

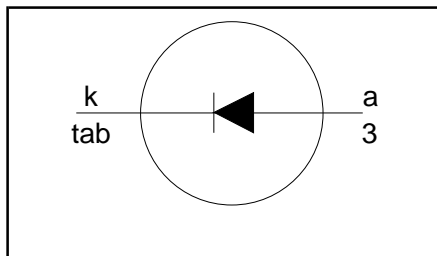
**Rectifier diodes
ultrafast, rugged**

BYW29EB, BYW29ED series

FEATURES

- Low forward volt drop
- Fast switching
- Soft recovery characteristic
- Reverse surge capability
- High thermal cycling performance
- Low thermal resistance

SYMBOL



QUICK REFERENCE DATA

| |
|-------------------------------------|
| $V_R = 150\text{ V} / 200\text{ V}$ |
| $V_F \leq 0.895\text{ V}$ |
| $I_{F(AV)} = 8\text{ A}$ |
| $I_{RRM} = 0.2\text{ A}$ |
| $t_{tr} \leq 25\text{ ns}$ |

GENERAL DESCRIPTION

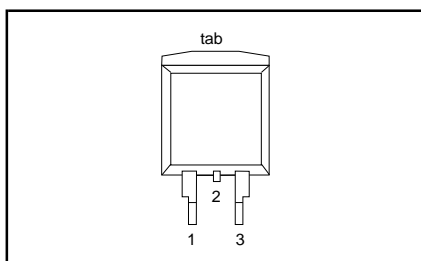
Ultra-fast, epitaxial rectifier diodes intended for use as output rectifiers in high frequency switched mode power supplies.

The BYW29EB series is supplied in the SOT404 surface mounting package.
The BYW29ED series is supplied in the SOT428 surface mounting package.

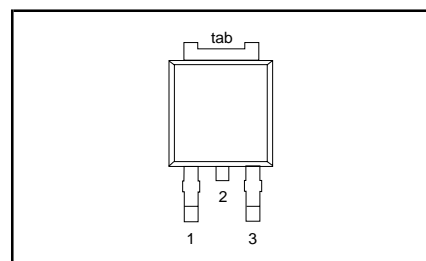
PINNING

| PIN | DESCRIPTION |
|-----|----------------------|
| 1 | no connection |
| 2 | cathode ¹ |
| 3 | anode |
| tab | cathode |

SOT404



SOT428



LIMITING VALUES

Limiting values in accordance with the Absolute Maximum System (IEC 134)

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | | UNIT |
|-------------|---|--|------|------|------|------------------|
| | | | | | | |
| V_{RRM} | Peak repetitive reverse voltage | BYW29EB/ BYW29ED | - | -150 | -200 | V |
| V_{RWM} | Working peak reverse voltage | | - | 150 | 200 | V |
| V_R | Continuous reverse voltage | | - | 150 | 200 | V |
| $I_{F(AV)}$ | Average rectified forward current | square wave; $\delta = 0.5$; $T_{mb} \leq 128\text{ }^\circ\text{C}$ | - | 8 | | A |
| I_{FRM} | Repetitive peak forward current | square wave; $\delta = 0.5$; $T_{mb} \leq 128\text{ }^\circ\text{C}$ | - | 16 | | A |
| I_{FSM} | Non-repetitive peak forward current | $t = 10\text{ ms}$ | - | 80 | | A |
| | | $t = 8.3\text{ ms}$ | - | 88 | | A |
| I_{RRM} | Peak repetitive reverse surge current | sinusoidal; with reapplied $V_{RRM(max)}$ $t_p = 2\text{ }\mu\text{s}$; $\delta = 0.001$ | - | 0.2 | | A |
| I_{RSM} | Peak non-repetitive reverse surge current | $t_p = 100\text{ }\mu\text{s}$ | - | 0.2 | | A |
| T_j | Operating junction temperature | | - | 150 | | $^\circ\text{C}$ |
| T_{stg} | Storage temperature | | - 40 | 150 | | $^\circ\text{C}$ |

