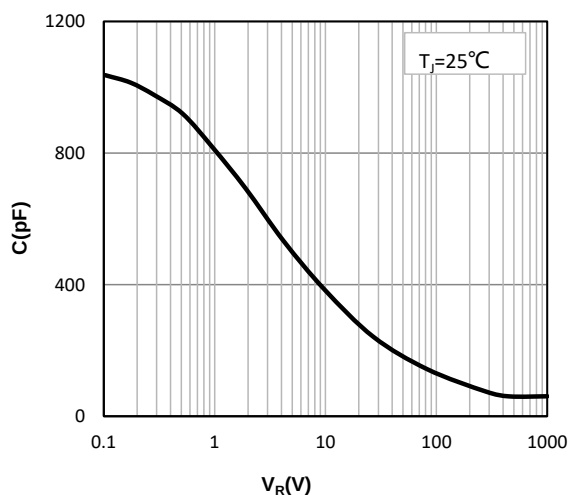


Fig3. Capacitance vs. Reverse Voltage

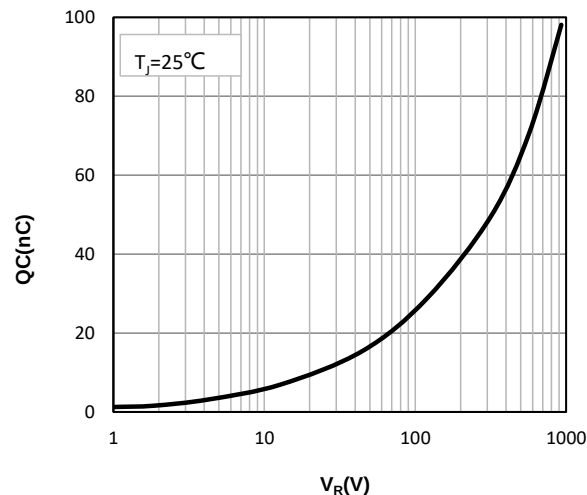
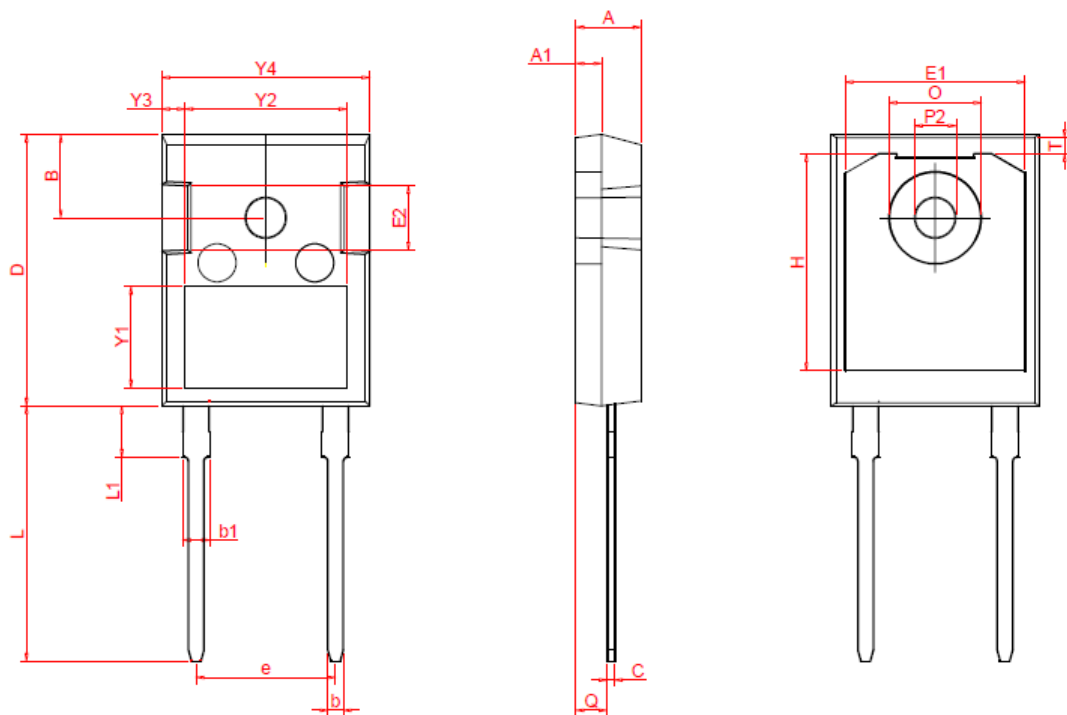


Fig3. Recovery Charge vs. Reverse Voltage

## TO-247-2L Package information



| Symbol | Dimensions in Millimeters(mm) |        | Dimensions In Inches |       |
|--------|-------------------------------|--------|----------------------|-------|
|        | Min                           | Max    | Min                  | Max   |
| A      | 4.700                         | 5.300  | 0.185                | 0.209 |
| A1     | 1.700                         | 2.300  | 0.067                | 0.091 |
| C      | 0.450                         | 0.750  | 0.018                | 0.030 |
| Q      | 2.200                         | 2.600  | 0.087                | 0.102 |
| O      | 7.100                         | 7.400  | 0.280                | 0.291 |
| P2     | 3.450                         | 3.750  | 0.136                | 0.148 |
| L      | 19.000                        | 21.000 | 0.748                | 0.827 |
| L1     | 4.200                         | 4.500  | 0.165                | 0.177 |
| b      | 1.000                         | 1.400  | 0.039                | 0.055 |
| b1     | 1.800                         | 2.250  | 0.071                | 0.089 |
| e      | 10.650                        | 10.950 | 0.419                | 0.431 |
| D      | 20.950                        | 21.350 | 0.825                | 0.841 |
| Y1     | 7.600                         | 8.100  | 0.299                | 0.319 |
| Y2     | 11.000                        | 13.000 | 0.433                | 0.512 |
| Y3     | 1.750                         | 2.250  | 0.069                | 0.089 |
| Y4     | 16.000                        | 16.400 | 0.630                | 0.646 |
| E2     | 4.600                         | 4.900  | 0.181                | 0.193 |
| T      | 1.35REF                       |        | 0.053REF             |       |
| H      | 16.25REF                      |        | 0.640REF             |       |
| E1     | 14REF                         |        | 0.551REF             |       |
| B      | 6.55REF.                      |        | 0.258REF             |       |