

STANDARD RECOVERY DIODES

Stud Version

Features

- Alloy diode
- Peak reverse voltage up to 1000V
- Popular series for rough service
- Standard JEDEC types
- Stud cathode and stud anode version

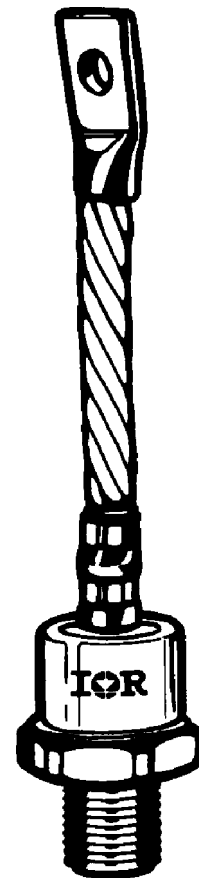
250A
300A

Typical Applications

- Welders
- Power supplies
- Motor controls
- Battery chargers
- General industrial current rectification

Major Ratings and Characteristics

| Parameters | 70U | 300U | Units |
|------------------|-------------|------------|-------------------|
| $I_{F(AV)}$ | 250 | 300 | A |
| @ T_C | 150 | 130 | °C |
| I_{FSM} @ 50Hz | 6550 | | A |
| @ 60Hz | 6850 | | A |
| I^2t @ 50Hz | 214 | | KA ² s |
| @ 60Hz | 195 | | KA ² s |
| V_{RRM} range | 100 to 1000 | 50 to 1000 | V |
| T_J | -65 to 200 | | °C |



case style
DO-205AB (DO-9)

ELECTRICAL SPECIFICATIONS

Voltage Ratings

| Type number * | Voltage Code | V_{RRM} , maximum repetitive peak reverse voltage V | V_{RSM} , maximum non-repetitive peak rev. voltage V | I_{RRM} max. $T_J = 200^\circ\text{C}$ mA |
|---------------|--------------|--|---|---|
| 70U | 10 | 100 | 200 | 60 |
| | 20 | 200 | 300 | |
| | 40 | 400 | 500 | |
| | 60 | 600 | 720 | |
| | 80 | 800 | 960 | |
| | 100 | 1000 | 1200 | |
| Type number | Voltage Code | V_{RRM} , maximum repetitive peak reverse voltage V | V_{RSM} , maximum non-repetitive peak rev. voltage V | I_{RRM} max. $T_J = 175^\circ\text{C}$ mA |
| 300U | 5 | 50 | 100 | 40 |
| | 10 | 100 | 200 | 40 |
| | 20 | 200 | 300 | 40 |
| | 30 | 300 | 400 | 40 |
| | 40 | 400 | 500 | 40 |
| | 60 | 600 | 720 | 40 |
| | 80 | 800 | 960 | 35 |
| | 100 | 1000 | 1200 | 30 |

* Also available as JEDEC series: 1N3735 through 1N3743; 1N2054 through 1N2068; 1N4044 through 1N4056.

Forward Conduction

| Parameter | 70U | 300U | Units | Conditions |
|--|-------|-------------------|--------------------|--|
| $I_{F(AV)}$ Max. average forward current @ Case temperature | 250 | 300 | A | 180° conduction, half sine wave |
| | 150 | 130 | °C | |
| I_{FSM} Max. peak, one-cycle forward, non-repetitive surge current | 6550 | A | A | t = 10ms No voltage reappplied |
| | 6850 | | | t = 8.3ms reappplied |
| | 5500 | | | t = 10ms 100% V_{RRM} |
| | 5750 | | | t = 8.3ms reappplied |
| I^2t Maximum I^2t for fusing | 214 | KA ² s | KA ² s | t = 10ms No voltage reappplied |
| | 195 | | | t = 8.3ms reappplied |
| | 151 | | | t = 10ms 100% V_{RRM} |
| | 138 | | | t = 8.3ms reappplied |
| $I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing | 2140 | | KA ² √s | t = 0.1 to 10ms, no voltage reappplied |
| $V_{F(TO)}$ Max. value of threshold voltage | 0.610 | | V | $T_J = 200^\circ\text{C}$ |
| r_f Max. value of forward slope resistance | 0.751 | | mΩ | |
| V_{FM} Max. peak forward voltage | 1.30 | -- | V | $(I_{FM} \times \pi \times I_{F(AV)})$ (785A peak), $T_J = 25^\circ\text{C}$ |
| | -- | 1.40 | V | $(I_{FM} \times \pi \times I_{F(AV)})$ (942A peak), $T_J = 25^\circ\text{C}$ |