1. It is not possible to make connection to pin 2 of the SOT428 or SOT404 packages.

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ESD LIMITING VALUE

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|--------|---|---|------|------|------|
| V_C | Electrostatic discharge capacitor voltage | Human body model; $C = 250 \text{ pF}$; $R = 1.5 \text{ k}\Omega$ | - | 8 | kV |

THERMAL RESISTANCES

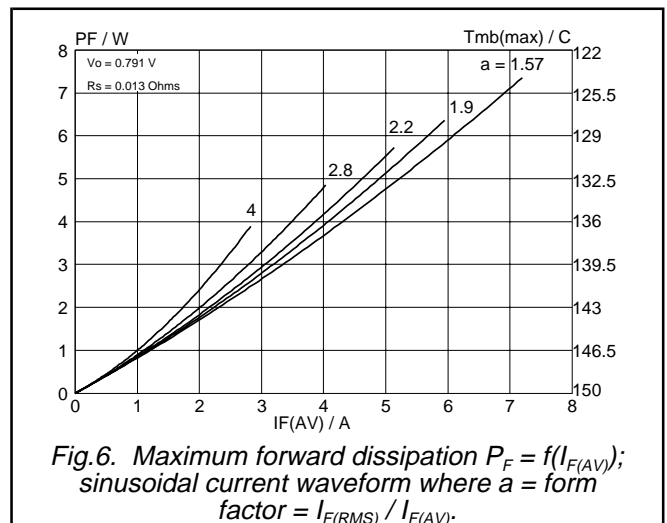
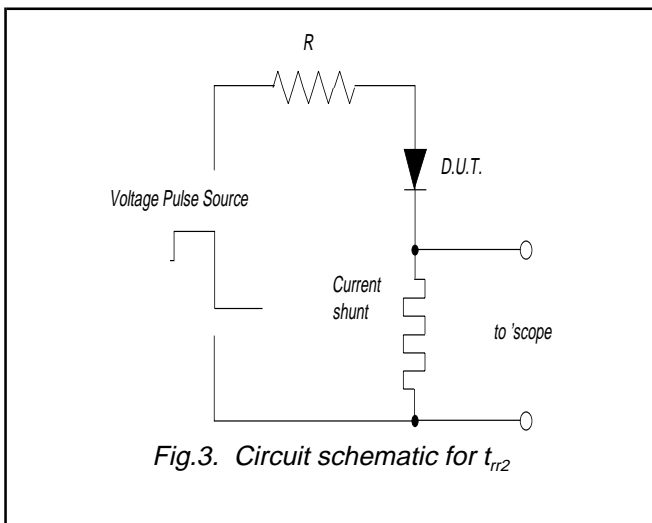
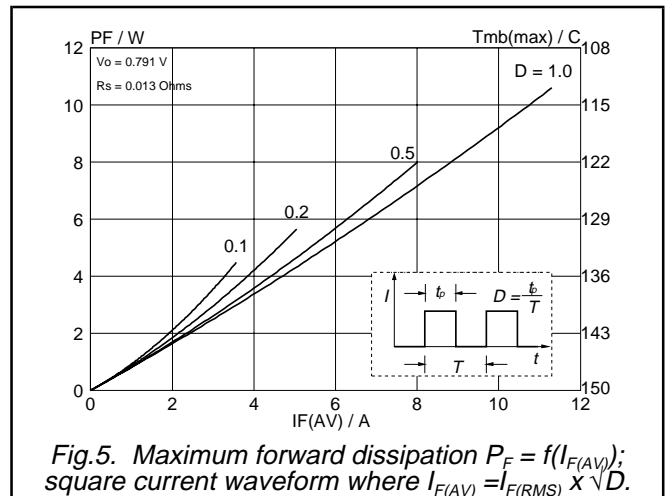
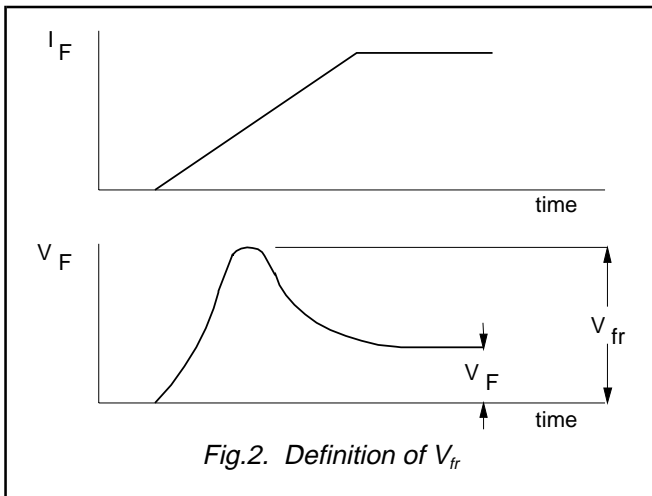
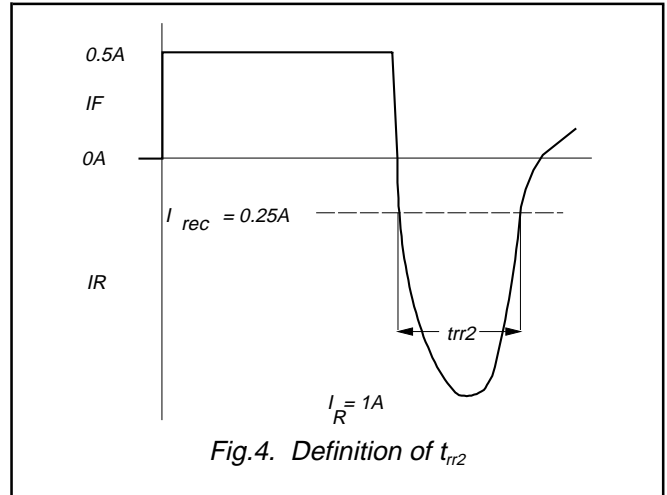
| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-----------------------|--|---|------|------|------|------|
| $R_{th \text{ j-mb}}$ | Thermal resistance junction to mounting base | SOT404 and SOT428 packages, pcb mounted, minimum footprint, FR4 board | - | - | 2.7 | K/W |
| $R_{th \text{ j-a}}$ | Thermal resistance junction to ambient | | - | 50 | - | K/W |

