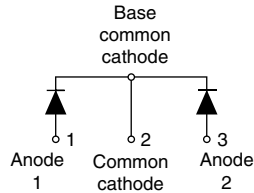
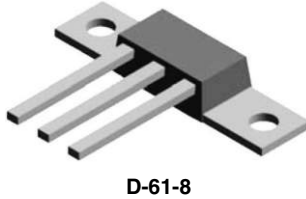
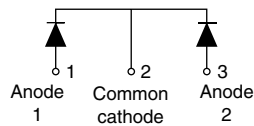
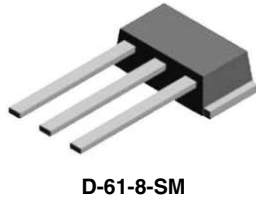
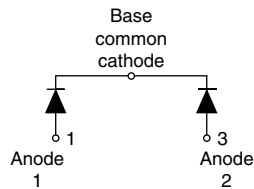


## Schottky Rectifier

### New Generation 3 D-61 Package, 2 x 55 A

**115CNQ015A**

**115CNQ015ASM**

**115CNQ015ASL**

**FEATURES**

- 125 °C  $T_J$  operation ( $V_R < 5$  V)
- Center tap module
- Optimized for OR-ing applications
- Ultralow forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- New fully transfer-mold low profile, small footprint, high current package
- Designed and qualified for industrial level

**DESCRIPTION**

The 115CNQ015A center tap Schottky rectifier module has been optimized for ultra low forward voltage drop specifically for the OR-ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to 125 °C junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

**PRODUCT SUMMARY**

|                         |          |
|-------------------------|----------|
| $I_{F(AV)}$             | 2 x 55 A |
| $V_R$ at $T_J = 100$ °C | 15 V     |

**MAJOR RATINGS AND CHARACTERISTICS**

| SYMBOL      | CHARACTERISTICS                 | VALUES      | UNITS |
|-------------|---------------------------------|-------------|-------|
| $I_{F(AV)}$ | Rectangular waveform            | 110         | A     |
| $V_{RRM}$   |                                 | 15          | V     |
| $I_{FSM}$   | $t_p = 5$ $\mu$ s sine          | 5050        | A     |
| $V_F$       | 55 Apk, $T_J = 75$ °C (per leg) | 0.33        | V     |
| $T_J$       | Range                           | - 55 to 125 | °C    |

**VOLTAGE RATINGS**

| PARAMETER                  | SYMBOL | TEST CONDITIONS | 115CNQ015A | UNITS |
|----------------------------|--------|-----------------|------------|-------|
| Maximum DC reverse voltage | $V_R$  | $T_J = 100$ °C  | 15         | V     |
|                            |        | $T_J = 125$ °C  | 5          |       |

| ABSOLUTE MAXIMUM RATINGS  |             |   |   |         |       |
|---|-------------|---|---|---------|-------|
| PARAMETER   | SYMBOL      | TEST CONDITIONS   |   | VALUES  | UNITS |
| Maximum average forward current<br>See fig. 5                             | $I_{F(AV)}$ | 50 % duty cycle at $T_C = 112\text{ }^\circ\text{C}$ , rectangular waveform   |   | 55      | A     |
|   |             |   |   | per leg |       |
| Maximum peak one cycle non-repetitive surge current per leg<br>See fig. 7 | $I_{FSM}$   | 5 $\mu\text{s}$ sine or 3 $\mu\text{s}$ rect. pulse   | Following any rated load condition and with rated $V_{RRM}$ applied | 5050    | A     |
|   |             | 10 ms sine or 6 ms rect. pulse  |   | 830     |       |
| Non-repetitive avalanche energy per leg                                   | $E_{AS}$    | $T_J = 25\text{ }^\circ\text{C}$ , $I_{AS} = 2\text{ A}$ , $L = 4.5\text{ mH}$  |   | 54      | mJ    |
| Repetitive avalanche current per leg                                      | $I_{AR}$    | Current decaying linearly to zero in 1 $\mu\text{s}$<br>Frequency limited by $T_J$ maximum $V_A = 3 \times V_R$ typical |   | 2       | A     |