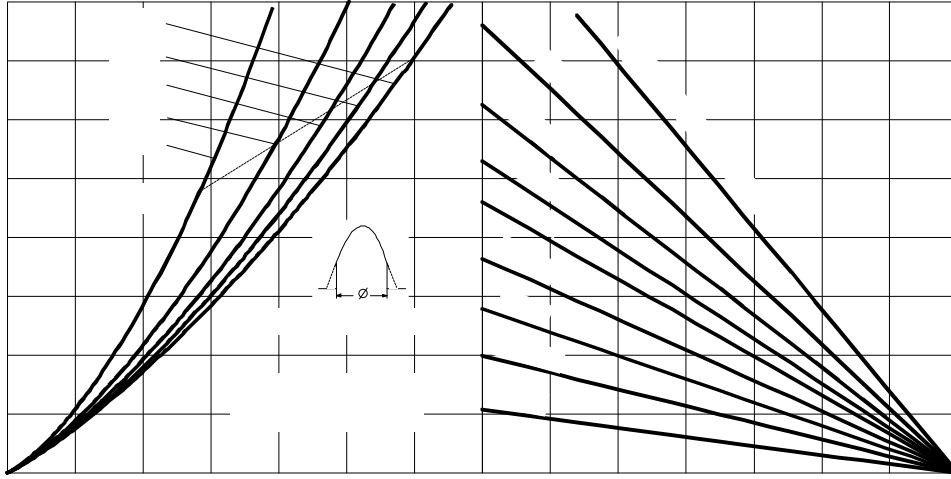


Fig. 3 - Forward Power Loss Characteristics

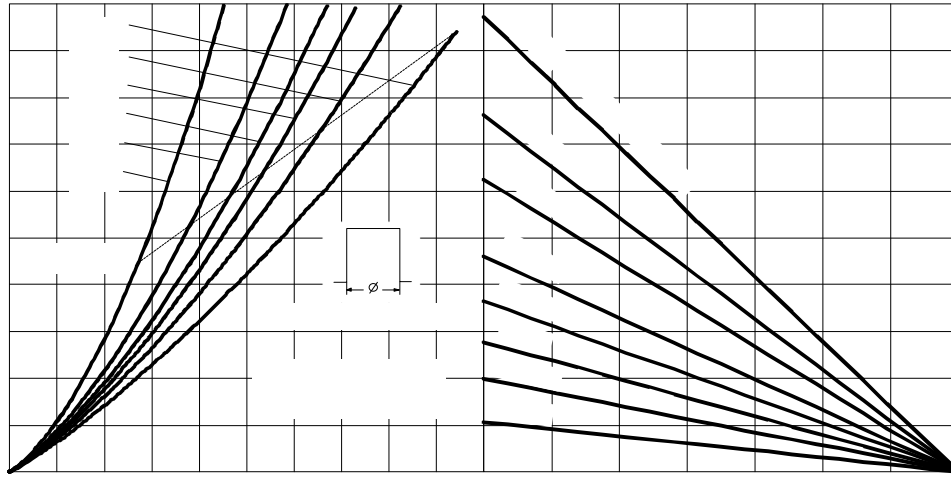
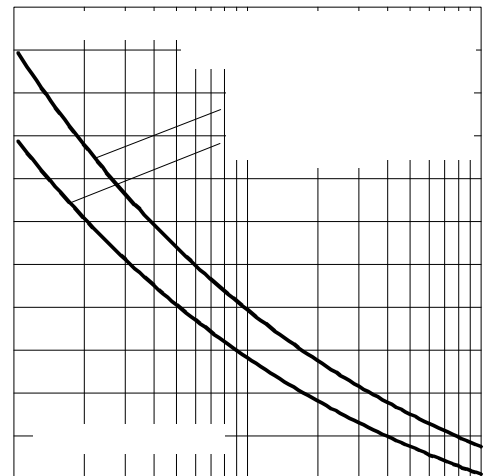
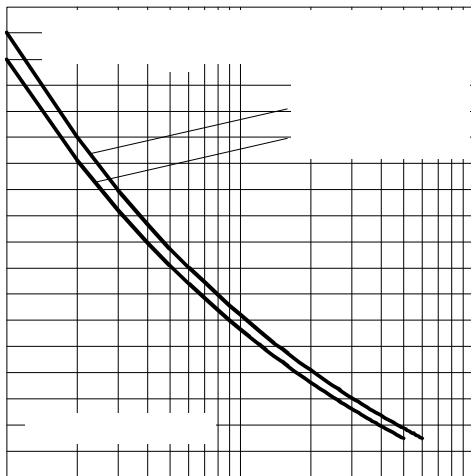


