

Standard Recovery Diodes (Stud Version), 150 A



DO-205AA (DO-8)

FEATURES

- Diffused diode
- High voltage ratings up to 1200 V
- High surge current capabilities
- Stud cathode and stud anode version
- Hermetic metal case
- Designed and qualified for industrial level
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

TYPICAL APPLICATIONS

- Welders
- Power supplies
- Machine tool controls
- High power drives
- Medium traction applications
- Battery charges
- Freewheeling diodes

PRODUCT SUMMARY

| | |
|-----------------------|-----------------|
| $I_{F(AV)}$ | 150 A |
| Package | DO-205AA (DO-8) |
| Circuit configuration | Single diode |

MAJOR RATINGS AND CHARACTERISTICS

| PARAMETER | TEST CONDITIONS | VALUES | UNITS |
|--------------|-----------------|-------------|-------------------|
| $I_{F(AV)}$ | | 150 | A |
| | T_C | 125 | °C |
| $I_{F(RMS)}$ | | 235 | A |
| I_{FSM} | 50 Hz | 3000 | |
| | 60 Hz | 3140 | |
| I^2t | 50 Hz | 45 | kA ² s |
| | 60 Hz | 41 | |
| V_{RRM} | Range | 600 to 1200 | V |
| T_J | | -40 to 180 | °C |

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS

| TYPE NUMBER | VOLTAGE CODE | V_{RRM} , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V | V_{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V | I_{RRM} MAXIMUM AT $T_J = T_J$ MAXIMUM mA |
|--------------|--------------|--|--|--|
| VS-150U(R).. | 60 | 600 | 700 | 15 |
| | 80 | 800 | 900 | |
| | 100 | 1000 | 1100 | |
| | 120 | 1200 | 1300 | |



| FORWARD CONDUCTION | | | | | | |
|---|--------------|--|----------------------|---|-------|-------------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES | UNITS | |
| Maximum average forward current at case temperature | $I_{F(AV)}$ | 180° conduction, half sine wave | | 150 | A | |
| | | | | 125 | °C | |
| Maximum RMS forward current | $I_{F(RMS)}$ | DC at 110 °C | | 235 | A | |
| Maximum peak, one cycle forward, non-repetitive surge current | I_{FSM} | t = 10 ms | No voltage reapplied | Sinusoidal half wave, initial $T_J = T_J$ maximum | | 3000 |
| | | t = 8.3 ms | | | | 3140 |
| Maximum I^2t for fusing | I^2t | t = 10 ms | | | 45 | kA ² s |
| | | t = 8.3 ms | | | 41 | |
| Slope resistance | r_f | $T_J = T_J$ maximum | | 0.97 | mΩ | |
| Threshold voltage | $V_{F(T0)}$ | | | 0.80 | V | |
| Maximum forward voltage drop | V_{FM} | $I_{pk} = 600$ A, $T_J = 25$ °C, $t_p = 10$ ms sinusoidal wave | | 1.47 | | |

| THERMAL AND MECHANICAL SPECIFICATIONS | | | | | |
|--|----------------|---|--|-----------------|-------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES | UNITS |
| Maximum junction operating and storage temperature range | T_J, T_{Stg} | | | -40 to 180 | °C |
| Maximum thermal resistance, junction to case | R_{thJC} | DC operation | | 0.3 | K/W |
| Maximum thermal resistance, case to heatsink | R_{thCS} | Mounting surface, smooth, flat and greased | | 0.1 | |
| Maximum allowed mounting torque + 0 - 20 % | minimum | Not lubricated threads | | 17 | N · m |
| | maximum | Lubricated threads | | 14.5 | |
| Approximate weight | | | | 130 | g |
| Case style | | See dimensions - link at the end of datasheet | | DO-205AA (DO-8) | |

| ΔR_{thJC} CONDUCTION | | | | |
|------------------------------|-----------------------|------------------------|---------------------|-------|
| CONDUCTION ANGLE | SINUSOIDAL CONDUCTION | RECTANGULAR CONDUCTION | TEST CONDITIONS | UNITS |
| 180° | 0.031 | 0.023 | $T_J = T_J$ maximum | K/W |
| 120° | 0.038 | 0.040 | | |
| 90° | 0.048 | 0.053 | | |
| 60° | 0.071 | 0.075 | | |
| 30° | 0.120 | 0.121 | | |

