

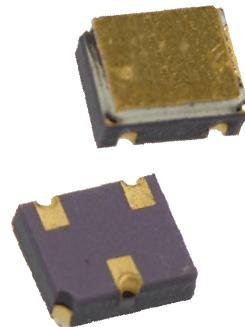
Surface Mount PNP General Purpose Transistor

2N2907AUB (TX, TXV)



Features:

- Ceramic 3 pin surface mount package (UBN)
- Miniature package to minimize circuit board area
- Hermetically sealed
- Footprint and pin-out matches SOT-23 package transistors
- Processed per MIL-PRF-19500/291



Description:

The 2N2907AUB, 2N2907AUBTX and 2N2907AUBTXV are miniature, hermetically sealed, ceramic surface mount general purpose switching transistors. The miniature three pin ceramic package is ideal for upgrading commercial grade circuits to military reliability levels where plastic SOT-23 devices have been used. The "UB" suffix denotes the 3 terminal chip carrier package, type "B" per MIL-PRF-19500/291.

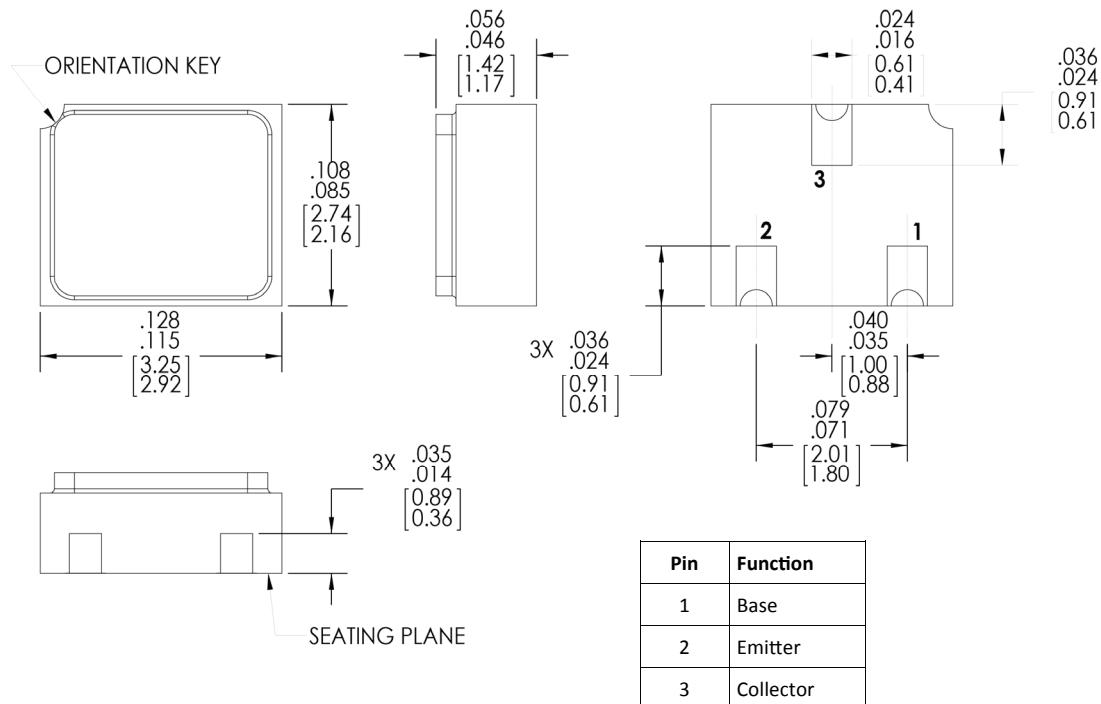
Typical screening and lot acceptance tests per MIL-PRF-19500/291.

The burn-in condition is $V_{CB} = 30$ V, $P_D = 200$ mW, $T_A = 25^\circ\text{C}$, $t = 80$ hrs.

Refer to MIL-PRF-19500/291 for complete requirements. In addition, the TX and TXV versions receive 100% thermal response testing.

Applications:

- General switching
- Amplification
- Signal processing
- Radio transmission
- Logic gates



General Note

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Electrical Specifications

Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise noted)

| | |
|---|-----------------------|
| Collector-Base Voltage | 60V |
| Collector-Emitter Voltage | 60V |
| Emitter-Base Voltage | 5.0V |
| Collector Current-Continuous | 600mA |
| Operating Junction Temperature (T_J) | -65° C to +200° C |
| Storage Junction Temperature (T_{stg}) | -65° C to +200° C |
| Power Dissipation @ $T_A = 25^\circ C$ | 0.5 W |
| Power Dissipation @ $T_c = 25^\circ C$ | 1.00 W ⁽¹⁾ |
| Soldering Temperature (vapor phase reflow for 30 seconds) | 215° C |
| Soldering Temperature (heated collet for 5 seconds) | 260° C |

Electrical Characteristics ($T_A = 25^\circ C$ unless otherwise noted)