Fig. 4 - Forward Power Loss Characteristics



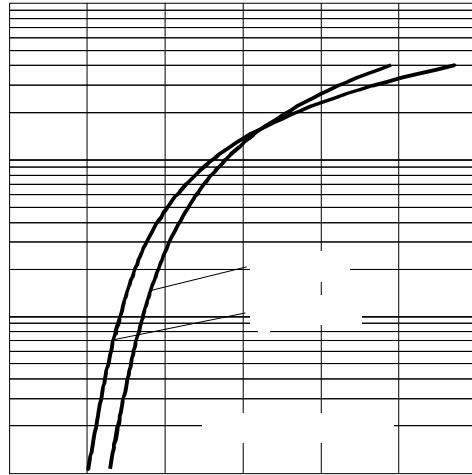
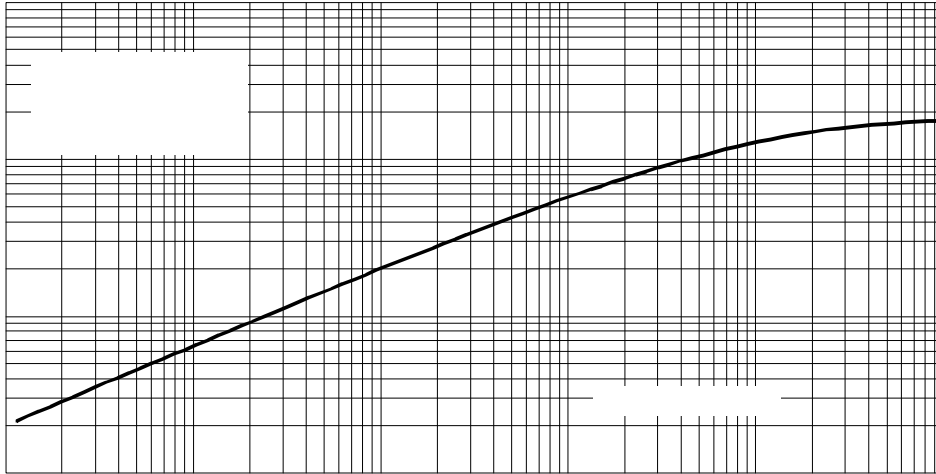


Fig. 7 - Forward Voltage Drop Characteristics

Fig. 8 - Thermal Impedance Z_{thJC} Characteristic

Thermal and Mechanical Specifications

| Parameter | 70/300U(R) | Units | Conditions |
|--|-------------------|-------|--|
| T_J Max. junction operating temperature range | -65 to 200 | °C | |
| T_{stg} Max. storage temperature range | -65 to 200 | | |
| R_{thJC} Max. thermal resistance, junction to case | 0.18 | K/W | DC operation |
| R_{thCS} Max. thermal resistance, case to heatsink | 0.08 | | Mounting surface, smooth, flat and greased |
| T Max. allowed mounting torque +0 -20% | 37 | Nm | Not lubricated threads |
| | 28 | | Lubricated threads |
| wt Approximate weight | 250 | g | |
| Case style | DO-205AB (DO-9)** | | JEDEC (See Outline Table) |

