

NPN BUX41N

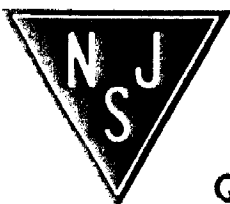
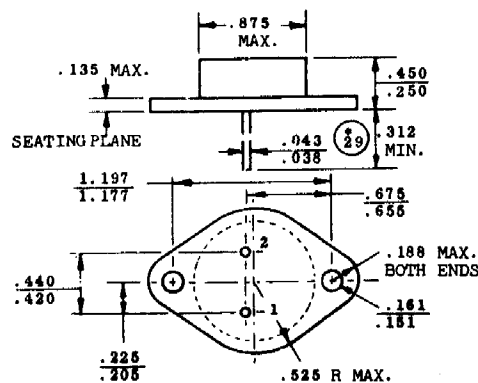
**HIGH CURRENT, HIGH SPEED,
 HIGH POWER TRANSISTOR**

ABSOLUTE MAXIMUM RATINGS

| Symbol | Ratings | | Value | Unit |
|------------------|---------------------------|--------------------------|-------------|-------|
| V _{CEO} | Collector-Emitter Voltage | I _B = 0 | 160 | V |
| V _{CB0} | Collector-Base Voltage | I _E = 0 | 220 | V |
| V _{CEX} | Collector-Emitter Voltage | V _{BE} = -1.5 V | 220 | V |
| V _{EBO} | Emitter-Base Voltage | I _C = 0 | 7 | V |
| I _C | Collector Current | | 18 | A |
| I _{CM} | Collector Peak Current | t _p = 10ms | 25 | A |
| I _B | Base Current | | 3.6 | A |
| P _t | Total Power Dissipation | @ T _C = 25° | 120 | Watts |
| T _J | Junction Temperature | | 200 | °C |
| T _{Stg} | Storage Temperature | | -65 to +200 | °C |

THERMAL CHARACTERISTICS

| Symbol | Ratings | Value | Unit |
|-------------------|--------------------------------------|-------|------|
| R _{thJC} | Thermal Resistance, Junction to Case | 1.46 | °C/W |



Quality Semi-Conductors

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

| Symbol | Ratings | Test Condition(s) | Min | Typ | Max | Unit |
|----------------|--|--|-----------|-------------|------------|---------------|
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage (*) | $I_C = 200 \text{ mA}$ | 160 | - | - | V |
| V_{EBO} | Emitter-Base Voltage | $I_C = 0 \text{ A}, I_E = 50 \text{ mA}$ | 7 | - | - | V |
| I_{CEO} | Collector Cutoff Current | $V_{CE} = 130 \text{ V}, I_B = 0 \text{ A}$ | - | - | 1 | mA |
| I_{CEX} | Collector Cutoff Current | $V_{CE} = 220 \text{ V}, V_{BE} = -1.5 \text{ V}$ $V_{CE} = 220 \text{ V}, V_{BE} = -1.5 \text{ V}$ $T_{case} = 125^\circ\text{C}$ | - | - | 5 | mA |
| I_{EBO} | Emitter Cutoff Current | $V_{EB} = 5.0 \text{ V}, I_C = 0 \text{ A}$ | - | - | 1 | mA |
| h_{FE} | DC Current Gain (*) | $I_C = 8 \text{ A}, V_{CE} = 4.0 \text{ V}$ $I_C = 12 \text{ A}, V_{CE} = 4.0 \text{ V}$ | 15 8 | - | 45 - | - |
| $V_{CE(SAT)}$ | Collector-Emitter saturation Voltage (*) | $I_C = 8 \text{ A}, I_B = 0.8 \text{ A}$ $I_C = 12 \text{ A}, I_B = 1.5 \text{ A}$ | - - | 0.5 0.75 | 1.2 1.6 | V |
| $V_{BE(SAT)}$ | Base-Emitter saturation Voltage (*) | $I_C = 12 \text{ A}, I_B = 1.5 \text{ A}$ | - | 1.5 | 2 | |
| $I_{S/B}$ | Second breakdown collector current | $V_{CE} = 30 \text{ V}, t_s = 1 \text{ s}$ $V_{CE} = 100 \text{ V}, t_s = 1 \text{ s}$ | 4 0.27 | - | - | A |
| $E_{S/B}$ | Clamped $E_{S/B}$ Collector current | $V_{clamp} = 160 \text{ V}$ $L = 500 \mu\text{H}$ | 12 | - | - | A |
| f_T | Transition frequency | $V_{CE} = 15 \text{ V}, I_C = 1 \text{ A}$ $f = 10 \text{ MHz}$ | 8 | - | - | MHz |
| t_{on} | Turn-on time | $I_C = 12 \text{ A}, I_B = 1.5 \text{ A}$ $V_{CC} = 30 \text{ V}$ | - | 0.35 | 1.3 | μs |
| t_s | Storage time | $I_C = 12 \text{ A}, V_{CC} = 30 \text{ V}$ | - | 0.85 | 1.5 | |
| t_f | File time | $I_{B1} = -I_{B2} = 1.5 \text{ A}$ | - | 0.14 | 0.8 | |

(*) Pulse Duration = 300 μs , Duty Cycle $\leq 2\%$