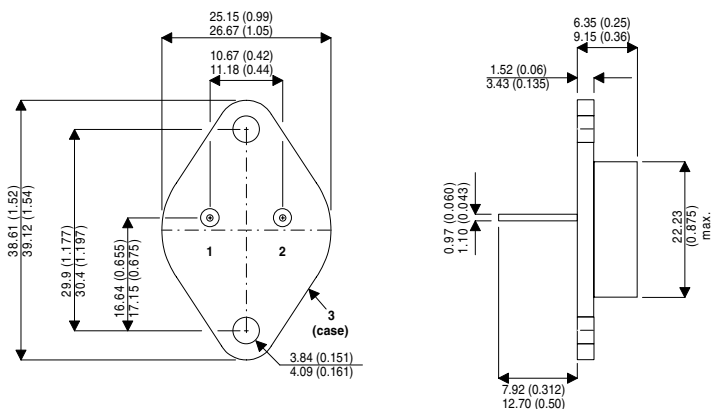


MECHANICAL DATA

Dimensions in mm(inches)

**NPN MULTI - EPITAXIAL
POWER TRANSISTOR**



TO-3(TO204AA)

PIN 1 — Base PIN 2 — Emitter Case is Collector

FEATURES

- HIGH CURRENT
- FAST SWITCHING
- HIGH RELIABILITY

APPLICATIONS

- POWER SWITCHING CIRCUITS
- MOTOR CONTROL

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

| | | |
|-----------|--|--------------|
| V_{CBO} | Collector – Base Voltage ($I_E = 0$) | 400V |
| V_{CEX} | Collector – Emitter Voltage | 400V |
| V_{CEO} | Collector – Emitter Voltage ($I_B = 0$) | 325V |
| V_{CER} | Collector – Emitter Voltage | 390V |
| V_{EBO} | Emitter – Base Voltage ($I_C = 0$) | 7V |
| I_C | Collector Current | 30A |
| I_{CM} | Peak Collector Current ($t_p = 10$ ms) | 40A |
| I_B | Base Current | 6A |
| P_{tot} | Total Power Dissipation at $T_{case} \leq 25^{\circ}C$ | 350W |
| T_{stg} | Storage Temperature | -65 to 200°C |
| T_j | Junction Temperature | 200°C |

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

| Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|--|------|------|------|---------|
| $V_{CEO(BR)^*}$ Collector - Emitter Breakdown Voltage | $I_C = 0.2mA$ | 325 | | | V |
| V_{EBO} Emitter – Base Voltage | $I_E = 50mA$ $I_C = 0$ | 7 | | | V |
| I_{CEO} Collector Cut-off Current | $V_{CE} = 260V$ $I_B = 0$ | | | 3 | mA |
| I_{CEX} Collector Cut-off Current | $V_{CE} = 400V$ $V_{BE} = -1.5V$ | | | 3 | mA |
| | $V_{CE} = 400V$ $V_{BE} = -1.5V$ $T_C = 125^{\circ}C$ | | | 12 | |
| I_{EBO} Emitter Cut-off Current | $I_C = 0$ $V_{EB} = 5V$ | | | 1.0 | mA |
| $V_{CE(sat)^*}$ Collector – Emitter Saturation Voltage | $I_C = 8A$ $I_B = 1.6A$ | | 0.2 | 0.8 | V |
| | $I_C = 16A$ $I_B = 3.2A$ | | 0.35 | 1.0 | |
| $V_{BE(sat)^*}$ Base – Emitter Saturation Voltage | $I_C = 16A$ $I_B = 3.2A$ | | 1.15 | 1.5 | V |
| h_{FE}^* DC Current Gain | $I_C = 8A$ $V_{CE} = 4V$ | 15 | | 60 | — |
| | $I_C = 16A$ $V_{CE} = 4V$ | 8 | | | |
| $I_{S/b}$ Second Breakdown Collector Current | $V_{CE} = 140V$ $t = 1s$ | 0.15 | | | A |
| | $V_{CE} = 16V$ $t = 1s$ | 22 | | | |
| f_T Transition Frequency | $I_C = 2A$ $V_{CE} = 15V$ $f = 10MHz$ | 8 | | | MHz |
| t_{on} Turn–On Time | $I_C = 16A$ $I_{B1} = 3.2A$ | | 0.55 | 1.3 | μs |
| t_s Storage Time | $I_C = 16A$ $I_{B1} = 3.2A$ | | 1.7 | 2.5 | |
| t_f Fall Time | $I_{B2} = -3.2A$ | | 0.26 | 1.2 | |

THERMAL CHARACTERISTICS

| | | | | | |
|-----------------|-------------------------------------|--|-----|--|---------------|
| $R_{\theta JC}$ | Thermal Resistance Junction to Case | | 0.5 | | $^{\circ}C/W$ |
|-----------------|-------------------------------------|--|-----|--|---------------|

* Pulse test $t_p = 300\mu s$, $\delta = 1.5\%$