** 302U-A uses IR case style B-26

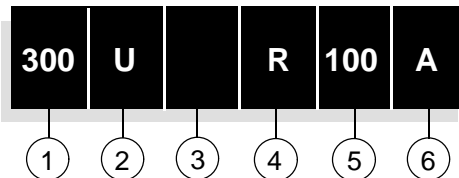
 ΔR_{thJC} Conduction

(The following table shows the increment of thermal resistance R_{thJC} when devices operate at different conduction angles than DC)

| Conduction angle | Sinusoidal conduction | Rectangular conduction | Units | Conditions |
|------------------|-----------------------|------------------------|-------|--------------------------|
| 180° | 0.020 | 0.015 | K/W | $T_J = T_J \text{ max.}$ |
| 120° | 0.024 | 0.025 | | |
| 90° | 0.031 | 0.034 | | |
| 60° | 0.045 | 0.047 | | |
| 30° | 0.077 | 0.077 | | |

Ordering Information Table

Device Code

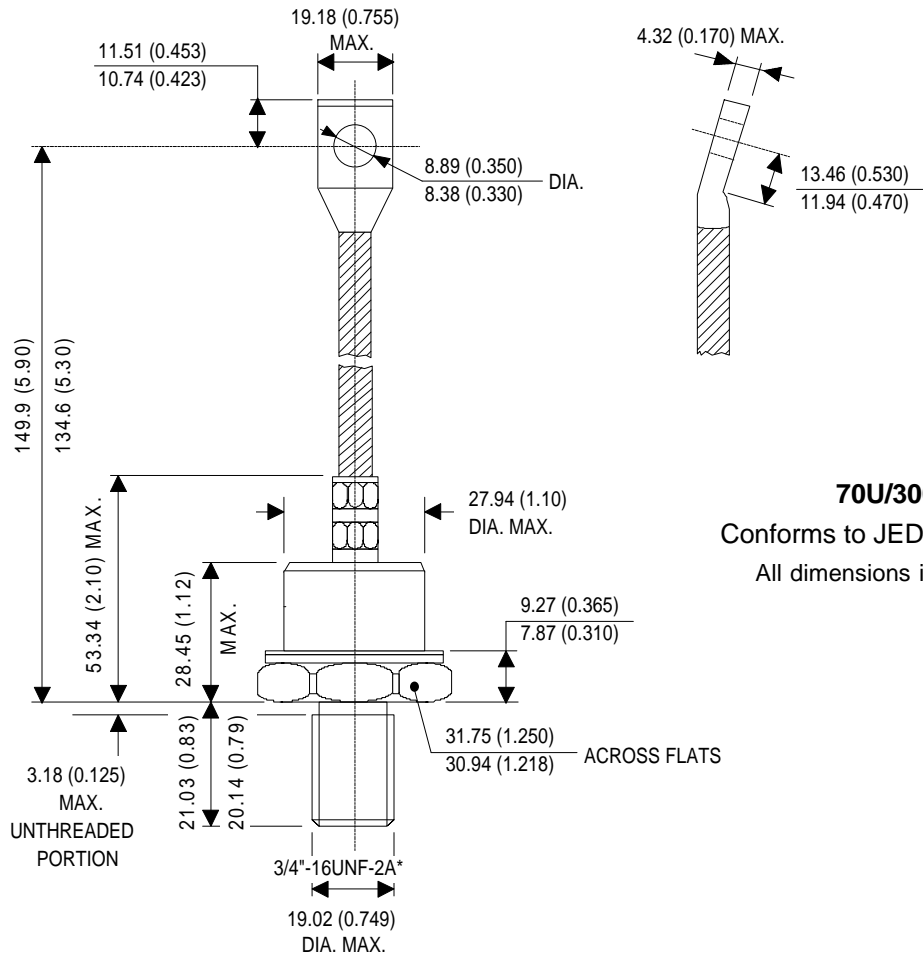


- 1** - 300 = Standard 300U device
70 = Standard 70U device
302 = 300U Top Threaded version
72 = 70U with Pinch Bolt
- 2** - U = Essential Part Number
- 3** - F = Flat Base, available only on 72UF Series
None = Normal Stud
- 4** - R = Stud Reverse Polarity (Anode to Stud)
None = Stud Normal Polarity (Cathode to Stud)
- 5** - Voltage code: Code x 10 = V_{RRM} (See Voltage Ratings table)
- 6** - A = Essential Part Number only for 300U Series
None = 70U Series

