

Standard Recovery Diodes (Stud Version), 150 A



DO-205AA (DO-8)

FEATURES

- Alloy diode
- High current carrying capability
- High surge current capabilities
- Stud cathode and stud anode version
- RoHS compliant
- Designed and qualified for industrial level



RoHS
COMPLIANT

TYPICAL APPLICATIONS

- Battery chargers
- Welders
- Machine tool controls
- High power drives
- Medium traction applications
- Freewheeling diodes

PRODUCT SUMMARY

| | |
|-------------|-------|
| $I_{F(AV)}$ | 150 A |
|-------------|-------|

MAJOR RATINGS AND CHARACTERISTICS

| PARAMETER | TEST CONDITIONS | VALUES | UNITS |
|--------------|-----------------|-------------|-------------------|
| $I_{F(AV)}$ | | 150 | A |
| | T_C | 150 | °C |
| $I_{F(RMS)}$ | | 235 | A |
| I_{FSM} | 50 Hz | 3570 | A |
| | 60 Hz | 3740 | |
| I^2t | 50 Hz | 64 | kA ² s |
| | 60 Hz | 58 | |
| V_{RRM} | Range | 100 to 600 | V |
| T_J | | - 40 to 200 | °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 $T_J = 175$ °C mA |
|-------------------------------|--------------|--|--|---|
| 45L(R) 150K(R) 150KS(R) | 10 | 100 | 200 | 35 |
| | 20 | 200 | 300 | |
| | 30 | 300 | 400 | |
| | 40 | 400 | 500 | |
| | 60 | 600 | 720 | |

45L(R), 150K(R), 150KS(R) Series



Vishay High Power Products Standard Recovery Diodes
(Stud Version), 150 A

| 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 | |
| | | | | 150 | °C | |
| Maximum RMS forward current | $I_{F(RMS)}$ | DC at 142 °C case temperature | | 235 | A | |
| Maximum peak, one cycle forward, non-repetitive surge current | I_{FSM} | t = 10 ms | No voltage reapplied | 3570 | | |
| | | t = 8.3 ms | | 3740 | | |
| | | t = 10 ms | 100 % V_{RRM} reapplied | 3000 | | |
| | | t = 8.3 ms | | 3140 | | |
| Maximum I^2t for fusing | I^2t | t = 10 ms | No voltage reapplied | 64 | | kA ² s |
| | | t = 8.3 ms | | 58 | | |
| | | t = 10 ms | 100 % V_{RRM} reapplied | 45 | | |
| | | t = 8.3 ms | | 41 | | |
| Maximum $I^2\sqrt{t}$ for fusing | $I^2\sqrt{t}$ | t = 0.1 to 10 ms, no voltage reapplied | | 640 | kA ² √s | |
| Low level value of threshold voltage | $V_{F(TO)1}$ | (16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$), $T_J = T_J$ maximum | | 0.67 | V | |
| High level value of threshold voltage | $V_{F(TO)2}$ | (I > $\pi \times I_{F(AV)}$), $T_J = T_J$ maximum | | 0.83 | | |
| Low level value of forward slope resistance | r_{f1} | (16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$), $T_J = T_J$ maximum | | 1.42 | mΩ | |
| High level value of forward slope resistance | r_{f2} | (I > $\pi \times I_{F(AV)}$), $T_J = T_J$ maximum | | 0.91 | | |
| Maximum forward voltage drop | V_{FM} | $I_{pk} = 471$ A, $T_J = 25$ °C, $t_p = 10$ ms sinusoidal wave | | 1.33 | V | |

| THERMAL AND MECHANICAL SPECIFICATIONS | | | | | |
|--|----------------|---|-----|------------------|---------------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES | UNITS |
| Maximum junction operating and storage temperature range | T_J, T_{Stg} | | | - 40 to 200 | °C |
| Maximum thermal resistance, junction to case | R_{thJC} | DC operation | | 0.25 | K/W |
| Maximum thermal resistance, case to heatsink | R_{thCS} | Mounting surface, smooth, flat and greased | | 0.10 | |
| Mounting torque 45L | minimum | Not lubricated threads | | 14.1 (125) | N · m (lbf · in) |
| | maximum | | | 17.0 (150) | |
| | minimum | Lubricated threads | | 12.2 (108) | |
| | maximum | | | 15.0 (132) | |
| Mounting torque 150K 150KS | minimum | Not lubricated threads | | 11.3 (100) | N · m (lbf · in) |
| | maximum | | | 14.1 (125) | |
| | minimum | Lubricated threads | | 9.5 (85) | |
| | maximum | | | 12.5 (110) | |
| Approximate weight | | | 100 | g | |
| | | | 3.5 | oz. | |
| Case style | 45L | See dimensions - link at the end of datasheet | | DO-205AC (DO-30) | |
| | 150K-A | | | DO-205AA (DO-8) | |
| | 150KS | | | B-42 | |



