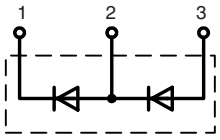
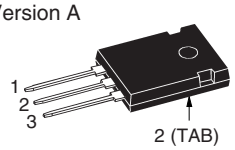
# Phase-leg Rectifier Diode

$V_{RRM}$ = 1200/1600 V
$I_{F(RMS)}$ = 2x70 A
$I_{F(AV)M}$ = 2x45 A

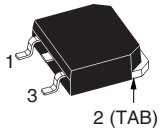
| $V_{RSM}$ V | $V_{RRM}$ V | TO-247 AD Type | TO-268 AA | ISOPLUS 247™ |
|---|---|---|---|---|
| 1300 | 1200 | DSP 45-12A | DSP 45-12AT | |
| 1700 | 1600 | DSP 45-16A | DSP 45-16AT | DSP 45-16AR |



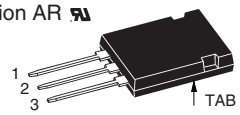

**TO-247 AD**
Version A




**TO-268 AA**
Version AT




**ISOPLUS 247™**
Version AR




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

**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 | | | Maximum Ratings | |
|---|---|---|---|---|---|
| $I_{F(RMS)}$ | $T_{VJ} = T_{VJM}$ | | | 70 | A |
| $I_{F(AV)M}$ | $T_C$ = 130°C; 180° sine | | | 45 | A |
| $I_{F(AV)M}$ [2] | $T_C$ = 100°C; 180° sine | | | 43 | A |
| $I_{FSM}$ | $T_{VJ}$ = 45°C; | t = 10 ms | (50 Hz), sine | 480 | A |
| | | t = 8.3 ms | (60 Hz), sine | 510 | A |
| | $T_{VJ}$ = 150°C; | t = 10 ms | (50 Hz), sine | 420 | A |
| | | t = 8.3 ms | (60 Hz), sine | 450 | A |
| $I^2t$ | $T_{VJ}$ = 45°C | t = 10 ms | (50 Hz), sine | 1150 | $A^2s$ |
| | | t = 8.3 ms | (60 Hz), sine | 1090 | $A^2s$ |
| | $T_{VJ}$ = 150°C; | t = 10 ms | (50 Hz), sine | 880 | $A^2s$ |
| | | t = 8.3 ms | (60 Hz), sine | 855 | $A^2s$ |
| $T_{VJ}$ | | | | -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 minute, leads-to-tab | | | 2500 | V~ |
| Weight | TO-268 / TO-247 | | | 4 / 6 | g |

[1] Verson A; [2] Version AR; [3] Version AT

| Symbol | Conditions | | Characteristic Values | |
|---|---|---|---|---|
| $I_R$ | $T_{VJ}$ = 150°C $V_R = V_{RRM}$ | ≤ | 3 | mA |
| $V_F$ | $I_F$ = 40 A; $T_{VJ}$ = 25°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 |
| a | Maximum allowable acceleration | | 50 | $m/s^2$ |

