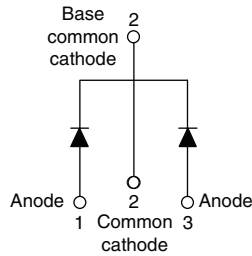


## Schottky Rectifier, 2 x 15 A


**TO-220AB**


### FEATURES

- 150 °C  $T_J$  operation
- Center tap configuration
- Very low forward voltage drop
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability
- Designed and qualified for industrial level

### DESCRIPTION

This center tap Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150 °C junction temperature. Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.

### PRODUCT SUMMARY

|             |          |
|-------------|----------|
| $I_{F(AV)}$ | 2 x 15 A |
| $V_R$       | 30 V     |

### MAJOR RATINGS AND CHARACTERISTICS

| SYMBOL      | CHARACTERISTICS                  | VALUES      | UNITS |
|-------------|----------------------------------|-------------|-------|
| $I_{F(AV)}$ | Rectangular waveform             | 2 x 15      | A     |
| $V_{RRM}$   |                                  | 30          | V     |
| $V_F$       | 15 Apk, $T_J = 125$ °C (per leg) | 0.37        |       |
| $T_J$       | Range                            | - 55 to 150 | °C    |

### VOLTAGE RATINGS

| PARAMETER                            | SYMBOL    | 30L30CT | UNITS |
|--------------------------------------|-----------|---------|-------|
| Maximum DC reverse voltage           | $V_R$     | 30      | V     |
| Maximum working peak reverse voltage | $V_{RWM}$ |         |       |

### ABSOLUTE MAXIMUM RATINGS

| PARAMETER  | SYMBOL      | TEST CONDITIONS   | VALUES | UNITS |
|--|-------------|---|--------|-------|
| Maximum average forward current<br>per device<br>per leg | $I_{F(AV)}$ | 50 % duty cycle at $T_C = 140$ °C, rectangular waveform   | 30     | A     |
|  |             |   | 15     |       |
| Maximum peak one cycle non-repetitive surge current      | $I_{FSM}$   | 5 $\mu$ s sine or 3 $\mu$ s rect. pulse   | 1450   |       |
|  |             | 10 ms sine or 6 ms rect. pulse  | 220    |       |
| Non-repetitive avalanche energy per leg                  | $E_{AS}$    | $T_J = 25$ °C, $I_{AS} = 2$ A, $L = 7.5$ mH   | 15     | mJ    |
| Repetitive avalanche current per leg                     | $I_{AR}$    | Current decaying linearly to zero in 1 $\mu$ s<br>Frequency limited by $T_J$ maximum $V_A = 1.5 \times V_R$ typical | 2      | A     |

| ELECTRICAL SPECIFICATIONS               |                |   |                                   |        |            |
|---|----------------|---|-----------------------------------|--------|------------|
| PARAMETER                               | SYMBOL         | TEST CONDITIONS   |                                   | VALUES | UNITS      |
| Maximum forward voltage drop per leg    | $V_{FM}^{(1)}$ | 15 A  | $T_J = 25\text{ }^\circ\text{C}$  | 0.46   | V          |
|   |                | 30 A  |                                   | 0.57   |            |
|   |                | 15 A  | $T_J = 125\text{ }^\circ\text{C}$ | 0.37   |            |
|   |                | 30 A  |                                   | 0.50   |            |
| Maximum reverse leakage current per leg | $I_{RM}^{(1)}$ | $T_J = 25\text{ }^\circ\text{C}$                            | $V_R = \text{Rated } V_R$         | 1.50   | mA         |
|   |                | $T_J = 125\text{ }^\circ\text{C}$                           |                                   | 350    |            |
| Maximum junction capacitance per leg    | $C_T$          | $V_R = 5 V_{DC}$ (test signal range 100 kHz to 1 MHz) 25 °C |                                   | 1500   | pF         |
| Typical series inductance per leg       | $L_S$          | Measured lead to lead 5 mm from package body                |                                   | 8.0    | nH         |
| Maximum voltage rate of change          | dV/dt          | Rated $V_R$   |                                   | 10 000 | V/ $\mu$ s |