45L(R), 150K(R), 150KS(R) Series

Standard Recovery Diodes Vishay High Power Products
(Stud Version), 150 A

| ΔR_{thJC} CONDUCTION | | | | |
|------------------------------|-----------------------|------------------------|-------------------------------|-------|
| CONDUCTION ANGLE | SINUSOIDAL CONDUCTION | RECTANGULAR CONDUCTION | TEST CONDITIONS | UNITS |
| 180° | 0.031 | 0.023 | $T_J = T_{J \text{ maximum}}$ | 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

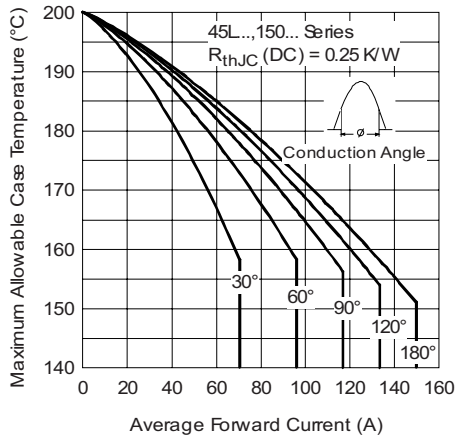


Fig. 1 - Current Ratings Characteristics

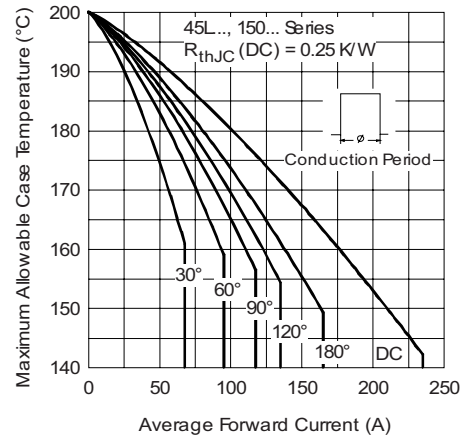


Fig. 2 - Current Ratings Characteristics

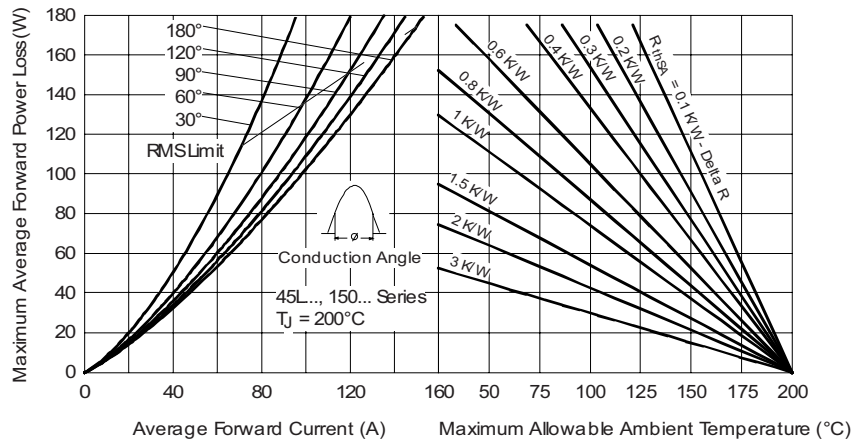


Fig. 3 - Forward Power Loss Characteristics

45L(R), 150K(R), 150KS(R) Series



Vishay High Power Products Standard Recovery Diodes
(Stud Version), 150 A

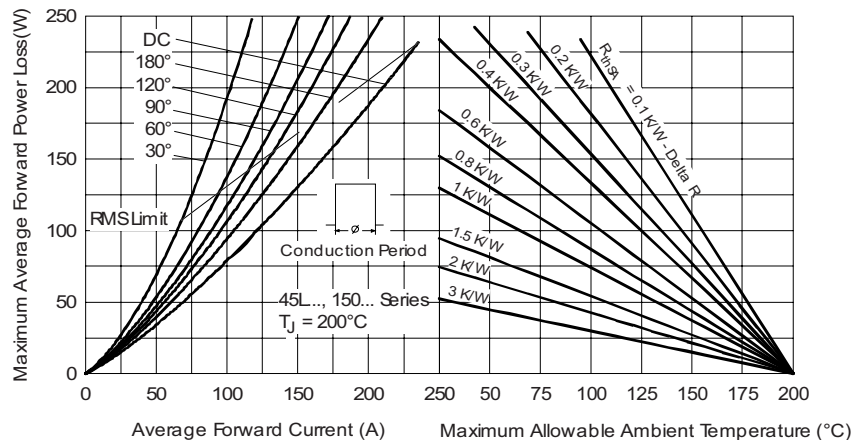


Fig. 4 - Forward Power Loss Characteristics

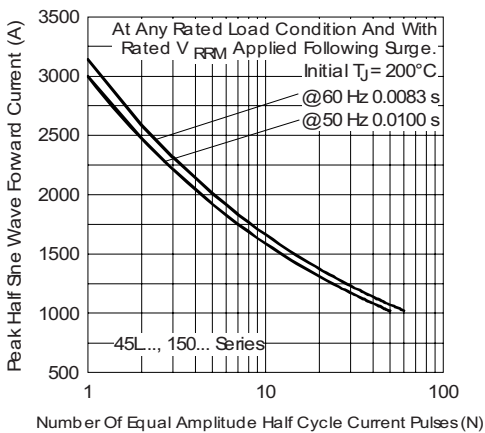


Fig. 5 - Maximum Non-Repetitive Surge Current

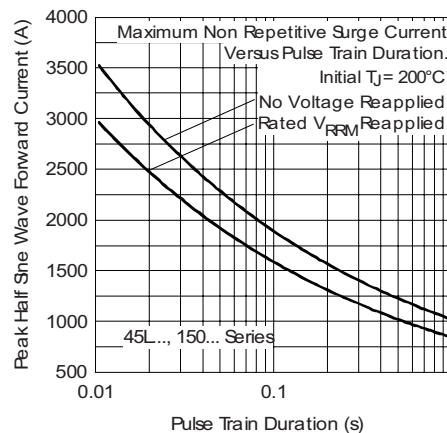


Fig. 6 - Maximum Non-Repetitive Surge Current

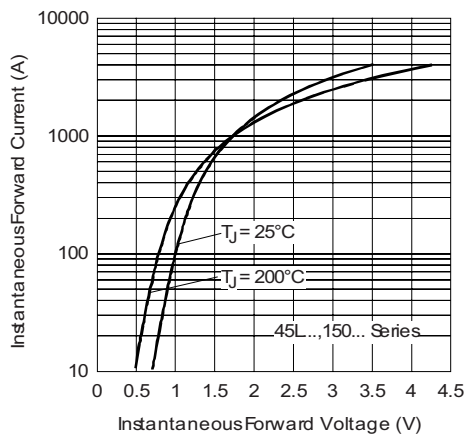


Fig. 7 - Forward Voltage Drop Characteristics



45L(R), 150K(R), 150KS(R) Series

Standard Recovery Diodes Vishay High Power Products
(Stud Version), 150 A

