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IMPORTANT NOTICE

10 December 2015

1. Global joint venture starts operations as WeEn Semiconductors

Dear customer,

As from November 9th, 2015 NXP Semiconductors N.V. and Beijing JianGuang Asset Management Co. Ltd established Bipolar Power joint venture (JV), **WeEn Semiconductors**, which will be used in future Bipolar Power documents together with new contact details.

In this document where the previous NXP references remain, please use the new links as shown below.

WWW - For www.nxp.com use www.ween-semi.com

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If you have any questions related to this document, please contact our nearest sales office via e-mail or phone (details via salesaddresses@ween-semi.com).

Thank you for your cooperation and understanding,

WeEn Semiconductors



DATA SHEET

BUJ403A

Silicon Diffused Power Transistor

Product specification

December 1998



Silicon Diffused Power Transistor

BUJ403A

GENERAL DESCRIPTION

High-voltage, high-speed planar-passivated npn power switching transistor in TO220AB envelope intended for use in high frequency electronic lighting ballast applications, converters, inverters, switching regulators, motor control systems, etc.

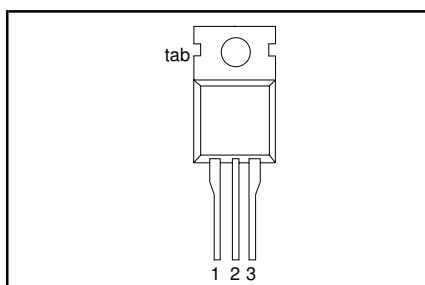
QUICK REFERENCE DATA

| SYMBOL | PARAMETER | CONDITIONS | TYP. | MAX. | UNIT |
|-------------|---------------------------------------|---|------|------|------|
| V_{CESM} | Collector-emitter voltage peak value | $V_{BE} = 0\text{ V}$ | - | 1200 | V |
| V_{CBO} | Collector-Base voltage (open emitter) | | - | 1200 | V |
| V_{CEO} | Collector-emitter voltage (open base) | | - | 550 | V |
| I_C | Collector current (DC) | | - | 6 | A |
| I_{CM} | Collector current peak value | | - | 10 | A |
| P_{tot} | Total power dissipation | $T_{mb} \leq 25\text{ °C}$ | - | 100 | W |
| V_{CEsat} | Collector-emitter saturation voltage | $I_C = 2\text{ A}; I_B = 0.4\text{ A}$ | 0.15 | 1.0 | V |
| h_{FEsat} | DC current gain | $I_C = 3\text{ A}; V_{CE} = 5\text{ V}$ | 15.5 | - | |
| t_f | Fall time | $I_C = 2.5\text{ A}; I_{B1} = 0.5\text{ A}$ | 170 | 300 | ns |

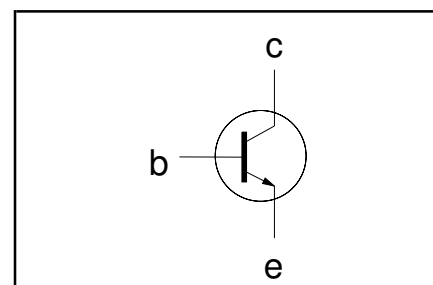
PINNING - TO220AB

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | base |
| 2 | collector |
| 3 | emitter |
| tab | collector |

PIN CONFIGURATION



SYMBOL



LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------|--|----------------------------|------|------|------|
| V_{CESM} | Collector to emitter voltage | $V_{BE} = 0\text{ V}$ | - | 1200 | V |
| V_{CEO} | Collector to emitter voltage (open base) | | - | 550 | V |
| V_{CBO} | Collector to base voltage (open emitter) | | - | 1200 | V |
| I_C | Collector current (DC) | | - | 6 | A |
| I_{CM} | Collector current peak value | | - | 10 | A |
| I_B | Base current (DC) | | - | 3 | A |
| I_{BM} | Base current peak value | | - | 5 | A |
| P_{tot} | Total power dissipation | $T_{mb} \leq 25\text{ °C}$ | - | 100 | W |
| T_{stg} | Storage temperature | | -65 | 150 | °C |
| T_j | Junction temperature | | - | 150 | °C |