Note

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

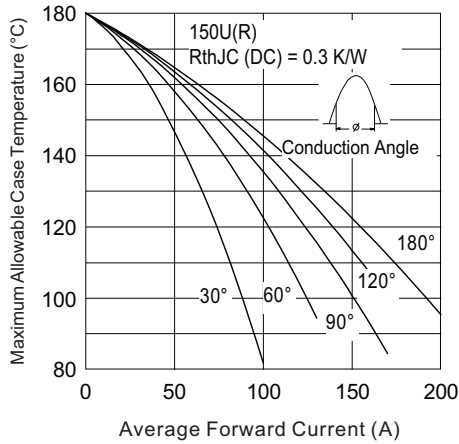


Fig. 1 - Current Ratings Characteristics

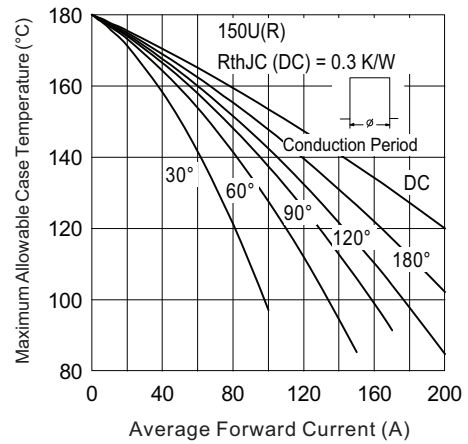


Fig. 2 - Current Ratings Characteristics

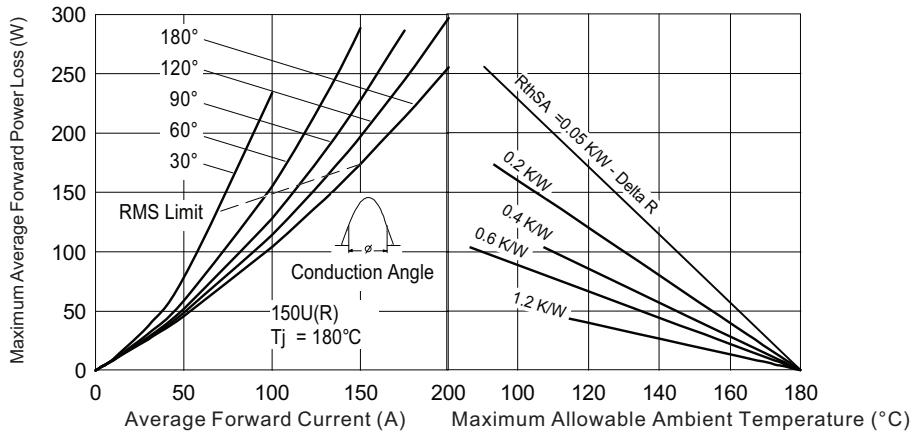


Fig. 3 - Forward Power Loss Characteristics

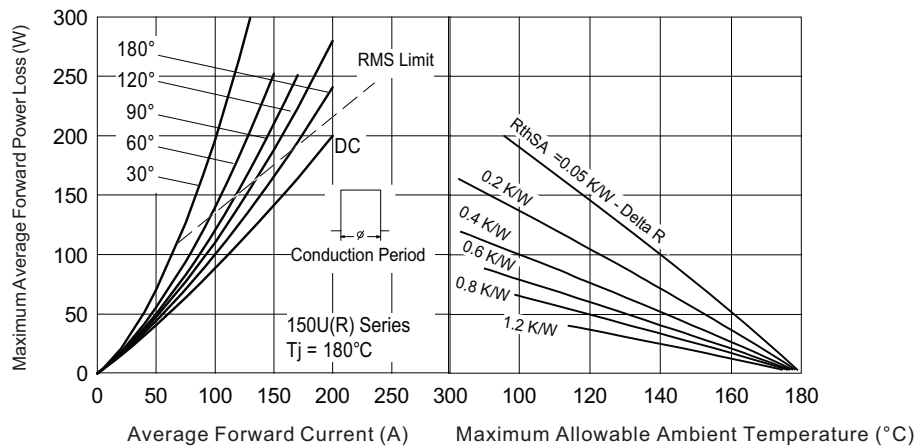


