



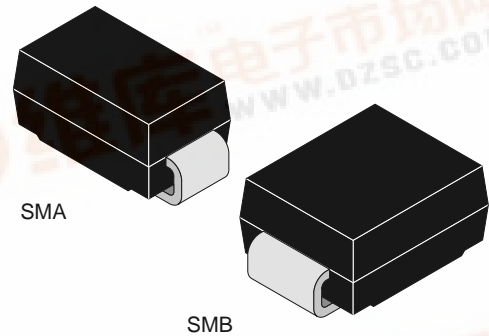
# ES2A/A–ES2D/A

Vishay Lite-On Power Semiconductor

## 2.0A Surface Mount Ultra-Fast Rectifier

### Features

- Glass passivated die construction
- Super-fast recovery time for high efficiency
- Low forward voltage drop, high current capability, and low power loss
- Surge overload rating to 50A peak
- Ideally suited for automated assembly
- Plastic material – UL Recognition flammability classification 94V-0



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### Absolute Maximum Ratings

$T_j = 25^\circ\text{C}$

| Parameter  | Test Conditions         | Type   | Symbol                              | Value      | Unit             |
|--|-------------------------|--------|-------------------------------------|------------|------------------|
| Repetitive peak reverse voltage<br>=Working peak reverse voltage<br>=DC Blocking voltage |                         | ES2A/A | $V_{RRM}$<br>= $V_{RWM}$<br>= $V_R$ | 50         | V                |
|  |                         | ES2B/A |                                     | 100        | V                |
|  |                         | ES2C/A |                                     | 150        | V                |
|  |                         | ES2D/A |                                     | 200        | V                |
| Peak forward surge current   |                         |        | $I_{FSM}$                           | 50         | A                |
| Average forward current  | $T_T=110^\circ\text{C}$ |        | $I_{FAV}$                           | 2.0        | A                |
| Junction and storage temperature range   |                         |        | $T_j=T_{stg}$                       | -65...+150 | $^\circ\text{C}$ |

### Electrical Characteristics

$T_j = 25^\circ\text{C}$

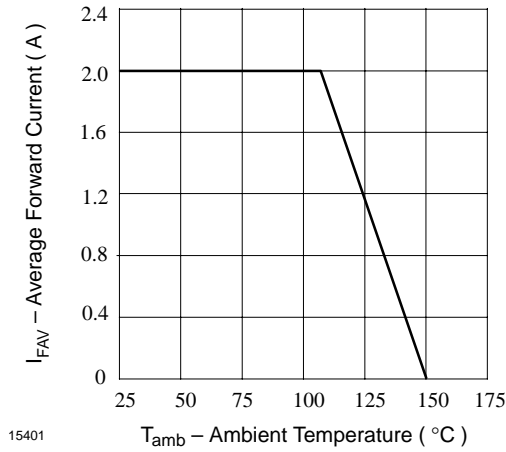
| Parameter                               | Test Conditions                                       | Type | Symbol     | Min | Typ | Max  | Unit          |
|---|---|------|------------|-----|-----|------|---------------|
| Forward voltage                         | $I_F=2\text{A}$                                       |      | $V_F$      |     |     | 0.90 | V             |
| Reverse current                         | $T_A=25^\circ\text{C}$                                |      | $I_R$      |     |     | 5.0  | $\mu\text{A}$ |
|   | $T_A=125^\circ\text{C}$                               |      | $I_R$      |     |     | 350  | $\mu\text{A}$ |
| Reverse recovery time                   | $I_F=1\text{A}, I_R=0.5\text{A}, I_{rr}=0.25\text{A}$ |      | $t_{rr}$   |     |     | 25   | ns            |
| Diode capacitance                       | $V_R=4\text{V}, f=1\text{MHz}$                        |      | $C_D$      |     | 25  |      | pF            |
| Thermal resistance junction to terminal | on PC board with 5.0mm <sup>2</sup>                   |      | $R_{thJT}$ |     | 20  |      | K/W           |

