

# ANTREX Electronics

Electronic Components Sourcing Information

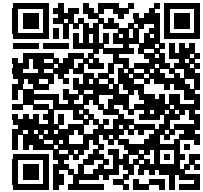
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## Product Reference Information

**Part Number:** V6WL45C-M3/I  
**Manufacturer:** Vishay General Semiconductor - Diodes Division  
**Package:** Tape & Reel (TR)  
**Availability:** Please confirm with sales

### Product Page:

<https://antrexco.com/product/details/vishay-general-semiconductor-diodes-division/v6wl45c-m3-i.html>



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Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

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### Note:

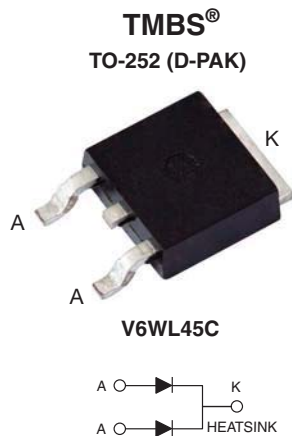
This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

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# Dual Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.34\text{ V}$  at  $I_F = 3\text{ A}$



## FEATURES

- Trench MOS Schottky technology
- Ideal for automated placement
- Low forward voltage drop, low power losses
- High efficiency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## TYPICAL APPLICATIONS

For use in high frequency DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, and reverse battery protection.

## MECHANICAL DATA

**Case:** TO-252 (D-PAK)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked

## PRIMARY CHARACTERISTICS

|                                                       |                |
|-------------------------------------------------------|----------------|
| $I_{F(AV)}$                                           | 2 x 3 A        |
| $V_{RRM}$                                             | 45 V           |
| $I_{FSM}$                                             | 80 A           |
| $V_F$ at $I_F = 3\text{ A}$ ( $T_A = 125\text{ °C}$ ) | 0.34 V         |
| $T_J$ max.                                            | 150 °C         |
| Package                                               | TO-252 (D-PAK) |
| Diode variation                                       | Single         |

## MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)

| PARAMETER                                                                                    | SYMBOL         | V6WL45C       | UNIT |
|----------------------------------------------------------------------------------------------|----------------|---------------|------|
| Maximum repetitive peak reverse voltage                                                      | $V_{RRM}$      | 45            | V    |
| Maximum average forward rectified current (fig. 1)                                           | $I_{F(AV)}$    | 6             | A    |
| per device                                                                                   |                | 3             |      |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$      | 80            | A    |
| Operating junction and storage temperature range                                             | $T_J, T_{STG}$ | - 40 to + 150 | °C   |

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                               | TEST CONDITIONS     | SYMBOL                              | TYP. | MAX. | UNIT          |
|-----------------------------------------|---------------------|-------------------------------------|------|------|---------------|
| Instantaneous forward voltage per diode | $I_F = 3\text{ A}$  | $T_A = 25\text{ }^{\circ}\text{C}$  | 0.43 | 0.52 | V             |
|                                         |                     | $T_A = 125\text{ }^{\circ}\text{C}$ | 0.34 | 0.43 |               |
| Reverse current per diode               | $V_R = 45\text{ V}$ | $T_A = 25\text{ }^{\circ}\text{C}$  | -    | 1000 | $\mu\text{A}$ |
|                                         |                     | $T_A = 125\text{ }^{\circ}\text{C}$ | 8    | 15   | mA            |

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle  
(2) Pulse test: Pulse width  $\leq 5\text{ ms}$

**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                  | SYMBOL     | V6WL45C                  | UNIT                 |
|----------------------------|------------|--------------------------|----------------------|
| Typical thermal resistance | per diode  | $R_{\theta JC}$          | $^{\circ}\text{C/W}$ |
|                            | per device |                          |                      |
|                            | per device | $R_{\theta JA}^{(1)(2)}$ |                      |
|                            |            | 3.6                      |                      |
|                            |            | 1.8                      |                      |
|                            |            | 65                       |                      |

**Notes**

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient:  $dP_D/dT_J < 1/R_{\theta JA}$   
(2) Free air, without heatsink

**ORDERING INFORMATION** (Example)

| PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
|---------------|-----------------|--------------|---------------|------------------------------------|
| V6WL45C-M3/I  | 0.38            | I            | 2500/reel     | 13" diameter plastic tape and reel |

**RATINGS AND CHARACTERISTICS CURVES**

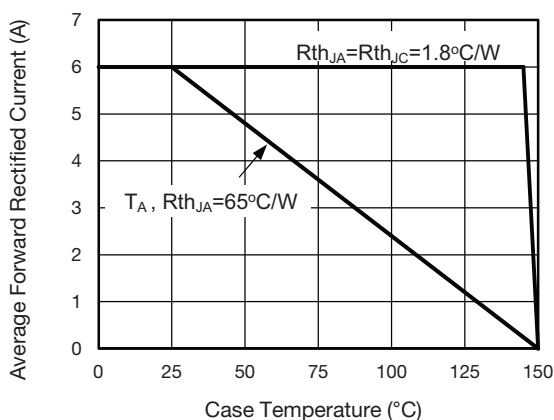
( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