Fig. 4 - Forward Power Loss Characteristics

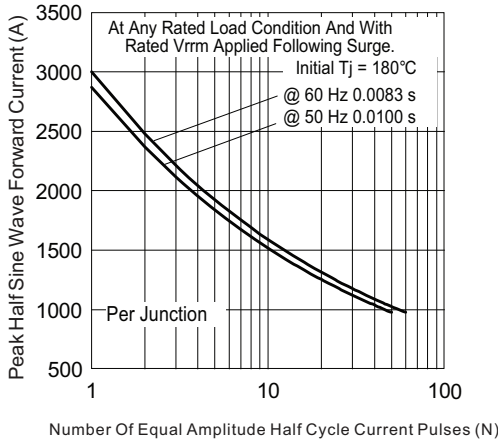


Fig. 5 - Maximum Non-Repetitive Surge Current

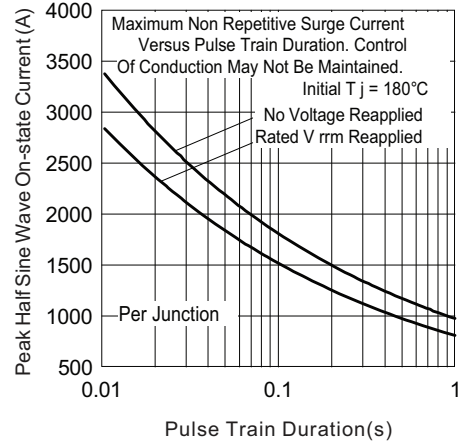


Fig. 6 - Maximum Non-Repetitive Surge Current

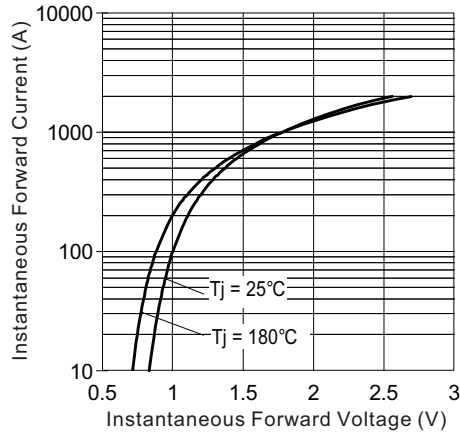


Fig. 7 - Forward Voltage Drop Characteristics

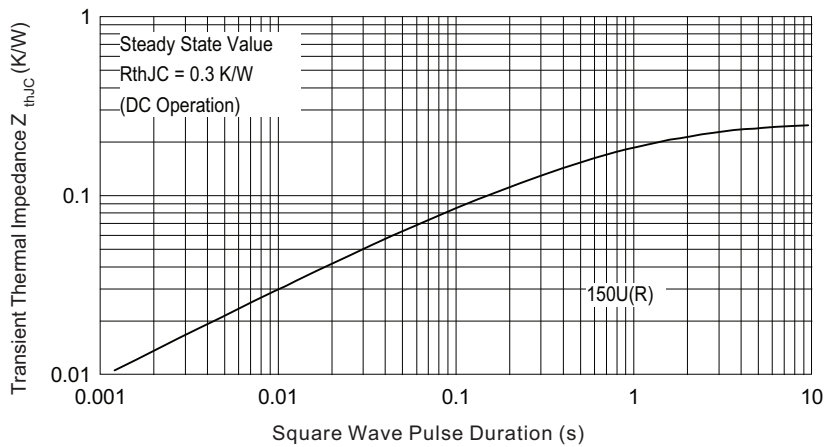
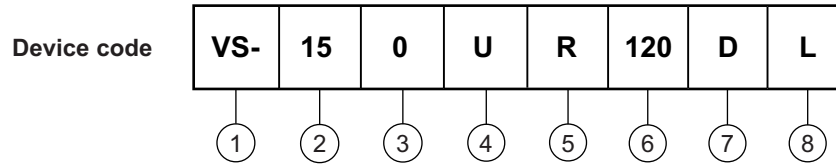