THERMAL RESISTANCES

| SYMBOL | PARAMETER | CONDITIONS | TYP. | MAX. | UNIT |
|----------------|---------------------------|-------------|------|------|------|
| $R_{th\ j-mb}$ | Junction to mounting base | | - | 1.25 | K/W |
| $R_{th\ j-a}$ | Junction to ambient | in free air | 60 | - | K/W |

Silicon Diffused Power Transistor

BUJ403A

STATIC CHARACTERISTICS $T_{mb} = 25\text{ °C}$ unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|--|---|--|---------------------|--------------------------|--------------------|---------------|
| I_{CES}, I_{CBO} I_{CES} | Collector cut-off current ¹ | $V_{BE} = 0\text{ V}; V_{CE} = V_{CESMmax}$ $V_{BE} = 0\text{ V}; V_{CE} = V_{CESMmax}$ $T_j = 125\text{ °C}$ | - | - | 1.0 2.0 | mA mA |
| I_{CEO} I_{EBO} $V_{CEOsust}$ | Collector cut-off current ¹ Emitter cut-off current Collector-emitter sustaining voltage | $V_{CEO} = V_{CEOMmax} (550V)$ $V_{EB} = 7\text{ V}; I_C = 0\text{ A}$ $I_B = 0\text{ A}; I_C = 10\text{ mA};$ $L = 25\text{ mH}$ | - | - | 0.1 0.1 550 | mA mA V |
| V_{CEsat} V_{BEsat} | Collector-emitter saturation voltage Base-emitter saturation voltage | $I_C = 2.0\text{ A}; I_B = 0.4\text{ A}$ $I_C = 2.0\text{ A}; I_B = 0.4\text{ A}$ | - | 0.15 0.91 | 1.0 1.5 | V V |
| h_{FE} h_{FE} h_{FEsat} h_{FEsat} | DC current gain DC current gain | $I_C = 1\text{ mA}; V_{CE} = 5\text{ V}$ $I_C = 500\text{ mA}; V_{CE} = 5\text{ V}$ $I_C = 2.0\text{ A}; V_{CE} = 5\text{ V}$ $I_C = 3.0\text{ A}; V_{CE} = 5\text{ V}$ | 13 20 13 - | 25 30 18.5 15.5 | - 47 25 - | - - |

