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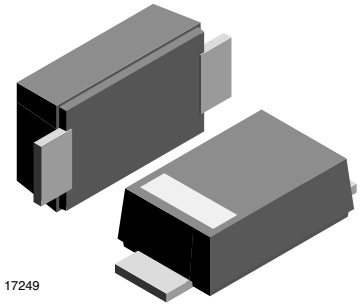
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

# 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/doc?99912

Pb e3 RoHS COMPLIANT

## MECHANICAL DATA

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

**Polarity:** band denotes cathode end

**Weight:** approx. 15 mg

**Packaging codes / options:**
GS18/10K per 13" reel (8 mm tape)
GS08/3K per 7" reel (8 mm tape)

**Int. construction:** Single die

| PARTS TABLE | | | |
|---|---|---|---|
| **PART** | **ORDERING CODE** | **MARKING** | **REMARKS** |
| ES07B | ES07B-GS18 or ES07B-GS08 | EB | Tape and reel |
| ES07D | ES07D-GS18 or ES07D-GS08 | ED | Tape and reel |

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

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

**Note**

(1) Mounted on epoxy glass PCB with 3 mm x 3 mm Cu pads (≥ 40 µm thick)

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

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

**Note**

(1) Mounted on epoxy glass PCB with 3 mm x 3 mm Cu pads (≥ 40 µm thick)

| ELECTRICAL CHARACTERISTICS ($T_{amb}$ = 25 °C, unless otherwise specified) | | | | | | | |
|---|---|---|---|---|---|---|---|
| PARAMETER | TEST CONDITION | PART | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Instaneous forward voltage | $I_F$ = 1 A (1) | ES07B | $V_F$ | | | 0.98 | V |
| | | ES07D | $V_F$ | | | 0.98 | V |
| Maximum DC reverse current at rated DC blocking voltage | $T_A$ = 25 °C | ES07B | $I_R$ | | | 10 | µA |
| | | ES07D | $I_R$ | | | 10 | µA |
| | $T_A$ = 100 °C | ES07B | $I_R$ | | | 50 | µA |
| | | ES07D | $I_R$ | | | 50 | µA |
| Reverse recovery time | $I_F$ = 0.5 A, $I_R$ = 1 A, $I_{rr}$ = 0.25 A | ES07B | $t_{rr}$ | | | 25 | ns |
| | | ES07D | $t_{rr}$ | | | 25 | ns |
| Typical capacitance | 4 V, 1 MHz | ES07B | $C_j$ | | 4 | | pF |
| | | ES07D | $C_j$ | | 4 | | pF |