| ELECTRICAL SPECIFICATIONS                             |                |   |                                  |        |                  |
|---|----------------|---|----------------------------------|--------|------------------|
| PARAMETER   | SYMBOL         | TEST CONDITIONS   |                                  | VALUES | UNITS            |
| Maximum forward voltage drop per leg<br>See fig. 1    | $V_{FM}^{(1)}$ | 55 A  | $T_J = 25\text{ }^\circ\text{C}$ | 0.37   | V                |
|   |                | 110 A   |                                  | 0.46   |                  |
|   |                | 55 A  | $T_J = 75\text{ }^\circ\text{C}$ | 0.33   |                  |
|   |                | 110 A   |                                  | 0.43   |                  |
| Maximum reverse leakage current per leg<br>See fig. 2 | $I_{RM}^{(1)}$ | $T_J = 25\text{ }^\circ\text{C}$  | $V_R = \text{Rated } V_R$        | 20     | mA               |
|   |                | $T_J = 100\text{ }^\circ\text{C}$   |                                  | 1200   |                  |
|   |                | $T_J = 100\text{ }^\circ\text{C}$   | $V_R = 12\text{ V}$              | 900    |                  |
|   |                | $T_J = 100\text{ }^\circ\text{C}$   | $V_R = 5\text{ V}$               | 540    |                  |
| Maximum junction capacitance per leg                  | $C_T$          | $V_R = 5\text{ V}_{DC}$ (test signal range 100 kHz to 1 MHz) $25\text{ }^\circ\text{C}$ |                                  | 5500   | pF               |
| Typical series inductance per leg                     | $L_S$          | Measured lead to lead 5 mm from package body  |                                  | 5.5    | nH               |
| Maximum voltage rate of change                        | dV/dt          | Rated $V_R$   |                                  | 10 000 | V/ $\mu\text{s}$ |

**Note**

(1) Pulse width < 300  $\mu\text{s}$ , duty cycle < 2 %

| THERMAL - MECHANICAL SPECIFICATIONS                        |            |   |  |              |                    |
|--|------------|---|--|--------------|--------------------|
| PARAMETER  | SYMBOL     | TEST CONDITIONS   |  | VALUES       | UNITS              |
| Maximum junction temperature range                         | $T_J$      |   |  | - 55 to 125  | $^\circ\text{C}$   |
| Maximum storage temperature range                          | $T_{Stg}$  |   |  | - 55 to 150  |                    |
| Maximum thermal resistance, junction to case per leg       | $R_{thJC}$ | DC operation<br>See fig. 4  |  | 0.5          | $^\circ\text{C/W}$ |
| Maximum thermal resistance, junction to case per package   |            | DC operation  |  | 0.25         |                    |
| Typical thermal resistance, case to heatsink (D-61-8 only) | $R_{thCS}$ | Mounting surface, smooth and greased<br>Device flatness < 5 mills |  | 0.30         |                    |
| Approximate weight   |            |   |  | 7.8          | g                  |
|  |            |   |  | 0.28         | oz.                |
| Mounting torque (D-61-8 only)                              | minimum    |   |  | 40 (35)      | kgf · cm           |
|  | maximum    |   |  | 58 (50)      | (lbf · in)         |
| Marking device   |            | Case style D-61-8   |  | 115CNQ015A   |                    |
|  |            | Case style D-61-8-SM  |  | 115CNQ015ASM |                    |
|  |            | Case style D-61-8-SL  |  | 115CNQ015ASL |                    |

Schottky Rectifier  
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D-61 Package, 2 x 55 A

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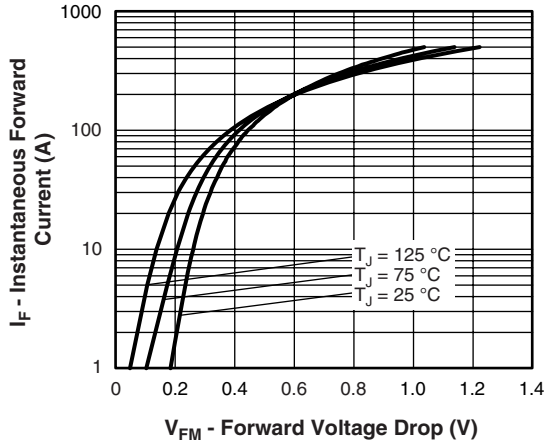