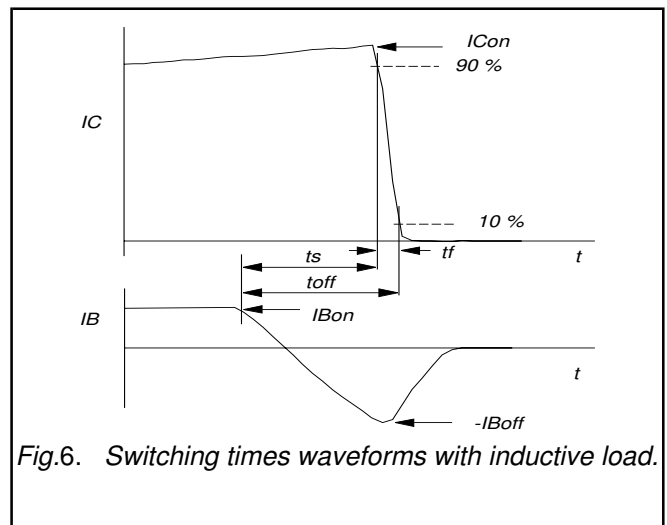
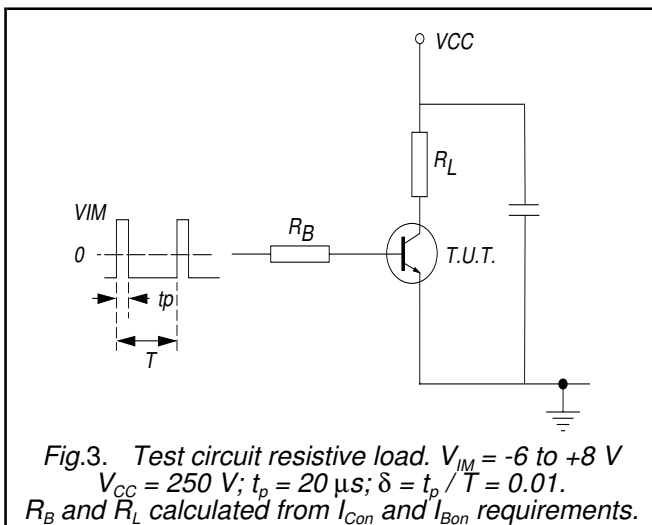
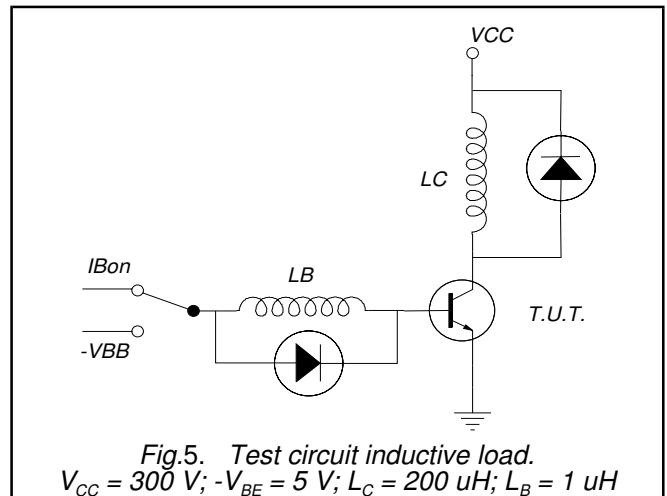
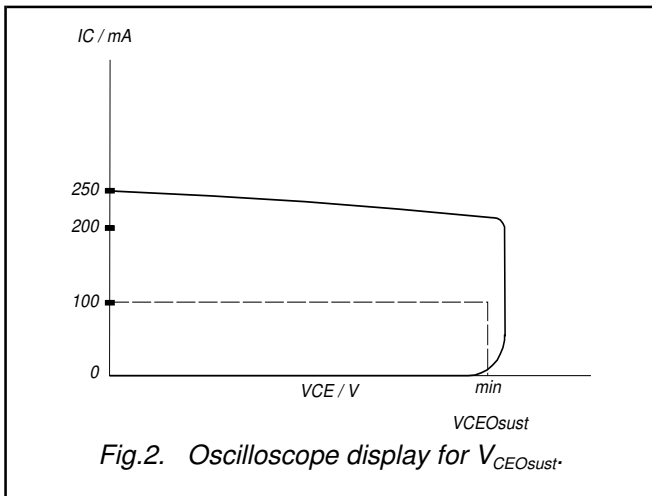
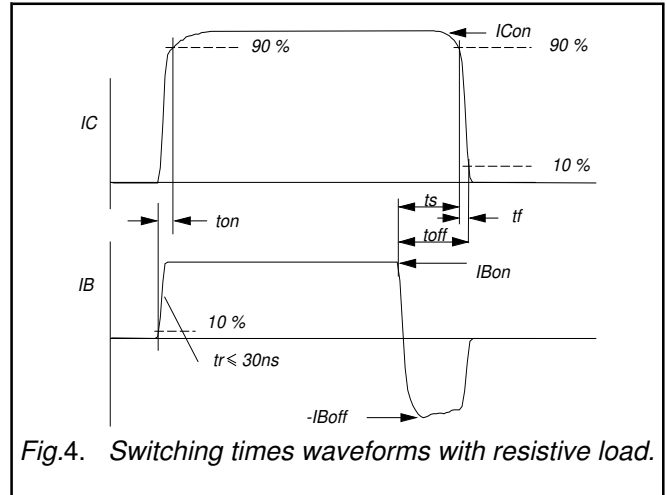
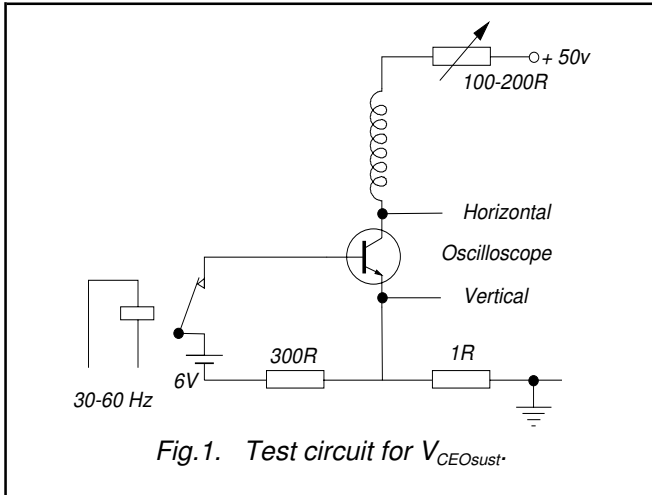
DYNAMIC CHARACTERISTICS $T_{mb} = 25\text{ °C}$ unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | TYP. | MAX. | UNIT |
|----------------------------|---|--|-------------|-----------------|---|
| t_{on} t_s t_f | Switching times (resistive load) Turn-on time Turn-off storage time Turn-off fall time | $I_{Con} = 2.5\text{ A}; I_{Bon} = -I_{Boff} = 0.5\text{ A};$ $R_L = 75\text{ ohms}; V_{BB2} = 4\text{ V};$ | - - - | 0.5 3 0.3 | μs μs μs |
| t_s t_f | Switching times (inductive load) Turn-off storage time Turn-off fall time | $I_{Con} = 2.5\text{ A}; I_{Bon} = 0.5\text{ A}; L_B = 1\text{ }\mu\text{H};$ $-V_{BB} = 5\text{ V}$ | - 170 | 1.5 300 | μs ns |
| t_s t_f | Switching times (inductive load) Turn-off storage time Turn-off fall time | $I_{Con} = 2.5\text{ A}; I_{Bon} = 0.5\text{ A}; L_B = 1\text{ }\mu\text{H};$ $-V_{BB} = 5\text{ V}; T_j = 100\text{ °C}$ | - - | 1.8 300 | μs ns |