ELECTRICAL CHARACTERISTICS
 $T_j = 25 \text{ }^\circ\text{C}$ unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-----------|--------------------------|--|------|------|-------|---------------|
| V_F | Forward voltage | $I_F = 8 \text{ A}$; $T_j = 150^\circ\text{C}$ | - | 0.8 | 0.895 | V |
| | | $I_F = 8 \text{ A}$ | - | 0.92 | 1.05 | V |
| | | $I_F = 20 \text{ A}$ | - | 1.1 | 1.3 | V |
| I_R | Reverse current | $V_R = V_{RWM}$ | - | 2 | 10 | μA |
| | | $V_R = V_{RWM}$; $T_j = 100^\circ\text{C}$ | - | 0.2 | 0.6 | mA |
| Q_{rr} | Reverse recovered charge | $I_F = 2 \text{ A}$; $V_R \geq 30 \text{ V}$; $-di_F/dt = 20 \text{ A}/\mu\text{s}$ | - | 4 | 11 | nC |
| t_{rr1} | Reverse recovery time | $I_F = 1 \text{ A}$; $V_R \geq 30 \text{ V}$; $-di_F/dt = 100 \text{ A}/\mu\text{s}$ | - | 20 | 25 | ns |
| t_{rr2} | Reverse recovery time | $I_F = 0.5 \text{ A}$ to $I_R = 1 \text{ A}$; $I_{rec} = 0.25 \text{ A}$ | - | 15 | 20 | ns |
| V_{fr} | Forward recovery voltage | $I_F = 1 \text{ A}$; $di_F/dt = 10 \text{ A}/\mu\text{s}$ | - | 1 | - | V |