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

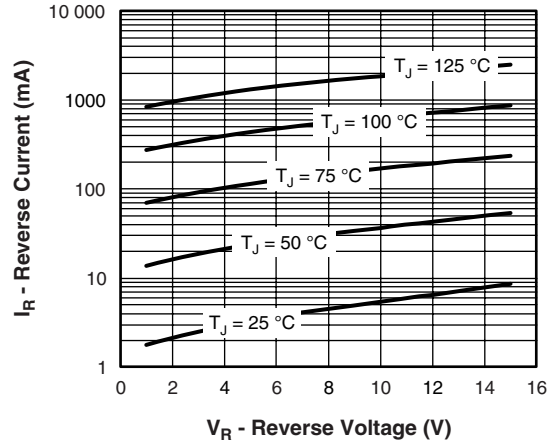


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

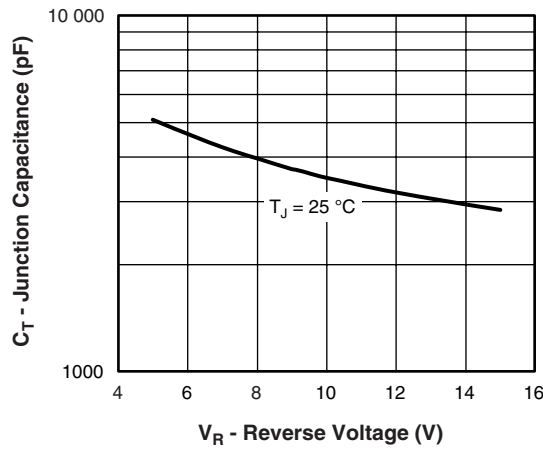


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

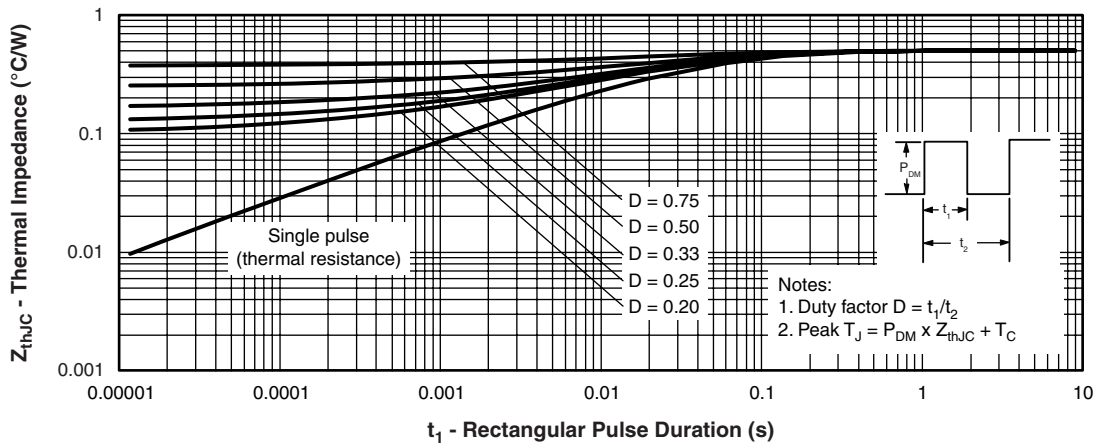


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)