¹ Measured with half sine-wave voltage (curve tracer).

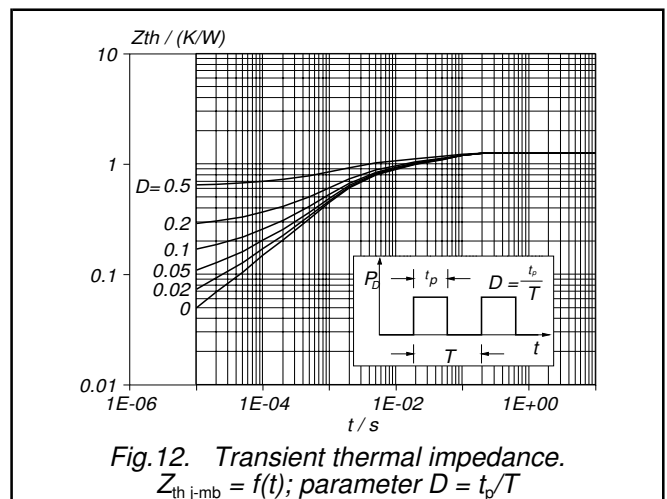
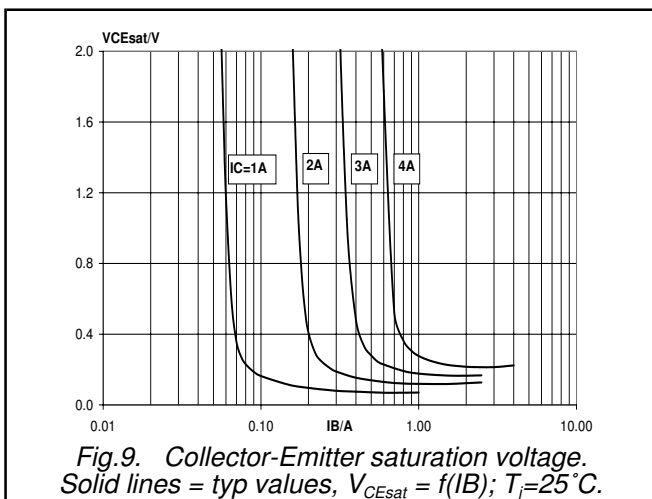
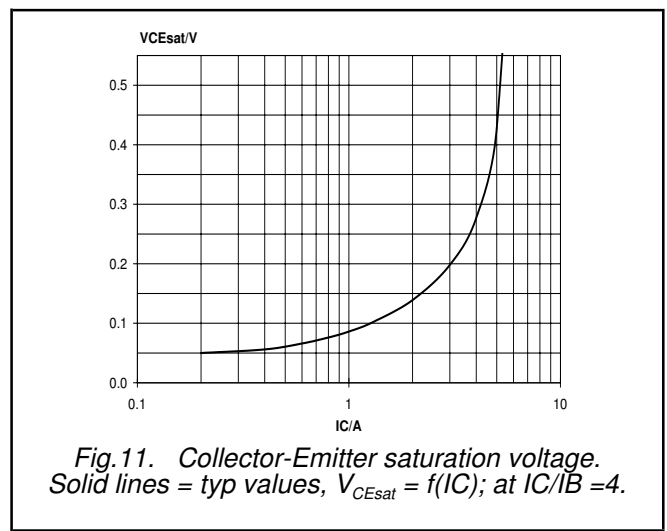
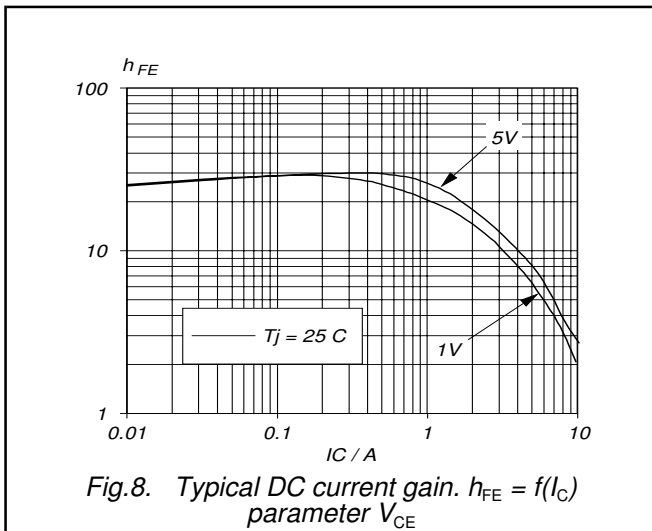
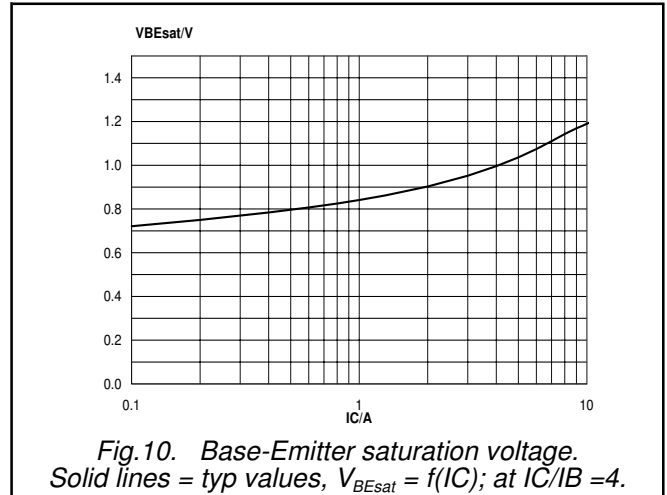
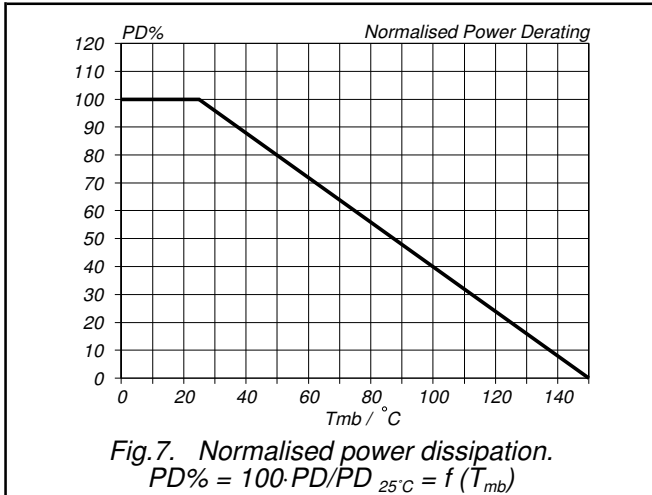
Silicon Diffused Power Transistor