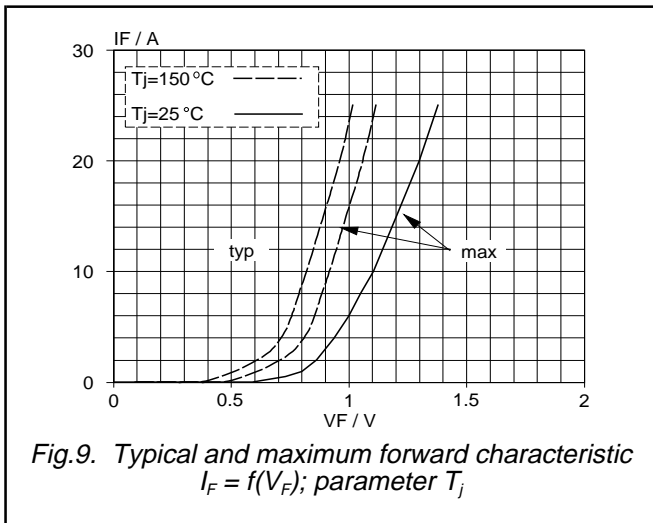
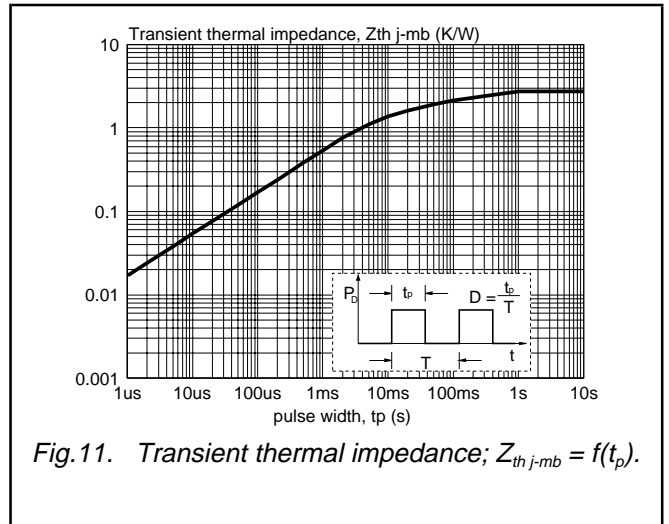
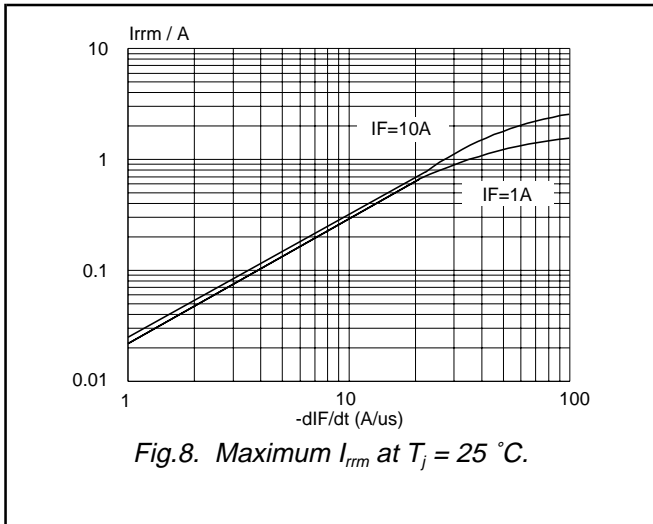
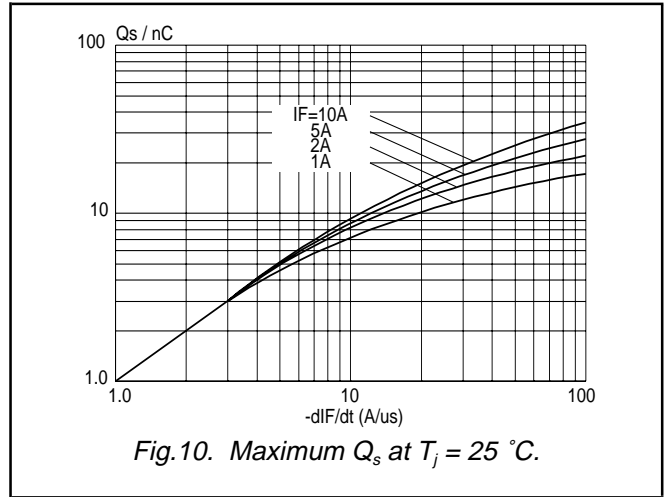