**Note**(1) Pulse width < 300  $\mu$ s, duty cycle < 2 %

| THERMAL - MECHANICAL SPECIFICATIONS                      |                |                     |  |             |                        |
|--|----------------|---------------------|--|-------------|------------------------|
| PARAMETER  | SYMBOL         | TEST CONDITIONS     |  | VALUES      | UNITS                  |
| Maximum junction and storage temperature range           | $T_J, T_{Stg}$ |                     |  | - 55 to 150 | $^\circ\text{C}$       |
| Maximum thermal resistance, junction to case per leg     | $R_{thJC}$     | DC operation        |  | 1.5         | $^\circ\text{C/W}$     |
| Maximum thermal resistance, junction to case per package |                |                     |  | 0.8         |                        |
| Approximate weight                                       |                |                     |  | 2.0         | g                      |
|  |                |                     |  | 0.07        | oz.                    |
| Mounting torque  | minimum        |                     |  | 6 (5)       | kgf · cm<br>(lbf · in) |
|  | maximum        |                     |  | 12 (10)     |                        |
| Marking device   |                | Case style TO-220AB |  | 30L30CT     |                        |

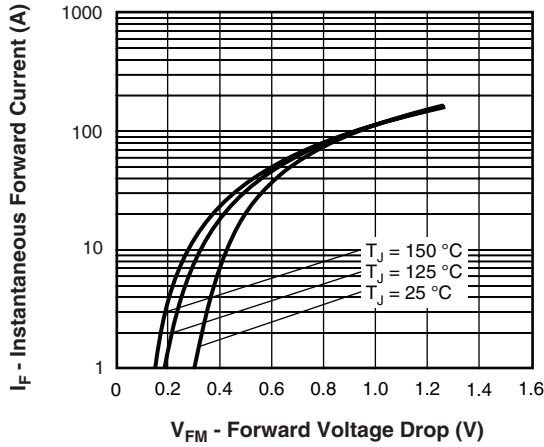


Fig. 1 - Maximum Forward Voltage Drop Characteristics

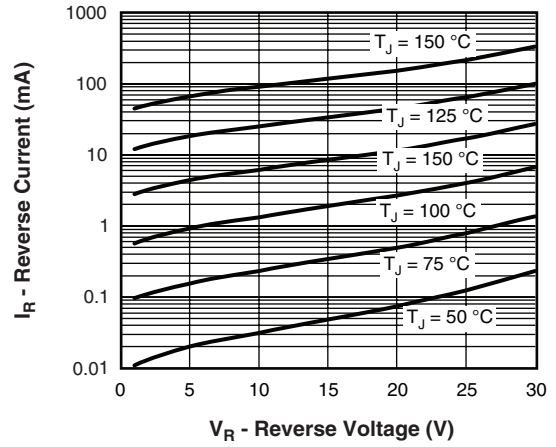


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

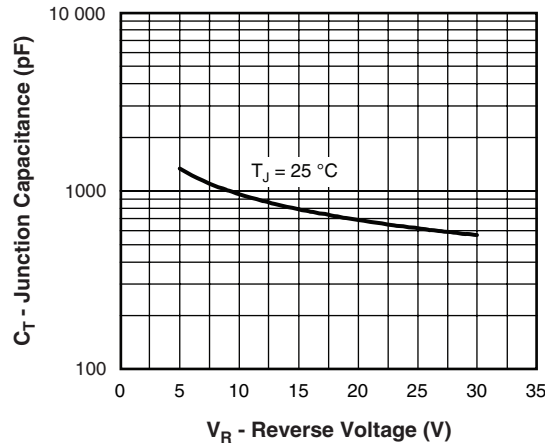
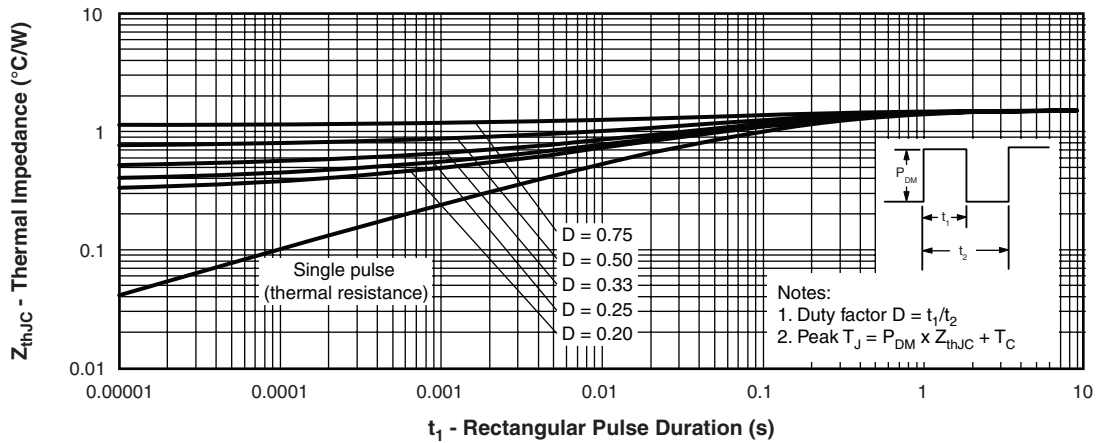


