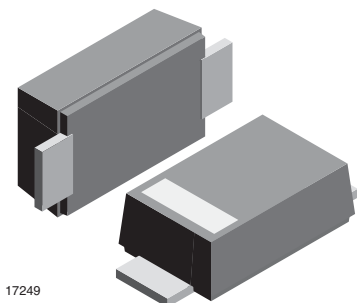




## Ultrafast Rectifier Surface Mount



## FEATURES

- For surface mounted applications
- Low profile package
- Ideal for automated placement
- Glass passivated pallet chip junction
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Meets JESD 201 class 2 whisker test
- Wave and reflow solderable
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc299912](http://www.vishay.com/doc299912)



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

## MECHANICAL DATA

**Case:** DO-219AB (SMF)

**Polarity:** band denotes cathode end

**Weight:** approx. 15 mg

## Packaging codes / options:

18/10K per 13" reel (8 mm tape)

08/3K per 7" reel (8 mm tape)

**Int. construction:** single

## PARTS TABLE

| PART    | ORDERING CODE            | MARKING | REMARKS       |
|---------|--------------------------|---------|---------------|
| ES07B-M | ES07B-M-18 or ES07B-M-08 | GB      | Tape and reel |
| ES07D-M | ES07D-M-18 or ES07D-M-08 | GD      | Tape and reel |

ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ °C}$ , unless otherwise specified)

| PARAMETER                                               | TEST CONDITION             | PART    | SYMBOL      | VALUE | UNIT |
|---------------------------------------------------------|----------------------------|---------|-------------|-------|------|
| Maximum repetitive peak reverse voltage                 |                            | ES07B-M | $V_{RRM}$   | 100   | V    |
|                                                         |                            | ES07D-M | $V_{RRM}$   | 200   | V    |
| Maximum RMS voltage                                     |                            | ES07B-M | $V_{RMS}$   | 70    | V    |
|                                                         |                            | ES07D-M | $V_{RMS}$   | 140   | V    |
| Maximum DC blocking voltage                             |                            | ES07B-M | $V_{DC}$    | 100   | V    |
|                                                         |                            | ES07D-M | $V_{DC}$    | 200   | V    |
| Maximum average forward rectified current               | $T_{tp} = 109\text{ °C}$   |         | $I_{F(AV)}$ | 1.2   | A    |
|                                                         | $T_A = 65\text{ °C}^{(1)}$ |         | $I_{F(AV)}$ | 0.5   | A    |
| Peak forward surge current 8.3 ms single half sine-wave | $T_L = 25\text{ °C}$       |         | $I_{FSM}$   | 30    | A    |

## Note

<sup>(1)</sup> Mounted on epoxy glass PCB with 3 mm x 3 mm Cu pads ( $\geq 40\text{ }\mu\text{m}$  thick)

THERMAL CHARACTERISTICS ( $T_{amb} = 25\text{ °C}$ , unless otherwise specified)

| PARAMETER                                                 | TEST CONDITION | SYMBOL         | VALUE      | UNIT |
|-----------------------------------------------------------|----------------|----------------|------------|------|
| Thermal resistance junction to ambient air <sup>(1)</sup> |                | $R_{thJA}$     | 180        | K/W  |
| Operating junction and storage temperature range          |                | $T_j, T_{stg}$ | -55 to 150 | °C   |

## Note

<sup>(1)</sup> Mounted on epoxy glass PCB with 3 mm x 3 mm Cu pads ( $\geq 40\text{ }\mu\text{m}$  thick)



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |                                                                         |         |          |      |      |      |               |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|---------|----------|------|------|------|---------------|
| PARAMETER                                                                                                | TEST CONDITION                                                          | PART    | SYMBOL   | MIN. | TYP. | MAX. | UNIT          |
| Instantaneous forward voltage                                                                            | $I_F = 1\text{ A}$ <sup>(1)</sup>                                       | ES07B-M | $V_F$    |      |      | 0.98 | V             |
|                                                                                                          |                                                                         | ES07D-M | $V_F$    |      |      | 0.98 | V             |
| Maximum DC reverse current at rated DC blocking voltage                                                  | $T_A = 25\text{ }^{\circ}\text{C}$                                      | ES07B-M | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                                                                          |                                                                         | ES07D-M | $I_R$    |      |      | 10   | $\mu\text{A}$ |
|                                                                                                          | $T_A = 100\text{ }^{\circ}\text{C}$                                     | ES07B-M | $I_R$    |      |      | 50   | $\mu\text{A}$ |
|                                                                                                          |                                                                         | ES07D-M | $I_R$    |      |      | 50   | $\mu\text{A}$ |
| Reverse recovery time                                                                                    | $I_F = 0.5\text{ A}$ , $I_R = 1\text{ A}$ ,<br>$t_{rr} = 0.25\text{ A}$ | ES07B-M | $t_{rr}$ |      |      | 25   | ns            |
|                                                                                                          |                                                                         | ES07D-M | $t_{rr}$ |      |      | 25   | ns            |
| Typical capacitance                                                                                      | 4 V, 1 MHz                                                              | ES07B-M | $C_j$    |      | 4    |      | pF            |
|                                                                                                          |                                                                         | ES07D-M | $C_j$    |      | 4    |      | pF            |