BUJ403A



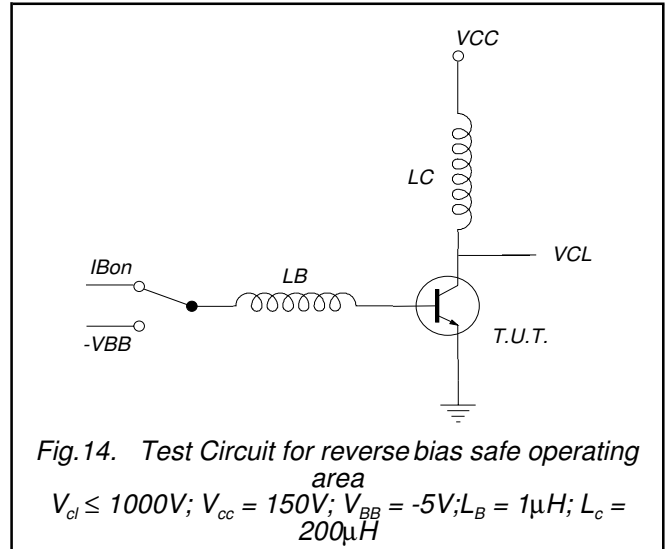
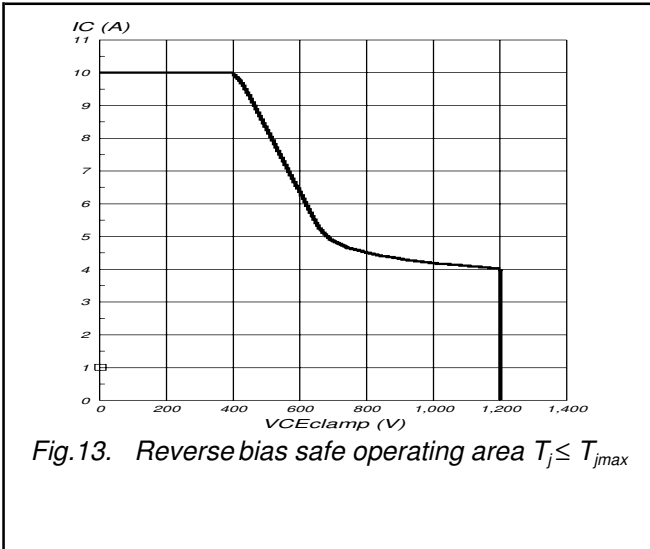
Silicon Diffused Power Transistor