NOTE: For longer lead Contact Factory

70/300U(R) Series

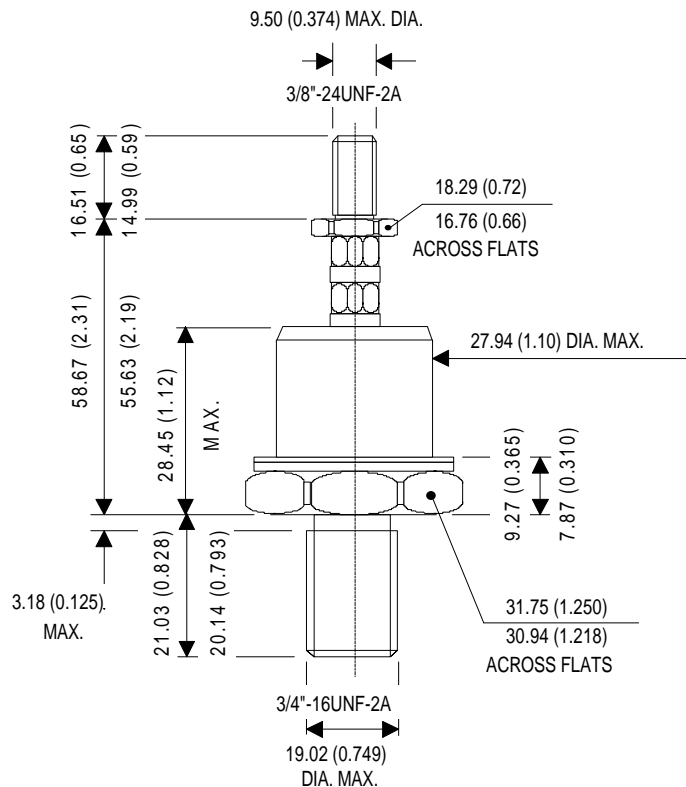
Outline Table



70U/300U-A Series
 Conforms to JEDEC DO-205AB (DO-9)
 All dimensions in millimeters (inches)

* METRIC DEVICE. M16 X 1.5 FOR 300U..AM
 METRIC DEVICE. M20 X 1.5 FOR 300U..AMA

302U-A Series
 IR Case Style B26
 All dimensions in millimeters (inches)