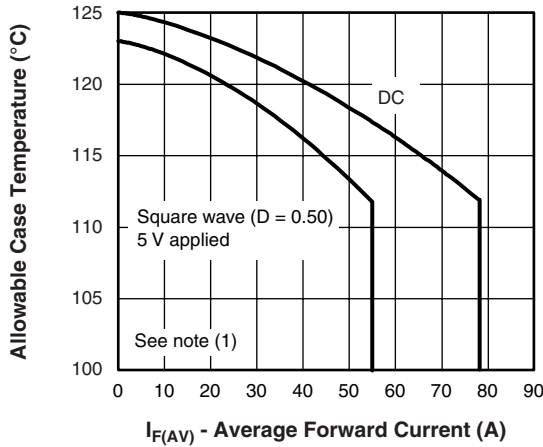


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

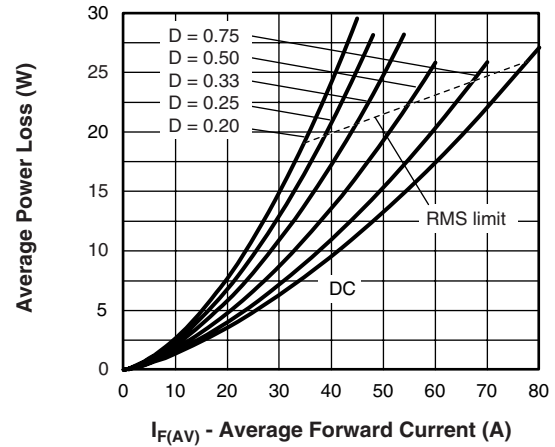


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

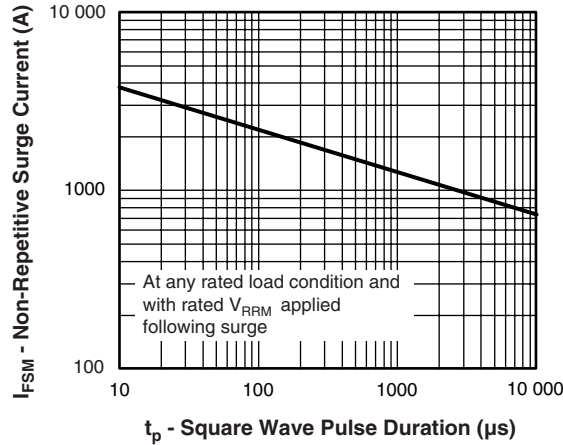


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

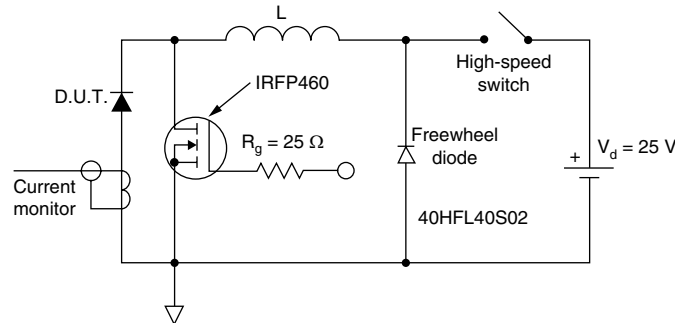


Fig. 8 - Unclamped Inductive Test Circuit

**Note**

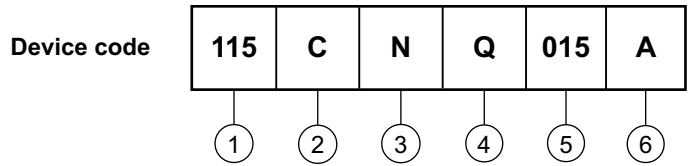
- (1) Formula used:  $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$ ;
- $P_d$  = Forward power loss =  $I_{F(AV)} \times V_{FM}$  at  $(I_{F(AV)}/D)$  (see fig. 6);
- $P_{d_{REV}}$  = Inverse power loss =  $V_{R1} \times I_R (1 - D)$ ;  $I_R$  at  $V_{R1} = 5 V$



Schottky Rectifier  
New Generation 3  
D-61 Package, 2 x 55 A

Vishay High Power Products

**ORDERING INFORMATION TABLE**



- 1** - Current rating (110 A)
- 2** - Circuit configuration:
  - C = Common cathode
- 3** - Package:
  - N = D-61
- 4** - Schottky "Q" series
- 5** - Voltage rating (015 = 15 V)
- 6** - Package style:
  - A = D-61-8
  - ASM = D-61-8-SM
  - ASL = D-61-8-SL

Standard pack quantity: A = 10 pieces; ASM/ASL = 20 pieces

| LINKS TO RELATED DOCUMENTS |   |
|----------------------------|---|
| Dimensions                 | <a href="http://www.vishay.com/doc?95354">http://www.vishay.com/doc?95354</a> |
| Part marking information   | <a href="http://www.vishay.com/doc?95356">http://www.vishay.com/doc?95356</a> |



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