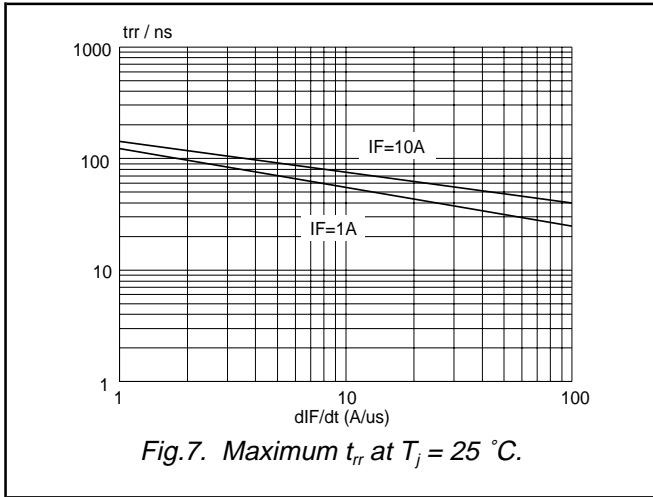
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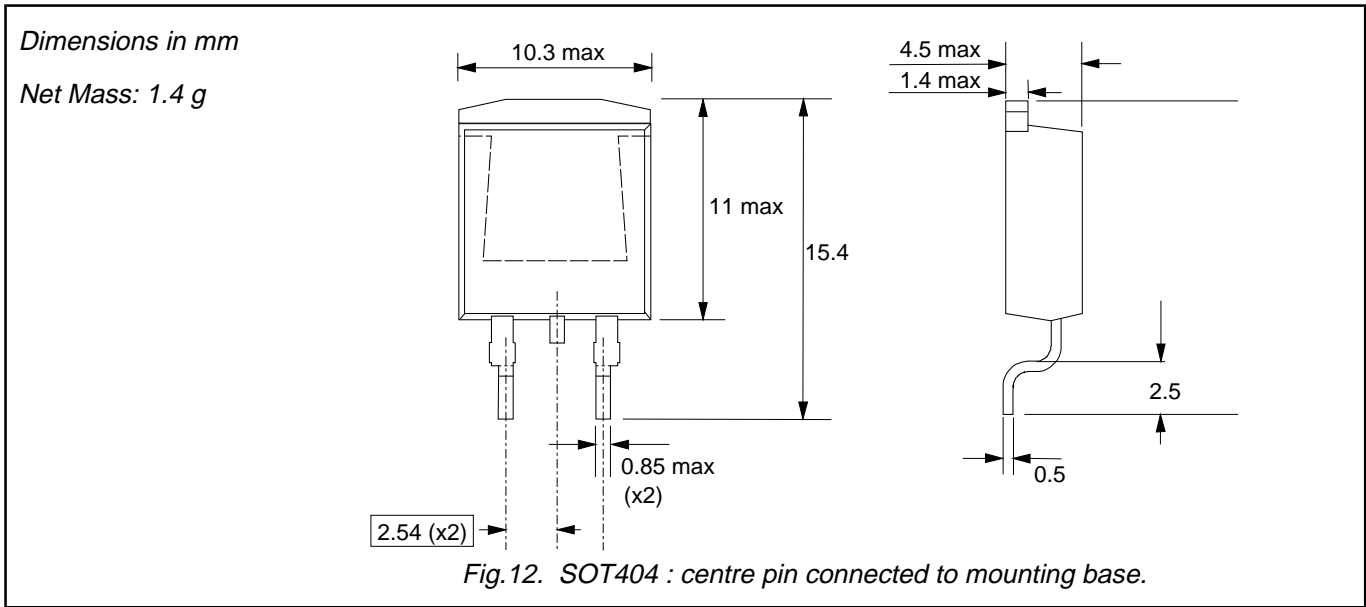