Outline Table

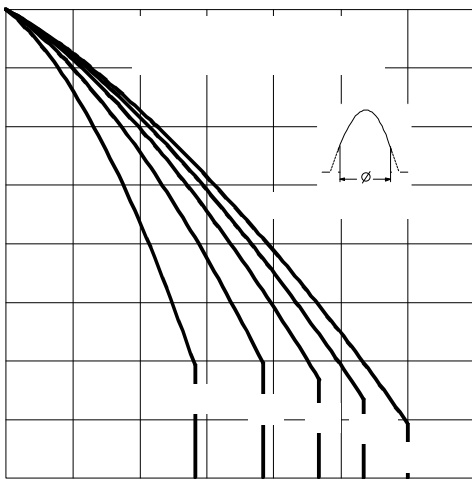
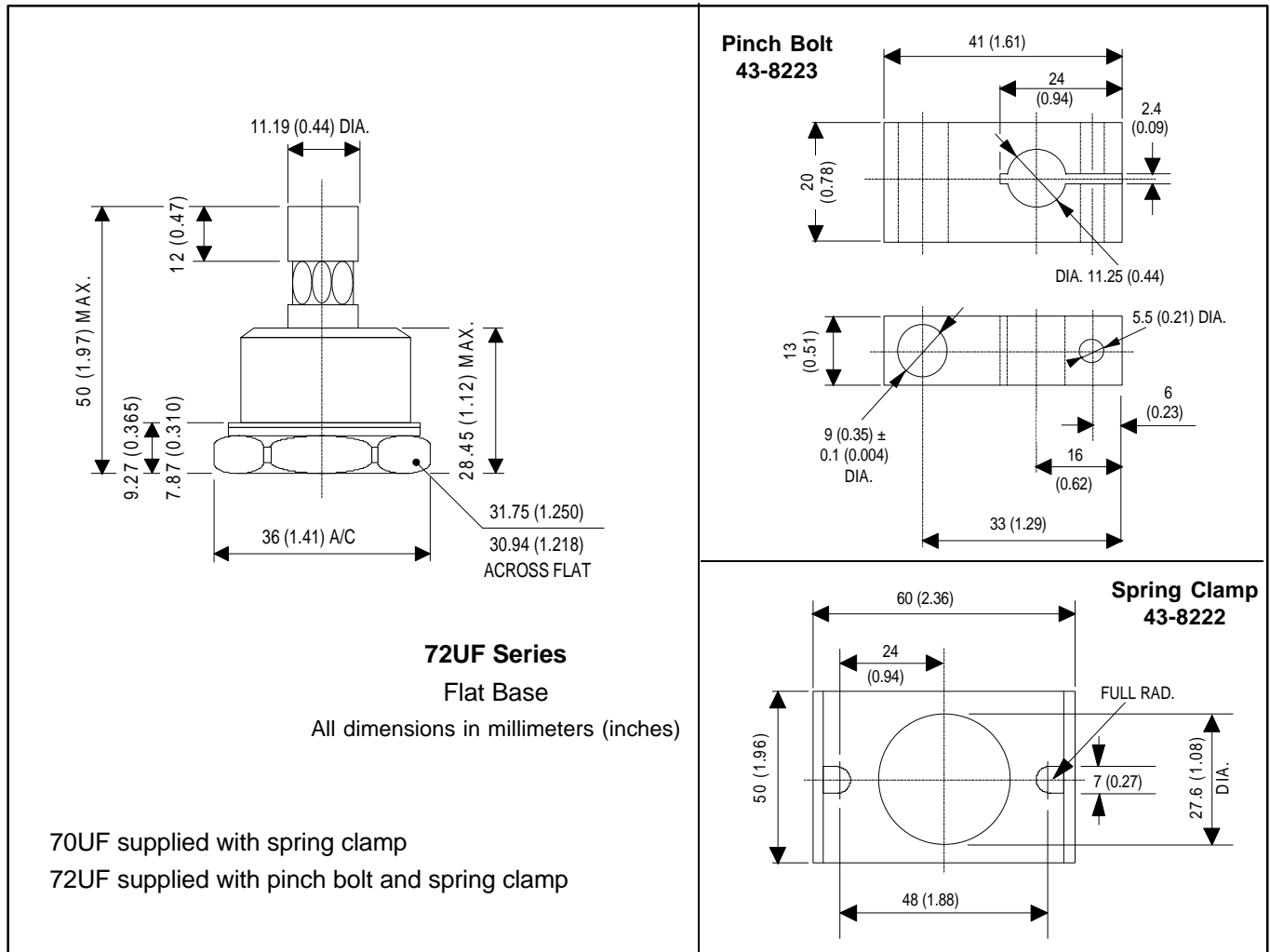


Fig. 1 - Current Ratings Characteristics

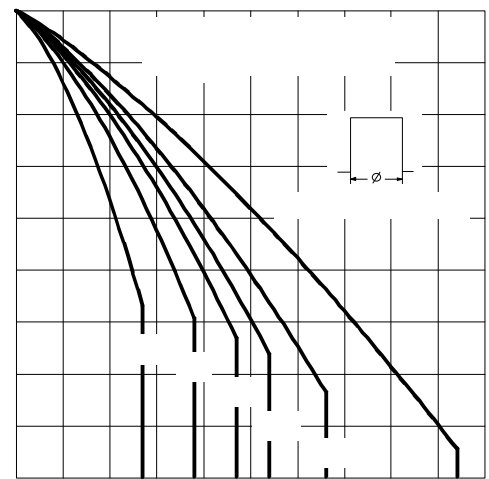


Fig. 2 - Current Ratings Characteristics