# ES2A/A-ES2D/A

Vishay Lite-On Power Semiconductor

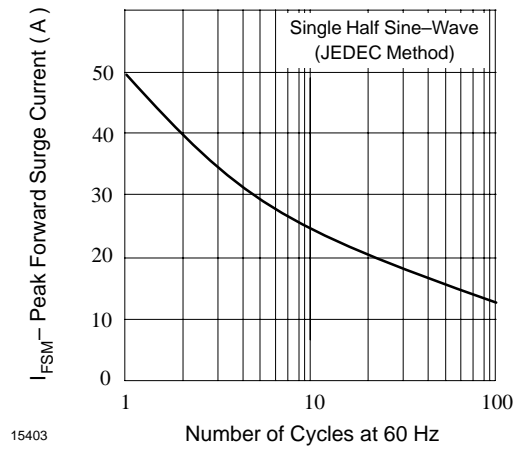


## Characteristics ( $T_j = 25^\circ\text{C}$ unless otherwise specified)



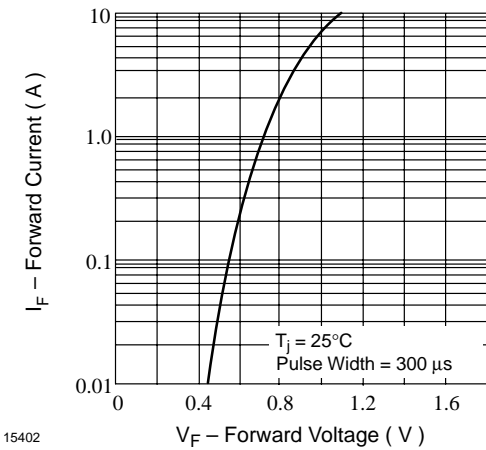
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Figure 1. Max. Average Forward Current vs. Ambient Temperature



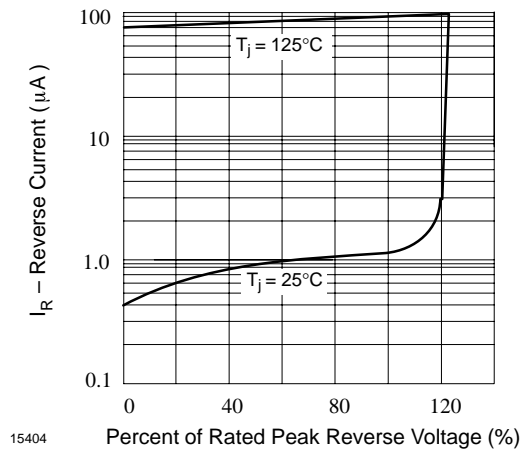
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Figure 3. Max. Peak Forward Surge Current vs. Number of Cycles



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Figure 2. Typ. Forward Current vs. Forward Voltage



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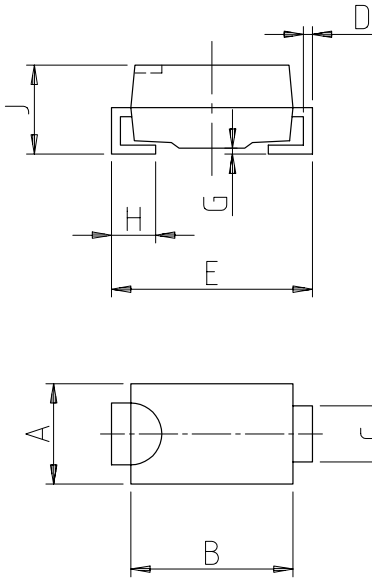
Figure 4. Typ. Reverse Current vs. Percent of Rated Peak Reverse Voltage



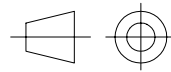
# ES2A/A-ES2D/A

## Vishay Lite-On Power Semiconductor

### Dimensions in mm



No Suffix Designates SMB Package  
 "A" Suffix Designates SMA Package



technical drawings  
 according to DIN  
 specifications

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| Dim                  | SMA  |      | SMB  |      |
|----------------------|------|------|------|------|
|                      | Min  | Max  | Min  | Max  |
| A                    | 2.29 | 2.92 | 3.30 | 3.94 |
| B                    | 4.00 | 4.60 | 4.06 | 4.57 |
| C                    | 1.27 | 1.63 | 1.96 | 2.21 |
| D                    | 0.15 | 0.31 | 0.15 | 0.31 |
| E                    | 4.80 | 5.59 | 5.00 | 5.59 |
| G                    | 0.10 | 0.20 | 0.10 | 0.20 |
| H                    | 0.76 | 1.52 | 0.76 | 1.52 |
| J                    | 2.01 | 2.62 | 2.00 | 2.62 |
| All Dimensions in mm |      |      |      |      |

Case: molded plastic  
 Polarity: cathode band or cathode notch  
 Approx. weight: SMA 0.064 grams, SMB 0.093 grams  
 Mounting position: any  
 Marking: type number



### Ozone Depleting Substances Policy Statement

It is the policy of **Vishay Semiconductor GmbH** to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

**Vishay Semiconductor GmbH** has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

**Vishay Semiconductor GmbH** can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

**We reserve the right to make changes to improve technical design and may do so without further notice.**

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use Vishay-Telefunken products for any unintended or unauthorized application, the buyer shall indemnify Vishay-Telefunken against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

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