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage


 Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

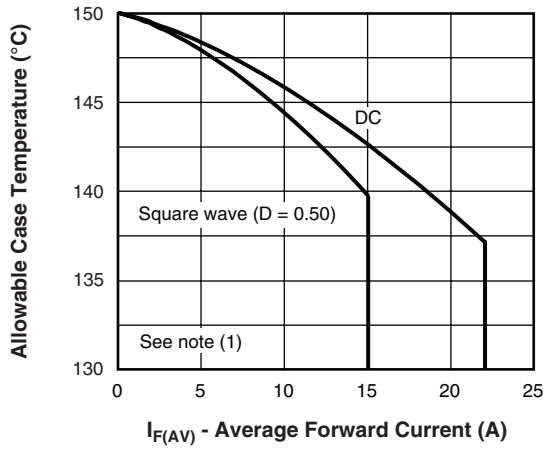


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

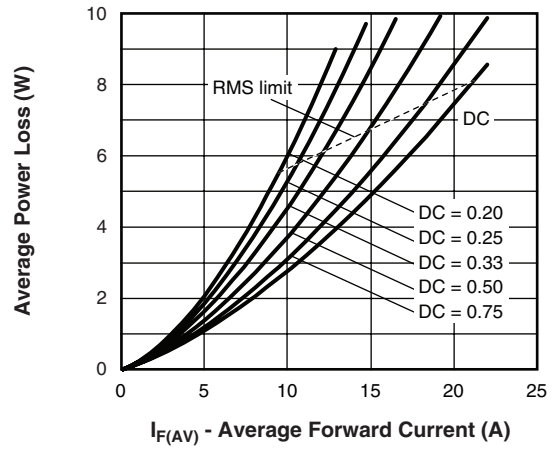


Fig. 6 - Forward Power Loss Characteristics

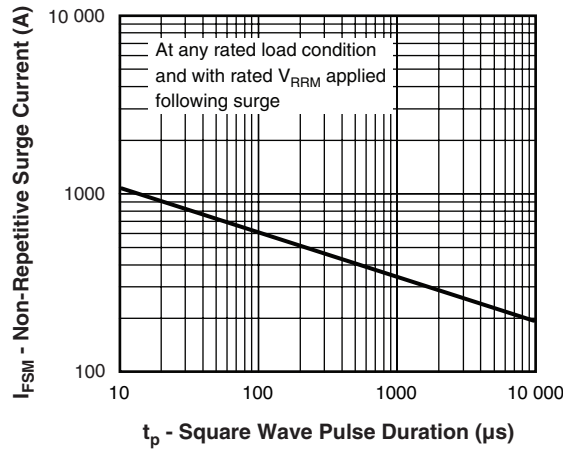


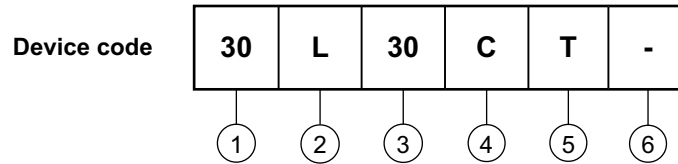
Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

**Note**

(1) Formula used:  $T_C = T_J - P_d \times R_{thJC}$   
 $P_d = \text{Forward power loss} = I_{F(AV)} \times V_{FM} \text{ at } (I_{F(AV)}/D)$  (see fig. 6)



**ORDERING INFORMATION TABLE**



- 1** - Current rating (30 = 30 A)
- 2** - Schottky "L" series
- 3** - Voltage rating (30 = 30 V)
- 4** - C = Common cathode
- 5** - Package:  
T = TO-220
- 6** -
  - None = Standard production
  - PbF = Lead (Pb)-free

Tube standard pack quantity: 50 pieces

| LINKS TO RELATED DOCUMENTS |   |
|----------------------------|---|
| Dimensions                 | <a href="http://www.vishay.com/doc?95222">http://www.vishay.com/doc?95222</a> |
| Part marking information   | <a href="http://www.vishay.com/doc?95225">http://www.vishay.com/doc?95225</a> |
| SPIICE model               | <a href="http://www.vishay.com/doc?95287">http://www.vishay.com/doc?95287</a> |



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