

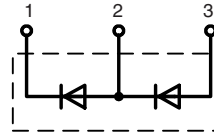
# Phase-leg Rectifier Diode

$$V_{RRM} = 1200/1600 \text{ V}$$

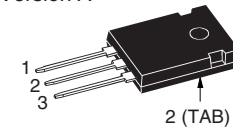
$$I_{F(RMS)} = 2 \times 70 \text{ A}$$

$$I_{F(AV)M} = 2 \times 45 \text{ A}$$

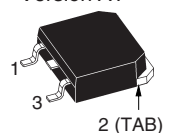
| $V_{RSM}$<br>V | $V_{RRM}$<br>V | TO-247 AD<br>Type | TO-268 AA   | ISOPLUS247™ |
|----------------|----------------|-------------------|-------------|-------------|
| 1300           | 1200           | DSP 45-12A        | DSP 45-12AT |             |
| 1700           | 1600           | DSP 45-16A        | DSP 45-16AT | DSP 45-16AR |



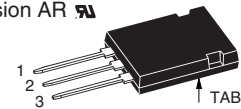
**TO-247 AD**  
Version A



**TO-268 AA**  
Version AT



**ISOPLUS 247™**  
Version AR



1 = Cathode, 2 = Anode/Cathode, 3 = Anode

| Symbol             | Conditions                                                       | Maximum Ratings |                  |
|--------------------|------------------------------------------------------------------|-----------------|------------------|
| $I_{F(RMS)}$       | $T_{VJ} = T_{VJM}$                                               | 70              | A                |
| $I_{F(AV)M}$       | $T_C = 130^\circ\text{C}$ ; 180° sine                            | 45              | A                |
| $I_{F(AV)M}^{(2)}$ | $T_C = 100^\circ\text{C}$ ; 180° sine                            | 43              | A                |
| $I_{FSM}$          | $T_{VJ} = 45^\circ\text{C}$ ; $t = 10 \text{ ms}$ (50 Hz), sine  | 480             | A                |
|                    | $t = 8.3 \text{ ms}$ (60 Hz), sine                               | 510             | A                |
|                    | $T_{VJ} = 150^\circ\text{C}$ ; $t = 10 \text{ ms}$ (50 Hz), sine | 420             | A                |
|                    | $t = 8.3 \text{ ms}$ (60 Hz), sine                               | 450             | A                |
| $I^2t$             | $T_{VJ} = 45^\circ\text{C}$ ; $t = 10 \text{ ms}$ (50 Hz), sine  | 1150            | A <sup>2</sup> s |
|                    | $t = 8.3 \text{ ms}$ (60 Hz), sine                               | 1090            | A <sup>2</sup> s |
|                    | $T_{VJ} = 150^\circ\text{C}$ ; $t = 10 \text{ ms}$ (50 Hz), sine | 880             | A <sup>2</sup> s |
|                    | $t = 8.3 \text{ ms}$ (60 Hz), sine                               | 855             | A <sup>2</sup> s |
| $T_{VJ}$           |                                                                  | -40...+180      | °C               |
| $T_{VJM}$          |                                                                  | +180            | °C               |
| $T_{VJ}^{(2)}$     |                                                                  | -40...+150      | °C               |
| $T_{VJM}^{(2)}$    |                                                                  | +150            | °C               |
| $T_{stg}$          |                                                                  | -40...+150      | °C               |
| $M_d^{(1)}$        | Mounting torque                                                  | 1.13/10         | Nm/lb.in.        |
| $F_C^{(2+3)}$      | Clip mounting force                                              | 1.13/10         | Nm/lb.in.        |
| $V_{ISOL}^{(2)}$   | 50/60 Hz, RMS, $t = 1 \text{ minute}$ , leads-to-tab             | 2500            | V~               |
| <b>Weight</b>      | TO-268 / TO-247                                                  | 4 / 6           | g                |