BUJ403A



Silicon Diffused Power Transistor

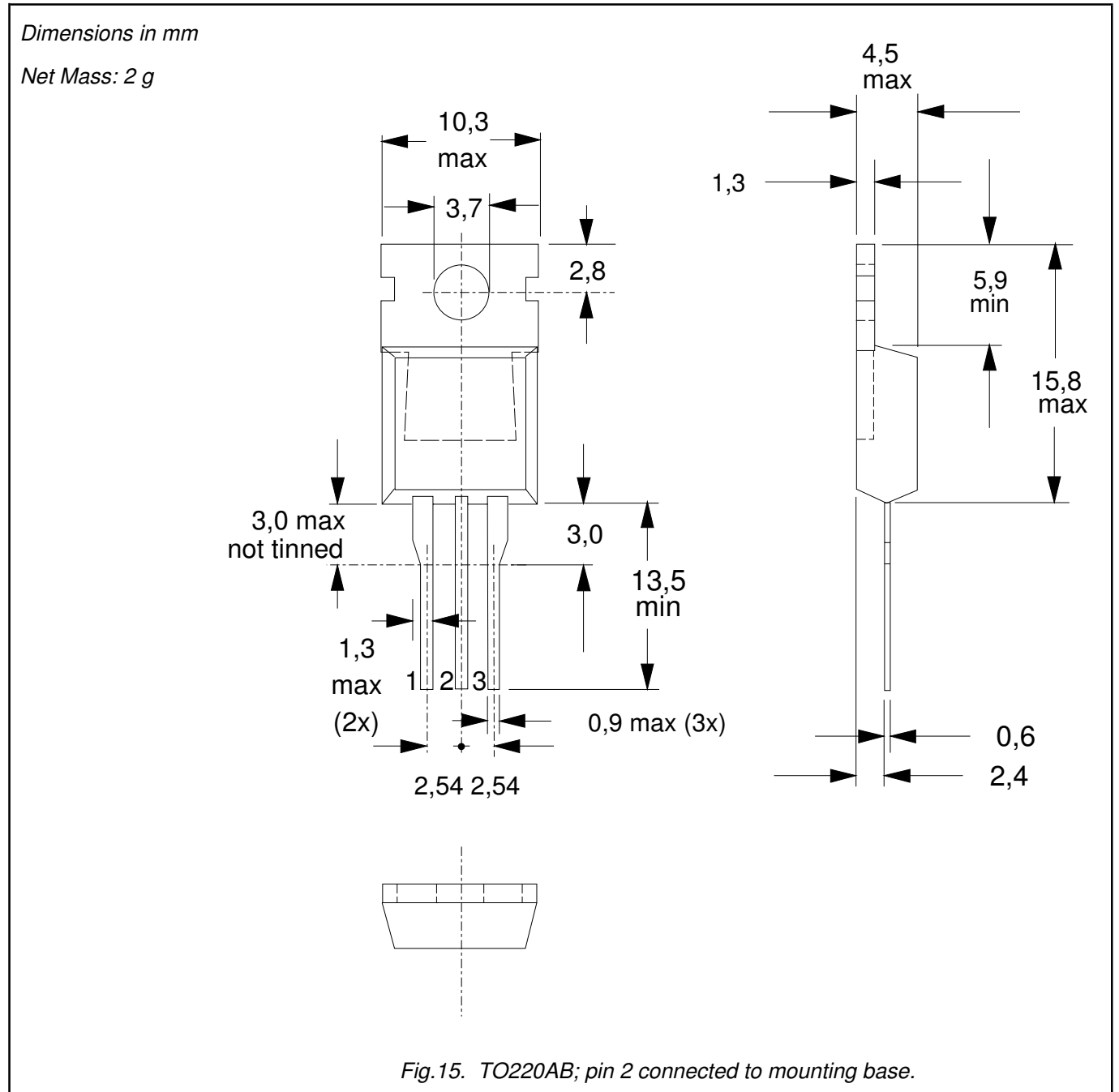
BUJ403A



Silicon Diffused Power Transistor

BUJ403A

MECHANICAL DATA



Notes

1. Refer to mounting instructions for TO220 envelopes.
2. Epoxy meets UL94 V0 at 1/8".

Legal information

DATA SHEET STATUS

| DOCUMENT STATUS ⁽¹⁾ | PRODUCT STATUS ⁽²⁾ | DEFINITION |
|--------------------------------|-------------------------------|---|
| Objective data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary data sheet | Qualification | This document contains data from the preliminary specification. |
| Product data sheet | Production | This document contains the product specification. |

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Contact information

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