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic



ORDERING INFORMATION TABLE



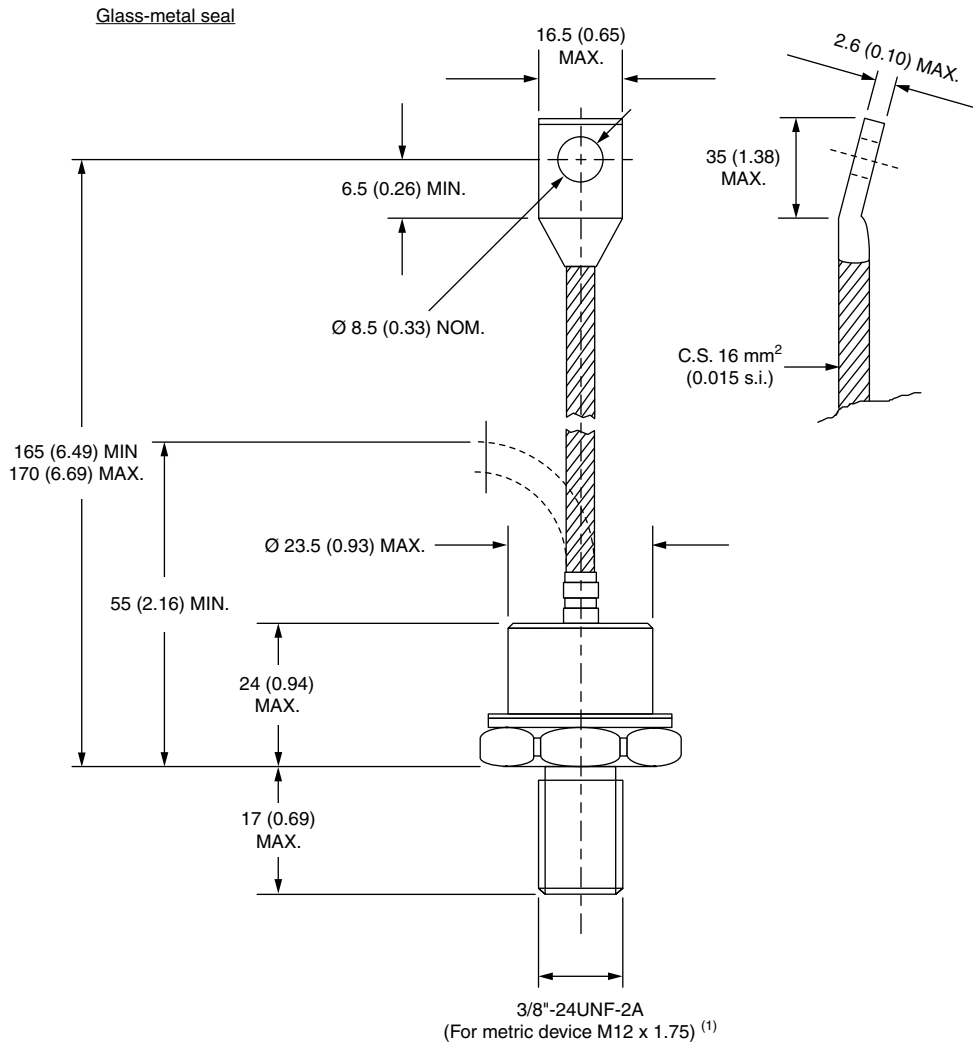
- 1** - Vishay Semiconductors product
- 2** - 15 = Essential part number
- 3** - 0 = Standard device
- 4** - U = Stud normal polarity (cathode to stud)
- 5** - None = Stud normal polarity (cathode to stud)
R = Stud reverse polarity (anode to stud)
- 6** - Voltage code x 10 = V_{RRM} (see Voltage Ratings table)
- 7** - Diffused diode
- 8** - L = Stud base 1/2"-20UNF-2A threads
None = Stud base 3/8"-24UNF-2A threads

Note: For metric device M12 x 1.75 contact factory

| LINKS TO RELATED DOCUMENTS | |
|----------------------------|--|
| Dimensions | www.vishay.com/doc?95315 |

DO-205AA (DO-8) for 150U(R) Series

DIMENSIONS in millimeters (inches)



Note

⁽¹⁾ For stud base 1/2"-20UNF-2A threads; refer to "Ordering Information Table"



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- Техническая поддержка проекта;
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