| SYMBOL | PARAMETER | MIN | MAX | UNITS | TEST CONDITIONS |
|----------------------------|-------------------------------------|-----|---------|-------|--|
| OFF CHARACTERISTICS | | | | | |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage | 60 | - | V | $I_C = 10 \mu A, I_E = 0$ |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | 60 | - | V | $I_C = 10 mA, I_B = 0^{(2)}$ |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | 5.0 | - | V | $I_E = 10 \mu A, I_C = 0$ |
| I_{CBO} | Collector-Base Cutoff Current | 10 | μA | | $V_{CB} = 50 V, I_E = 0$ |
| | | 10 | μA | | $V_{CB} = 50 V, I_E = 0, T_A = 150^\circ C$ |
| I_{EBO} | Emitter-Base Cutoff Current | 10 | μA | | $V_{CE} = 4.0 V, I_C = 0$ |
| I_{CES} | Collector Emitter Cutoff Current | 10 | nA | | $V_{EB} = 50 V$ |
| ON CHARACTERISTICS | | | | | |
| h_{FE} | Forward-Current Transfer Ratio | 75 | | - | $V_{CE} = 10 V, I_C = 0.1 mA$ |
| | | 100 | 450 | - | $V_{CE} = 10 V, I_C = 1.0 mA$ |
| | | 100 | | - | $V_{CE} = 10 V, I_C = 10 mA$ |
| | | 100 | 300 | - | $V_{CE} = 10 V, I_C = 150 mA^{(2)}$ |
| | | 50 | | - | $V_{CE} = 10 V, I_C = 500 mA^{(2)}$ |
| | | 50 | | - | $V_{CE} = 10 V, I_C = 1.0 mA, T_A = -55^\circ C$ |

Note:

- Derate linearly 6.6 mW/°C above 25° C
- Pulse Width ≤300 μs , Duty Cycle ≤ 2.0%

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OPTEK Technology, Inc.
1645 Wallace Drive, Carrollton, TX 75006 | Ph: +1 972 323 2200
www.optekinc.com | www.ttelectronics.com

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Electrical Characteristics ($T_A = 25^\circ C$ unless otherwise noted)

| SYMBOL | PARAMETER | MIN | MAX | UNITS | TEST CONDITIONS |
|-------------------------------------|---|------|-----|---|--|
| ON CHARACTERISTICS | | | | | |
| $V_{CE(SAT)}$ | Collector-Emitter Saturation Voltage | 0.40 | V | $I_C = 150 \text{ mA}, I_B = 15 \text{ mA}^{(2)}$ | |
| | | 1.60 | V | $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}^{(2)}$ | |
| $V_{BE(SAT)}$ | Base-Emitter Saturation Voltage | 1.30 | V | $I_C = 150 \text{ mA}, I_B = 15 \text{ mA}^{(2)}$ | |
| | | 2.60 | V | $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}^{(2)}$ | |
| SMALL-SIGNAL CHARACTERISTICS | | | | | |
| $ h_{fe} $ | Small Signal Forward Current Transfer Ratio | 100 | | - | $V_{CE} = 10 \text{ V}, I_C = 1.0 \text{ mA}, f = 1.0 \text{ kHz}$ |
| $ h_{fe} $ | Small Signal Forward Current Transfer Ratio | 2.0 | | - | $V_{CE} = 20 \text{ V}, I_C = 20 \text{ mA}, f = 100 \text{ MHz}$ |
| C_{obo} | Open Circuit Output Capacitance | | 8.0 | pF | $V_{CB} = 10 \text{ V}, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$ |
| C_{ibo} | Input Capacitance (Output Open) | | 30 | pF | $V_{EB} = 2.0 \text{ V}, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$ |
| SWITCHING CHARACTERISTICS | | | | | |
| t_{on} | Turn-On Time | | 45 | ns | $V_{CC} = 30 \text{ V}, I_C = 150 \text{ mA}, I_{B1} = 15 \text{ mA}$ |
| t_{off} | Turn-Off Time | | 300 | ns | $V_{CC} = 30 \text{ V}, I_C = 150 \text{ mA}, I_{B1} = I_{B2} = 15 \text{ mA}$ |

Note:

- Derate linearly 6.6 mW/ $^\circ C$ above 25° C
- Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$

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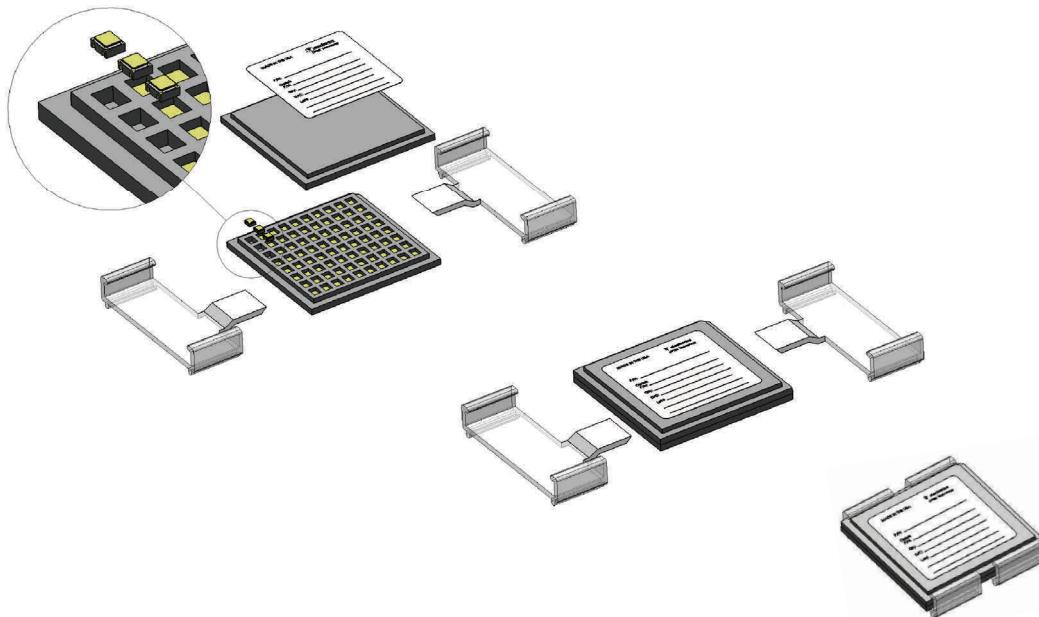
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Standard Packaging:

Waffle Pack



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2. Pulse Width ≤300 µs, Duty Cycle ≤ 2.0%

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