<sup>1)</sup> Version A; <sup>2)</sup> Version AR; <sup>3)</sup> Version AT

## Features

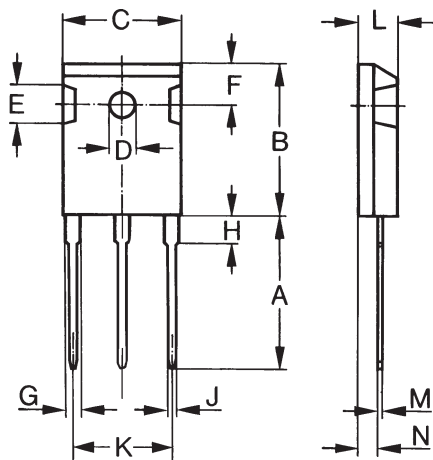
- International standard packages JEDEC TO-247 AD and TO-268 AA surface mountable
- For single and three phase bridge configuration
- Planar passivated chips
- Epoxy meets UL 94V-0 flammability classification
- Version AR isolated and UL registered E153432

| Symbol           | Conditions                                         | Characteristic Values |                  |
|------------------|----------------------------------------------------|-----------------------|------------------|
| $I_R$            | $T_{VJ} = 150^\circ\text{C}$ $V_R = V_{RRM}$       | ≤ 3                   | mA               |
| $V_F$            | $I_F = 40 \text{ A}$ ; $T_{VJ} = 25^\circ\text{C}$ | ≤ 1.23                | V                |
| $V_{T0}$         | For power-loss calculations only                   | 0.8                   | V                |
| $r_T$            | $T_{VJ} = T_{VJM}$                                 | 11                    | mΩ               |
| $R_{thJC}$       | DC current                                         | 0.55                  | K/W              |
| $R_{thJC}^{(2)}$ | DC current                                         | 0.7                   | K/W              |
| $R_{thCH}$       | DC current (with heatsink compound)                | 0.2                   | K/W              |
| <b>a</b>         | Maximum allowable acceleration                     | 50                    | m/s <sup>2</sup> |

Data according to IEC 60747 and refer to a single diode

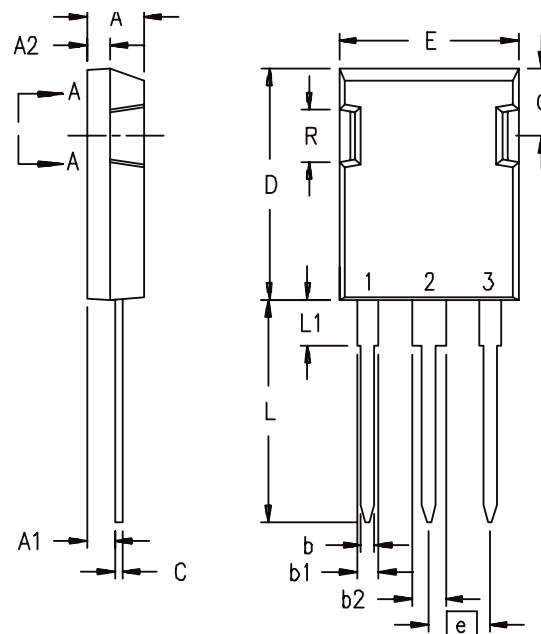
IXYS reserves the right to change limits, test conditions and dimensions

### TO-247 AD



| Dim. | Millimeter |       | Inches |       |
|------|------------|-------|--------|-------|
|      | Min.       | Max.  | Min.   | Max.  |
| A    | 19.81      | 20.32 | 0.780  | 0.800 |
| B    | 20.80      | 21.46 | 0.819  | 0.845 |
| C    | 15.75      | 16.26 | 0.610  | 0.640 |
| D    | 3.55       | 3.65  | 0.140  | 0.144 |
| E    | 4.32       | 5.49  | 0.170  | 0.216 |
| F    | 5.4        | 6.2   | 0.212  | 0.244 |
| G    | 1.65       | 2.13  | 0.065  | 0.084 |
| H    | -          | 4.5   | -      | 0.177 |
| J    | 1.0        | 1.4   | 0.040  | 0.055 |
| K    | 10.8       | 11.0  | 0.426  | 0.433 |
| L    | 4.7        | 5.3   | 0.185  | 0.209 |
| M    | 0.4        | 0.8   | 0.016  | 0.031 |
| N    | 1.5        | 2.49  | 0.087  | 0.102 |