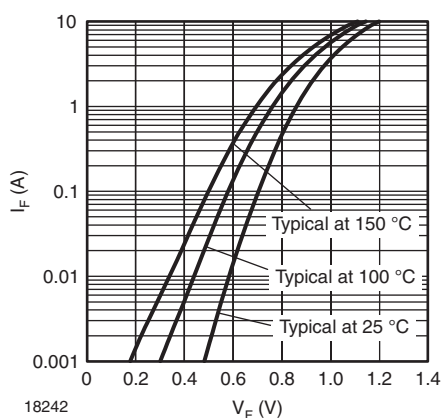
**Note**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

Fig. 1 - Typical Forward Characteristics

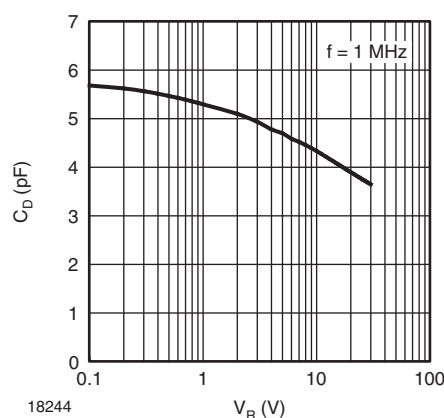


Fig. 3 - Typical Diode Capacitance vs. Reverse Voltage

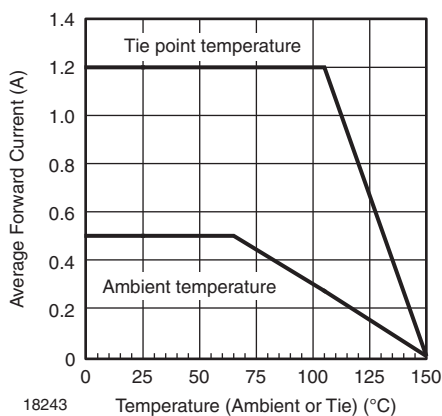


Fig. 2 - Forward Current Derating Curve

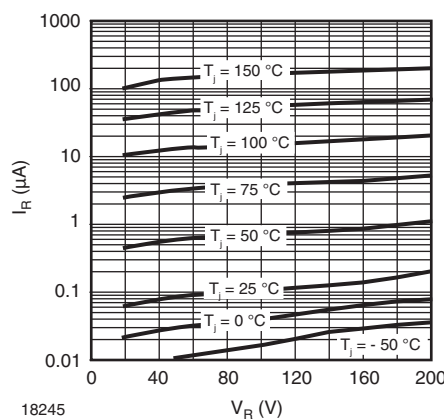
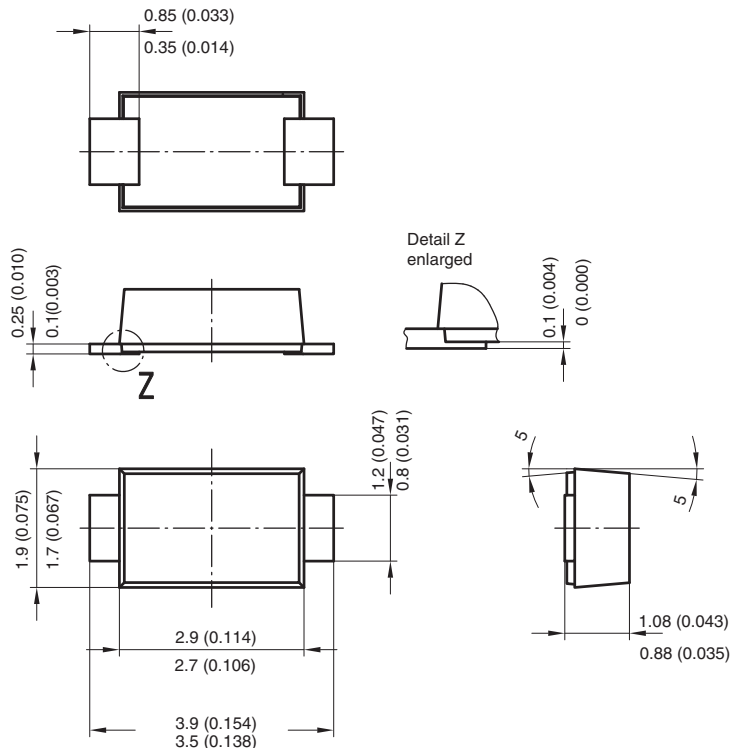