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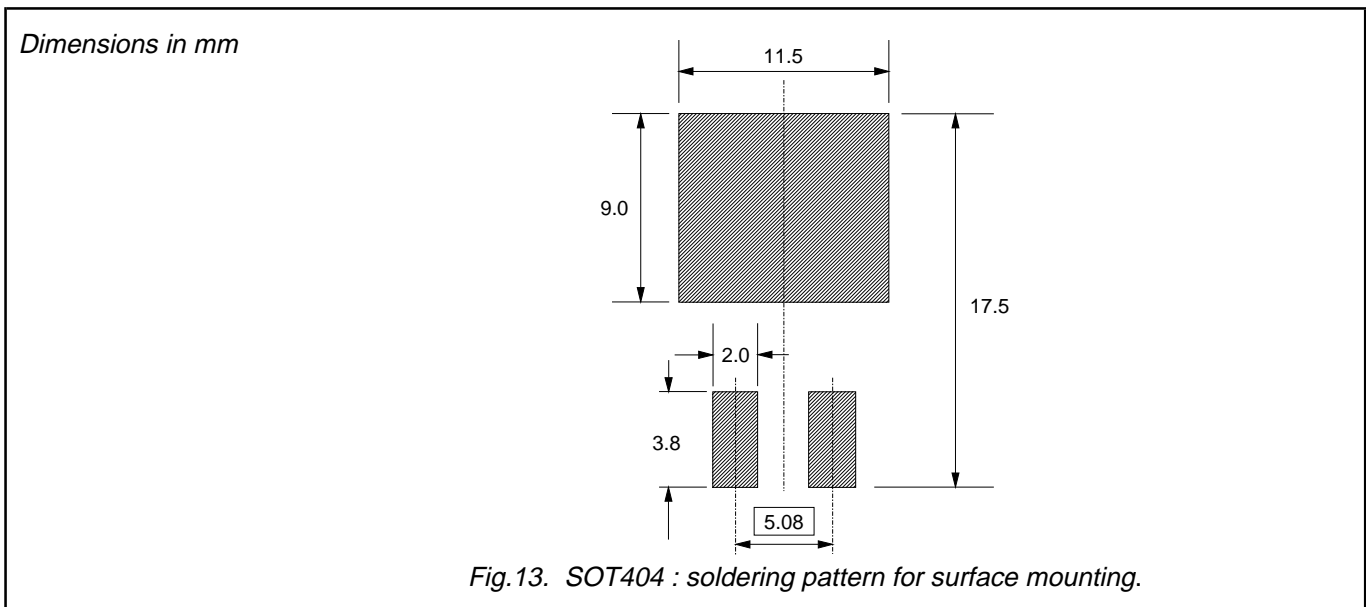
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MECHANICAL DATA



