



## NPN BUX41

### HIGH CURRENT, HIGH SPEED, HIGH POWER TRANSISTOR

The BUX41 is silicon multi-epitaxial planar NPN transistor in Jedec TO-3. They are intended for use in switching and linear applications in military and industrial equipment.

Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

| Symbol    | Ratings                   | Value              | Unit           |
|-----------|---------------------------|--------------------|----------------|
| $V_{CEO}$ | Collector-Emitter Voltage | $I_B = 0$          | 200 V          |
| $V_{CBO}$ | Collector-Base Voltage    | $I_E = 0$          | 250 V          |
| $V_{EBO}$ | Emitter-Base Voltage      | $I_C = 0$          | 7 V            |
| $V_{CEX}$ | Collector-Emitter Voltage | $V_{BE} = -1.5V$   | 250 V          |
| $I_C$     | Collector Current         |                    | 15 A           |
| $I_{CM}$  | Collector Peak Current    | $t_p = 10ms$       | 20 A           |
| $I_B$     | Base Current              |                    | 3 A            |
| $P_t$     | Total Power Dissipation   | @ $T_C = 25^\circ$ | 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 |

## NPN BUX41

### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

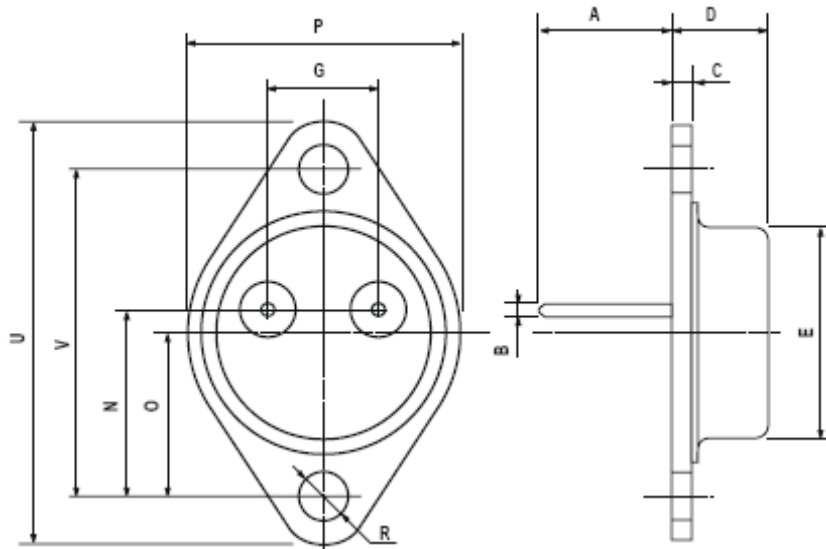
| Symbol         | Ratings                                  | Test Condition(s)  | Min  | Typ         | Mx         | Unit          |
|----------------|--|--|------|-------------|------------|---------------|
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage (1) | $I_C=200\text{ mA}$  | 200  | -           | -          | V             |
| $V_{EBO}$      | Emitter-Base Voltage                     | $I_C=0\text{ A}, I_E=50\text{ mA}$                                     | 7    | -           | -          | V             |
| $I_{CEO}$      | Collector Cutoff Current                 | $V_{CE}=160\text{ V}, I_B=0\text{ A}$                                  | -    | -           | 1          | mA            |
| $I_{CEX}$      | Collector Cutoff Current                 | $V_{CE}=V_{CEX}, V_{BE}=-1.5\text{ V}$                                 | -    | -           | 1          | mA            |
|                |  | $V_{CE}=V_{CEX}, V_{BE}=-1.5\text{ V}, T_{case}=125^\circ\text{C}$     | -    | -           | 5          |               |
| $I_{EBO}$      | Emitter Cutoff Current                   | $V_{EB}=5.0\text{ V}, I_C=0$   | -    | -           | 1          | mA            |
| $h_{FE}$       | DC Current Gain (1)                      | $I_C=5\text{ A}, V_{CE}=4.0\text{ V}$                                  | 15   | -           | 45         | -             |
|                |  | $I_C=8\text{ A}, V_{CE}=4.0\text{ V}$                                  | 8    | -           | -          |               |
| $V_{CE(SAT)}$  | Collector-Emitter saturation Voltage (1) | $I_C=5\text{ A}, I_B=0.5\text{ A}$<br>$I_C=8\text{ A}, I_B=1\text{ A}$ | -    | 0.38<br>0.6 | 1.2<br>1.6 | V             |
| $V_{BE(SAT)}$  | Base-Emitter saturation Voltage (1)      | $I_C=8\text{ A}, I_B=1\text{ A}$                                       | -    | 1.35        | 2          |               |
| $I_{S/B}$      | Second breakdown collector current       | $V_{CE}=30\text{ V}, t_s=1\text{ s}$                                   | 4    | -           | -          | A             |
|                |  | $V_{CE}=135\text{ V}, t_s=1\text{ s}$                                  | 0.15 | -           | -          |               |
| $E_{S/B}$      | Clamped $E_{S/B}$ Collector current      | $V_{clamp}=200\text{ V}, L=500\text{ }\mu\text{H}$                     | 8    | -           | -          | 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                             | $I_C=8\text{ A}, I_B=1\text{ A}, V_{CC}=150\text{ V}$                  | -    | 0.28        | 1.0        | $\mu\text{s}$ |
| $t_s$          | Storage time                             | $I_C=8\text{ A}, V_{CC}=150\text{ V}$                                  | -    | 1.2         | 1.7        |               |
| $t_f$          | File time                                | $I_{B1}=-I_{B2}=1\text{ A}$  | -    | 0.25        | 0.8        |               |

(1) Pulse Duration = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2\%$

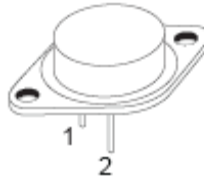
## NPN BUX41

### MECHANICAL DATA CASE TO-3

| DIMENSIONS (mm) |       |     |       |
|-----------------|-------|-----|-------|
|                 | min   | typ | max   |
| A               | 11    | -   | 13.10 |
| B               | 0.97  | -   | 1.15  |
| C               | 1.5   | -   | 1.65  |
| D               | 8.32  | -   | 8.92  |
| F               | 19    | -   | 20    |
| G               | 10.70 | -   | 11.1  |
| N               | 16.50 | -   | 17.20 |
| P               | 25    | -   | 26    |
| R               | 4     | -   | 4.09  |
| U               | 38.50 | -   | 39.30 |
| V               | 30    | -   | 30.30 |



|         |           |
|---------|-----------|
| Pin 1 : | Base      |
| Pin 2 : | Emitter   |
| Case :  | Collector |



Information furnished is believed to be accurate and reliable. However, CS assumes no responsibility for the consequences of use of such information nor for errors that could appear.  
Data are subject to change without notice.