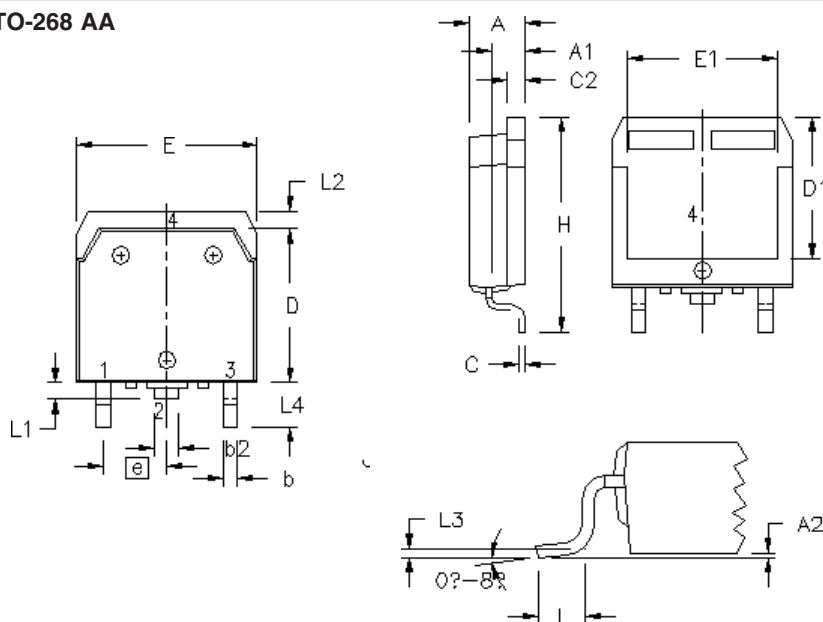
### ISOPLUS247™



| Dim.           | Millimeter |       | Inches   |      |
|----------------|------------|-------|----------|------|
|                | Min.       | Max.  | Min.     | Max. |
| A              | 4.83       | 5.21  | .190     | .205 |
| A <sub>1</sub> | 2.29       | 2.54  | .090     | .100 |
| A <sub>2</sub> | 1.91       | 2.16  | .075     | .085 |
| b              | 1.14       | 1.40  | .045     | .055 |
| b <sub>1</sub> | 1.91       | 2.13  | .075     | .084 |
| b <sub>2</sub> | 2.92       | 3.12  | .115     | .123 |
| C              | 0.61       | 0.80  | .024     | .031 |
| D              | 20.80      | 21.34 | .819     | .840 |
| E              | 15.75      | 16.13 | .620     | .635 |
| e              | 5.45 BSC   |       | .215 BSC |      |
| L              | 19.81      | 20.32 | .780     | .800 |
| L <sub>1</sub> | 3.81       | 4.32  | .150     | .170 |
| Q              | 5.59       | 6.20  | .220     | .244 |
| R              | 4.32       | 4.83  | .170     | .190 |

Note:  
Backside is electr. isolated

### TO-268 AA



| Dim.           | Millimeter |       | Inches   |      |
|----------------|------------|-------|----------|------|
|                | Min.       | Max.  | Min.     | Max. |
| A              | 4.9        | 5.1   | .193     | .201 |
| A <sub>1</sub> | 2.7        | 2.9   | .106     | .114 |
| A <sub>2</sub> | .02        | .25   | .001     | .010 |
| b              | 1.15       | 1.45  | .045     | .057 |
| b <sub>2</sub> | 1.9        | 2.1   | .75      | .83  |
| C              | .4         | .65   | .016     | .026 |
| D              | 13.80      | 14.00 | .543     | .551 |
| E              | 15.85      | 16.05 | .624     | .632 |
| E <sub>1</sub> | 13.3       | 13.6  | .524     | .535 |
| e              | 5.45 BSC   |       | .215 BSC |      |
| H              | 18.70      | 19.10 | .736     | .752 |
| L              | 2.40       | 2.70  | .094     | .106 |
| L <sub>1</sub> | 1.20       | 1.40  | .047     | .055 |
| L <sub>2</sub> | 1.00       | 1.15  | .039     | .045 |
| L <sub>3</sub> | 0.25 BSC   |       | .010 BSC |      |
| L <sub>4</sub> | 3.80       | 4.10  | .150     | .161 |