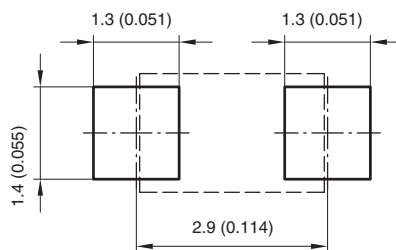
Fig. 4 - Typical Reverse Characteristics



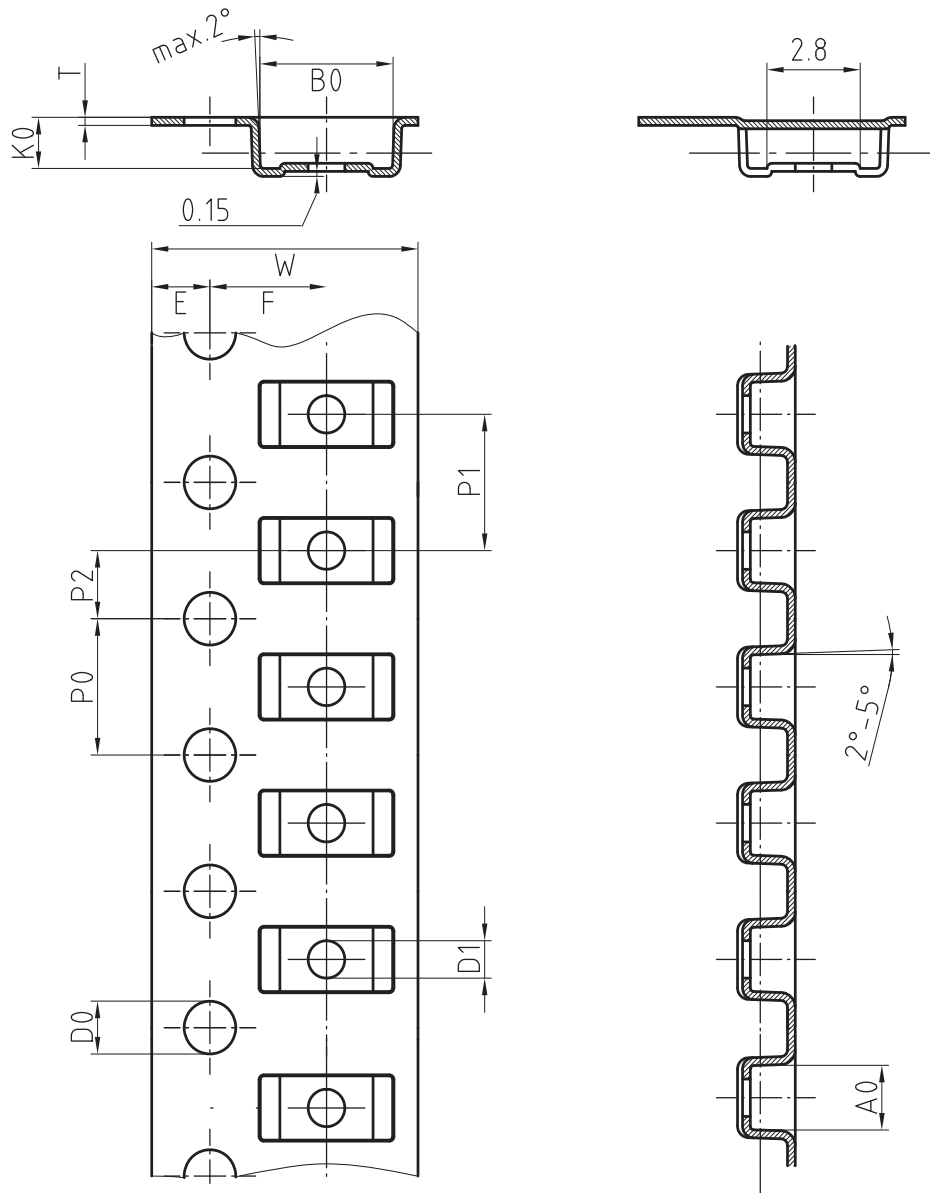
**PACKAGE DIMENSIONS** in millimeters (inches): **DO-219AB (SMF)**



Foot print recommendation:



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Rev. 3 - Date: 13. March 2007  
Document no.:S8-V-3915.01-001 (4)  
17247

**BLISTERTAPE DIMENSIONS** in millimeters: **DO-219 AB (SMF)**


| Mat: | A0  | B0  | K0  | W   | T     | P0  | P2  | P1  | D0  | D1 | E    | F   |
|------|-----|-----|-----|-----|-------|-----|-----|-----|-----|----|------|-----|
| PS   | 1.9 | 4.0 | 1.5 | 8.0 | 0.235 | 4.0 | 2.0 | 4.0 | 1.5 | 1  | 1.75 | 3.5 |

Document-No.: S8-V-3717.02-001 (3)

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