MOUNTING INSTRUCTIONS



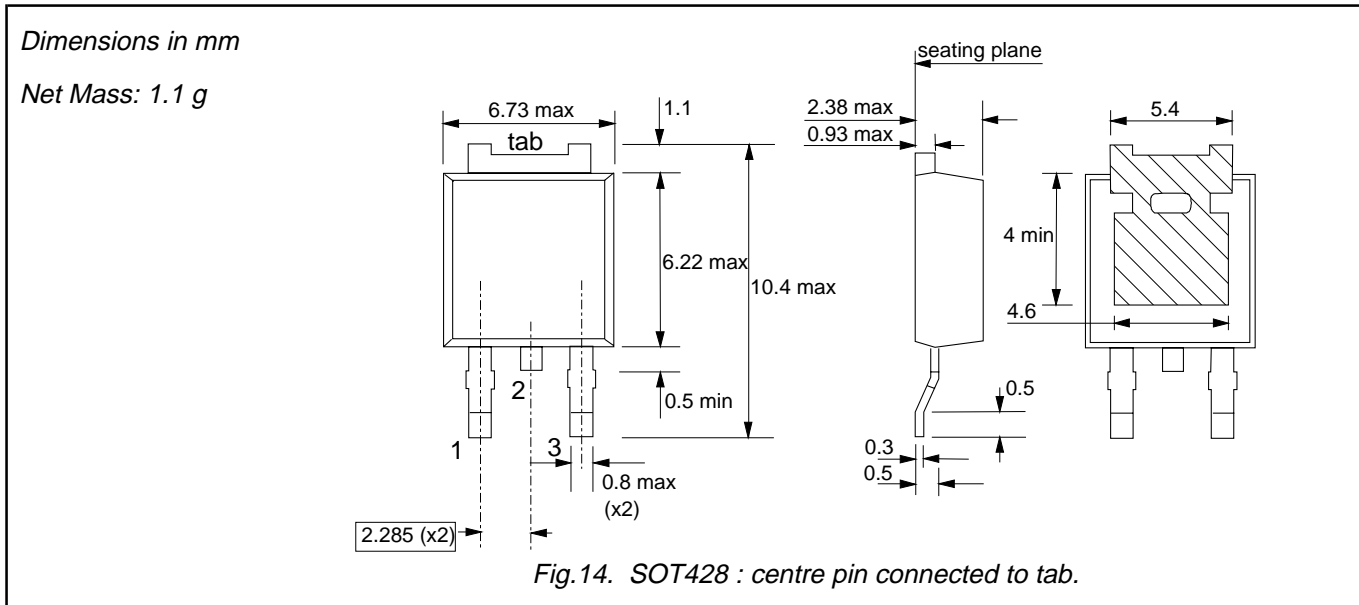
Notes

- 1. Epoxy meets UL94 V0 at 1/8".

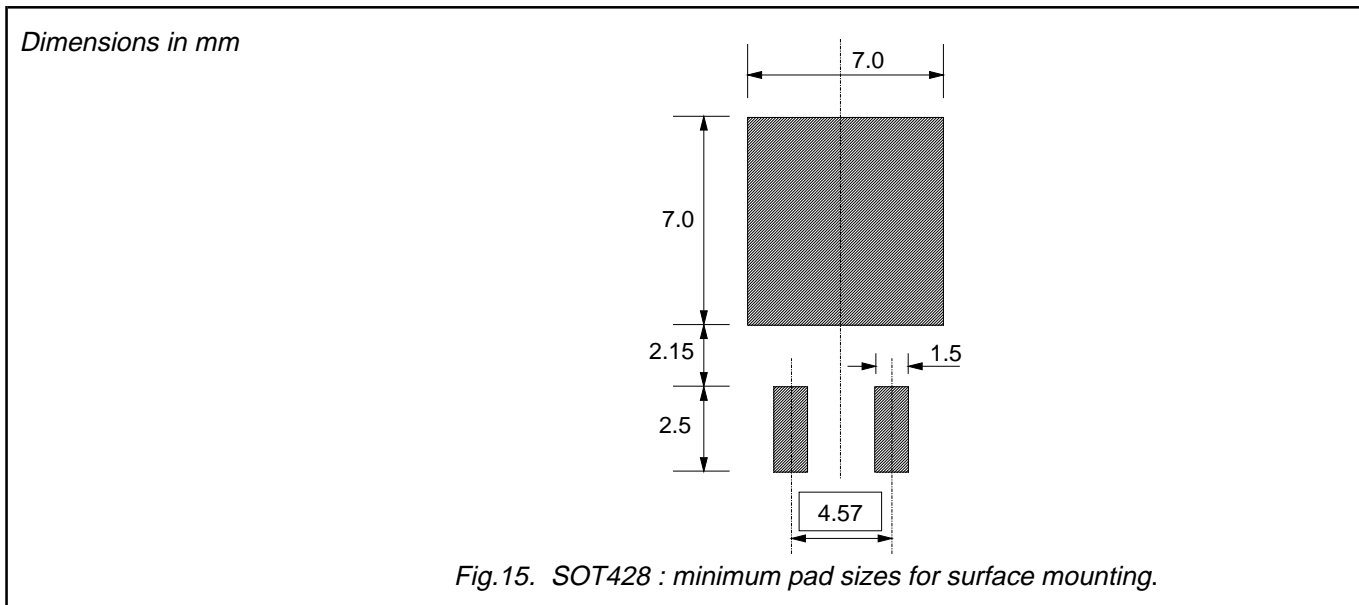
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MECHANICAL DATA



MOUNTING INSTRUCTIONS



Notes

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DEFINITIONS

| | |
|--|---|
| Data sheet status | |
| Objective specification | This data sheet contains target or goal specifications for product development. |
| Preliminary specification | This data sheet contains preliminary data; supplementary data may be published later. |
| Product specification | This data sheet contains final product specifications. |
| Limiting values | |
| Limiting values are given in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of this specification is not implied. Exposure to limiting values for extended periods may affect device reliability. | |
| Application information | |
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| Application information | |
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