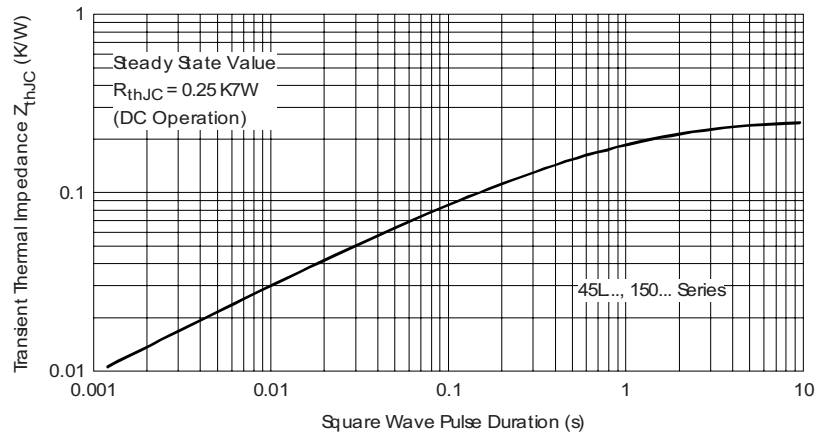


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLES

| | | | | |
|-------------|--|----------|----------|-----------|
| Device code | 45 | L | R | 60 |
| | ① | ② | ③ | ④ |
| 1 | - 45 = Standard version | | | |
| 2 | - L = Essential part number | | | |
| 3 | - R = Stud reverse polarity (anode to stud) None = Stud normal polarity (cathode to stud) | | | |
| 4 | - Voltage code x 10 = V_{RRM} (see Voltage Ratings table) | | | |

| | | | | | | |
|-------------|--|----------|----------|----------|-----------|----------|
| Device code | 15 | 0 | K | R | 60 | A |
| | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 1 | - 15 = Essential part number | | | | | |
| 2 | - 0 = Standard device | | | | | |
| 3 | - Case style: K = DO-205AA (DO-8) KS = B-42 | | | | | |
| 4 | - R = Stud reverse polarity (anode to stud) None = Stud normal polarity (cathode to stud) | | | | | |
| 5 | - Voltage code x 10 = V_{RRM} (see Voltage Ratings table) | | | | | |
| 6 | - A = Essential part number for 150K (omitted for 150KS) | | | | | |

Note: For metric device M12 x 1.75 contact factory

| LINKS TO RELATED DOCUMENTS | |
|----------------------------|---|
| Dimensions | http://www.vishay.com/doc?95314 |



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.