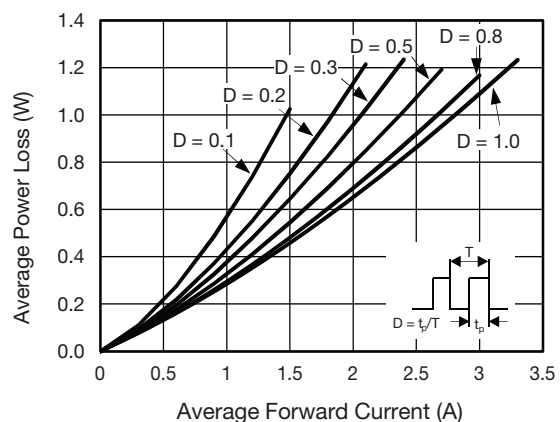


Fig. 2 - Forward Power Loss Characteristics Per Diode

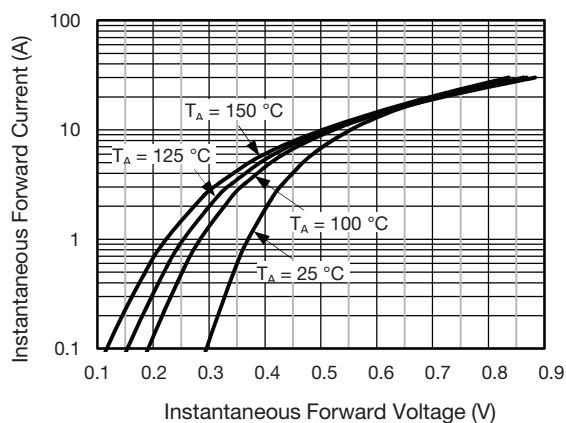


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

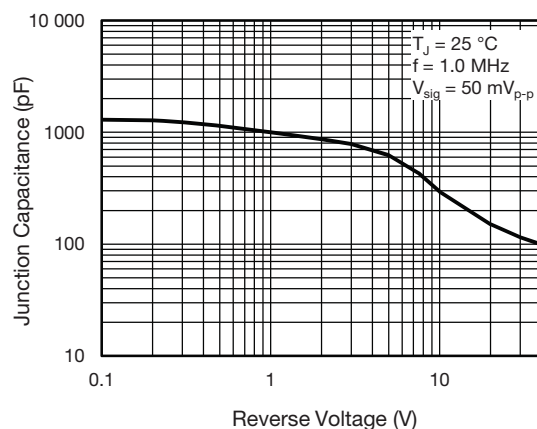


Fig. 5 - Typical Junction Capacitance Per Diode

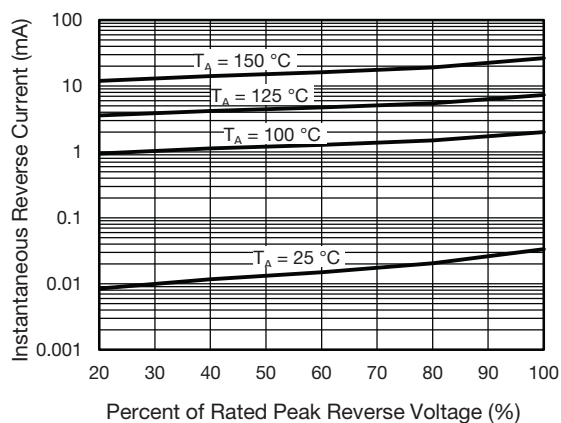


Fig. 4 - Typical Reverse Characteristics Per Diode

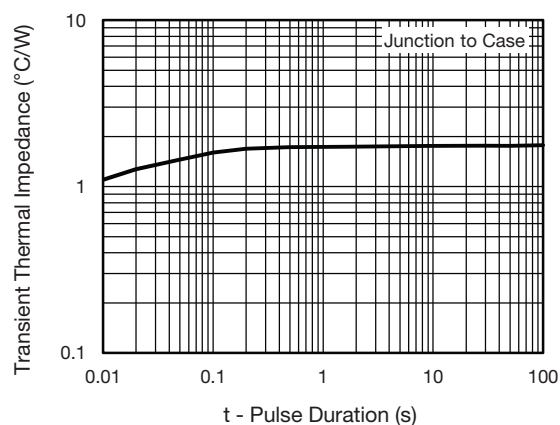
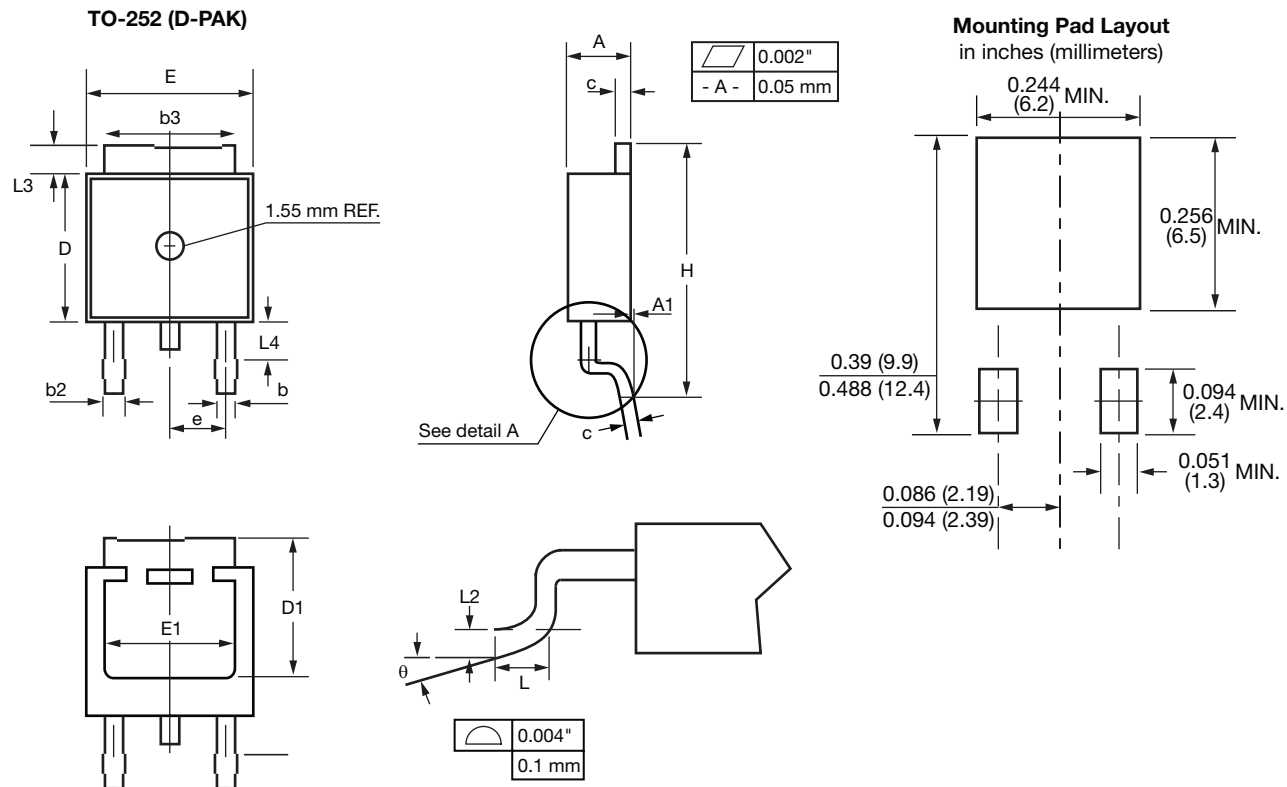


Fig. 6 - Typical Transient Thermal Impedance Per Device


**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)


| SYMBOL | INCHES     |       | MILLIMETERS |       |
|--------|------------|-------|-------------|-------|
|        | MIN.       | MAX.  | MIN.        | MAX.  |
| A      | 0.086      | 0.094 | 2.19        | 2.38  |
| A1     | -          | 0.005 | -           | 0.13  |
| b      | 0.025      | 0.035 | 0.64        | 0.89  |
| b2     | 0.033      | 0.045 | 0.84        | 1.14  |
| b3     | 0.205      | 0.215 | 5.21        | 5.46  |
| c      | 0.018      | 0.024 | 0.46        | 0.61  |
| D      | 0.235      | 0.250 | 5.97        | 6.22  |
| D1     | 0.205      | -     | 5.21        | -     |
| E      | 0.250      | 0.265 | 6.35        | 6.73  |
| E1     | 0.190      | -     | 4.83        | -     |
| e      | 0.090 BSC. |       | 2.29 BSC.   |       |
| H      | 0.380      | 0.410 | 9.65        | 10.41 |
| L      | 0.055      | 0.070 | 1.40        | 1.78  |
| L2     | 0.020 BSC. |       | 0.51 BSC.   |       |
| L3     | 0.035      | 0.050 | 0.89        | 1.27  |
| L4     | 0.025      | 0.039 | 0.64        | 1.01  |
| θ      | 0°         | 8°    | 0°          | 8°    |

**Note**

- Conforms to JEDEC TO-252 variation AA except dimension "D"



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