**Note**

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

## TYPICAL CHARACTERISTICS ($T_{amb}$ = 25 °C, unless otherwise specified)

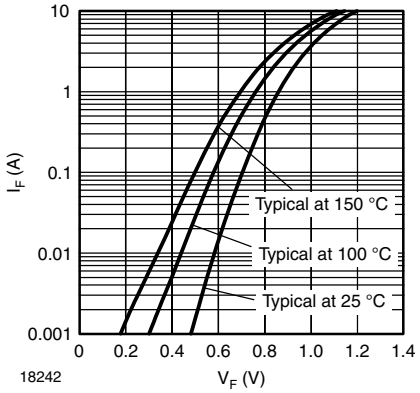



Fig. 1 - Typical Forward Characteristics

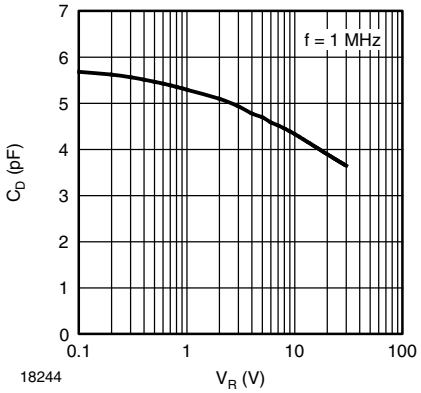



Fig. 3 - Typical Diode Capacitance vs. Reverse Voltage

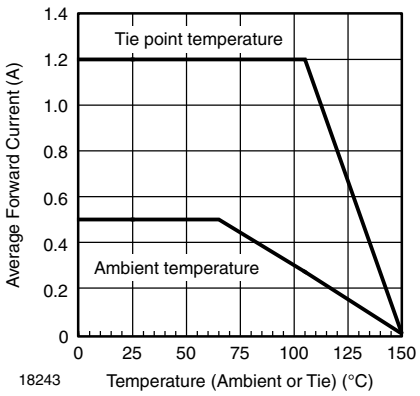



Fig. 2 - Forward Current Derating Curve

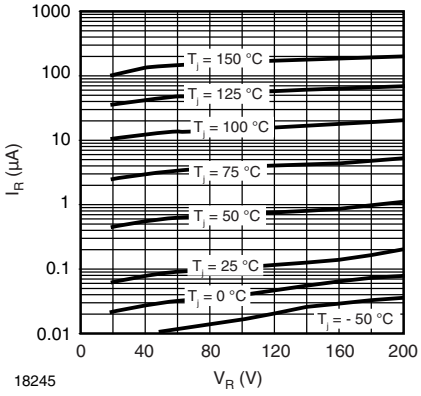
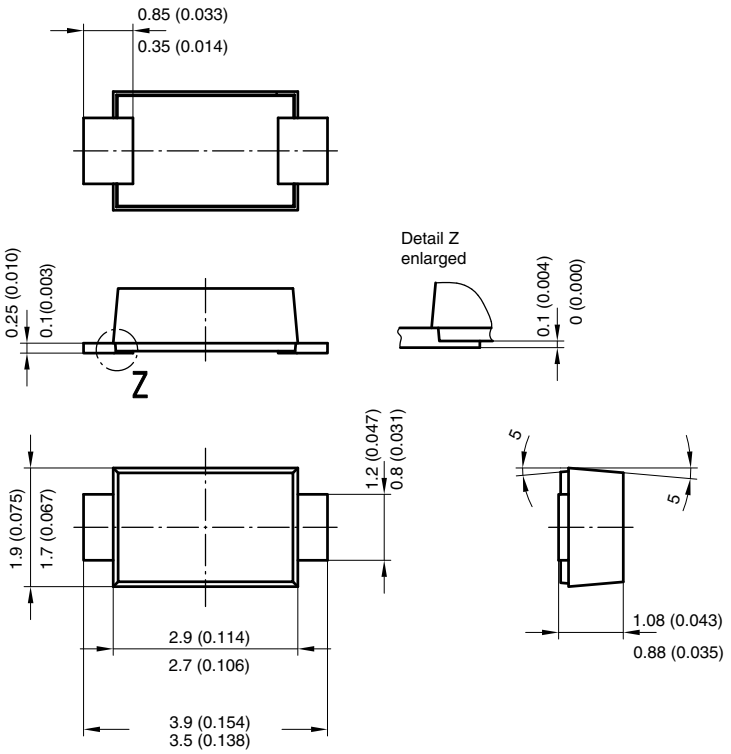
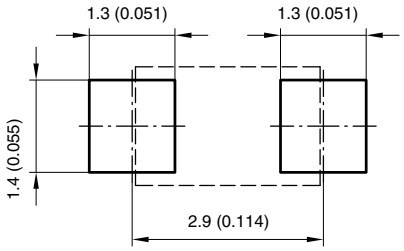



Fig. 4 - Typical Reverse Characteristics

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




Foot print recommendation:

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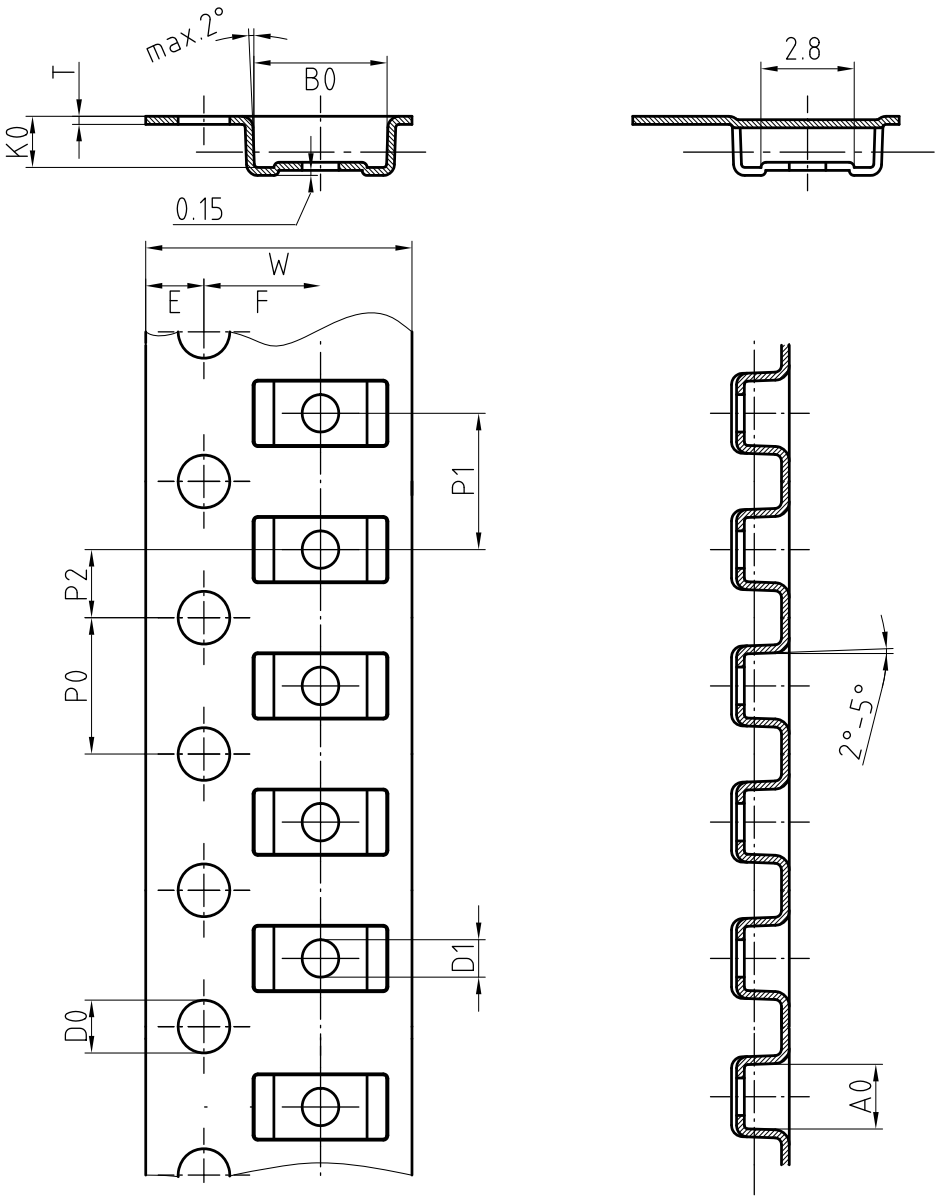
**BLISTERTAPE DIMENSIONS** in millimeters: **DO-219 AB (SMF)**




| 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 |

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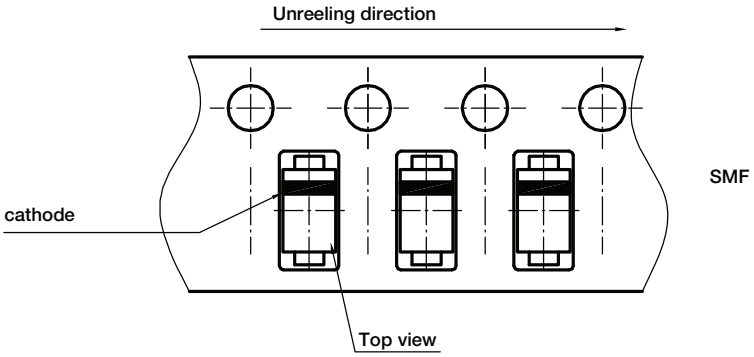
## ORIENTATION IN CARRIER TAPE - SMF

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