Data according to IEC 60747 and refer to a single diode

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

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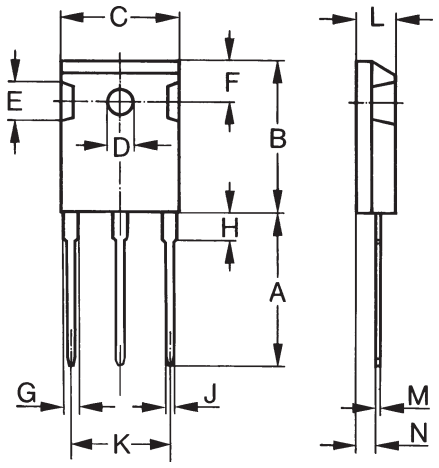
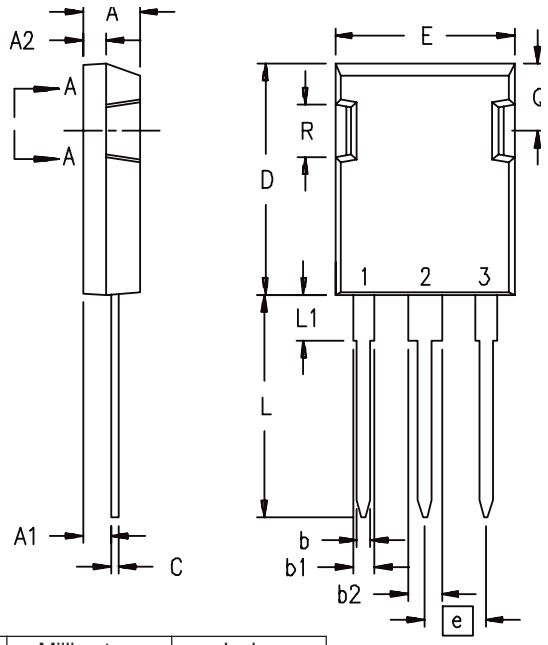
**TO-247 AD**




| 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 |

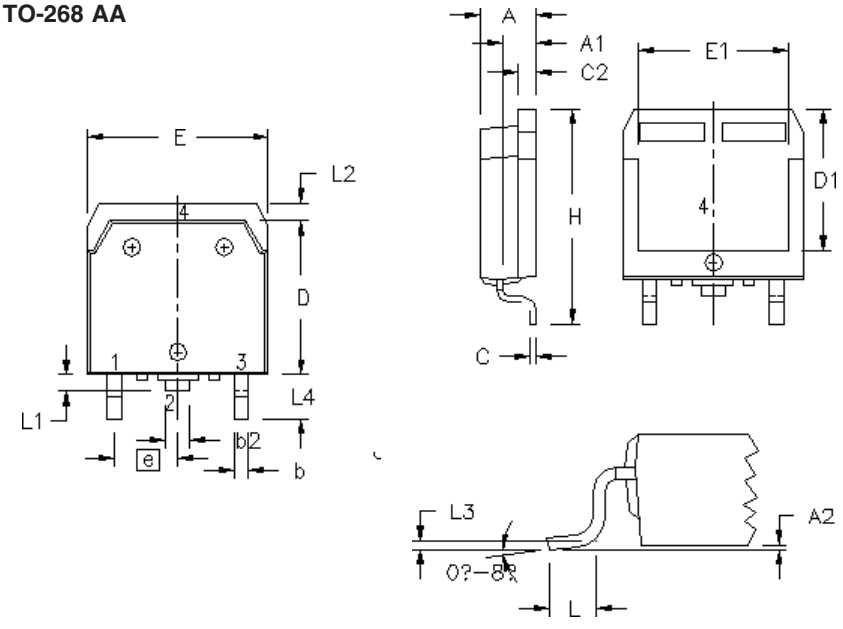
**ISOPLUS247™**




| Dim. | Millimeter | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 4.83 | 5.21 | .190 | .205 |
| $A_1$ | 2.29 | 2.54 | .090 | .100 |
| $A_2$ | 1.91 | 2.16 | .075 | .085 |
| b | 1.14 | 1.40 | .045 | .055 |
| $b_1$ | 1.91 | 2.13 | .075 | .084 |
| $b_2$ | 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 |
| L1 | 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 |
| $A_1$ | 2.7 | 2.9 | .106 | .114 |
| $A_2$ | .02 | .25 | .001 | .010 |
| b | 1.15 | 1.45 | .045 | .057 |
| $b_2$ | 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 |
| $E_1$ | 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 |
| L1 | 1.20 | 1.40 | .047 | .055 |
| L2 | 1.00 | 1.15 | .039 | .045 |
| L3 | 0.25 BSC | | .010 BSC | |
| L4 | 3.80 | 4.10 | .150 | .161 |

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