

**isc Silicon NPN Power Transistor**

**BUP22B/C**

**DESCRIPTION**

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 400V(\text{Min})$ -BUP22B  
=  $450V(\text{Min})$ -BUP22C
- High Switching Speed

**APPLICATIONS**

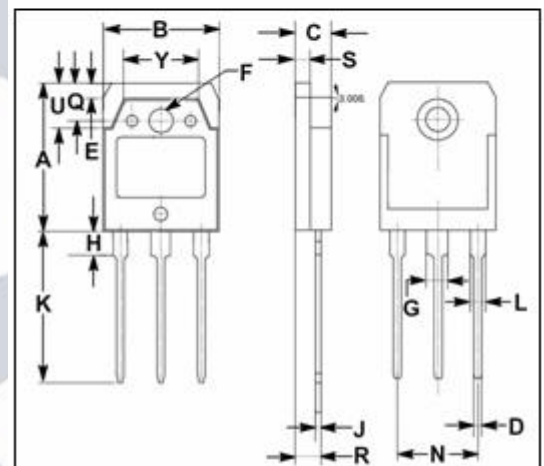
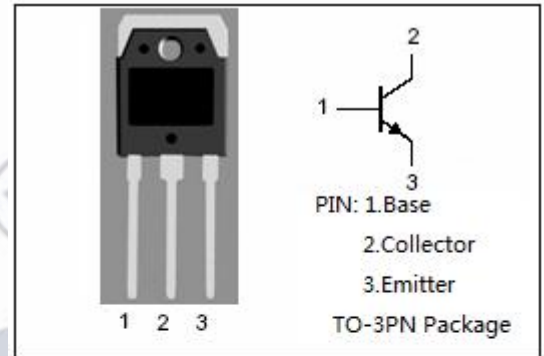
- Designed for use in converters, inverters, switching-regulators, motor control systems etc.

**ABSOLUTE MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )**

| SYMBOL    | PARAMETER  | VALUE   | UNIT             |   |
|-----------|--|---------|------------------|---|
| $V_{CES}$ | Collector- Emitter Voltage $V_{BE}=0$                | BUP22B  | 750              | V |
|           |  | BUP22C  | 850              |   |
| $V_{CEO}$ | Collector-Emitter Voltage                            | BUP22B  | 400              | V |
|           |  | BUP22C  | 450              |   |
| $V_{EBO}$ | Emitter-Base Voltage                                 | 9       | V                |   |
| $I_C$     | Collector Current-Continuous                         | 8       | A                |   |
| $I_{CM}$  | Collector Current-Peak                               | 20      | A                |   |
| $I_B$     | Base Current-Continuous                              | 4       | A                |   |
| $I_{BM}$  | Base Current-Peak                                    | 6       | A                |   |
| $P_C$     | Collector Power Dissipation @ $T_C=25^\circ\text{C}$ | 125     | W                |   |
| $T_J$     | Junction Temperature                                 | 150     | $^\circ\text{C}$ |   |
| $T_{stg}$ | Storage Temperature Range                            | -65~150 | $^\circ\text{C}$ |   |

**THERMAL CHARACTERISTICS**

| SYMBOL        | PARAMETER                            | MAX | UNIT               |
|---------------|--------------------------------------|-----|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 1.0 | $^\circ\text{C/W}$ |



| DIM | mm    |       |
|-----|-------|-------|
|     | MIN   | MAX   |
| A   | 19.60 | 20.30 |
| B   | 15.50 | 15.70 |
| C   | 4.70  | 4.90  |
| D   | 0.90  | 1.10  |
| E   | 1.90  | 2.10  |
| F   | 3.40  | 3.60  |
| G   | 2.90  | 3.20  |
| H   | 3.20  | 3.40  |
| J   | 0.595 | 0.605 |
| K   | 19.80 | 20.70 |
| L   | 1.90  | 2.20  |
| N   | 10.89 | 10.91 |
| Q   | 4.90  | 5.10  |
| R   | 3.35  | 3.45  |
| S   | 1.995 | 2.100 |
| U   | 5.90  | 6.20  |
| Y   | 9.90  | 10.10 |

## isc Silicon NPN Power Transistor

## BUP22B/C

## ELECTRICAL CHARACTERISTICS

 $T_C=25^\circ\text{C}$  unless otherwise specified

| SYMBOL        | PARAMETER                            | CONDITIONS  | MIN                              | TYP. | MAX    | UNIT |
|---------------|--------------------------------------|---|----------------------------------|------|--------|------|
| $V_{CE(SUS)}$ | Collector-Emitter Sustaining Voltage | BUP22B  | $I_C=50\text{mA}; I_B=0$         |      |        | V    |
|               |                                      | BUP22C  |                                  |      |        |      |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | BUP22B  | $I_C=6\text{A}; I_B=0.8\text{A}$ |      | 1.5    | V    |
|               |                                      | BUP22C  |                                  |      |        |      |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage      | BUP22B  | $I_C=6\text{A}; I_B=0.8\text{A}$ |      | 1.5    | V    |
|               |                                      | BUP22C  |                                  |      |        |      |
| $I_{CES}$     | Collector Cutoff Current             | $V_{CE}=V_{CESmax}; V_{BE}=0$<br>$V_{CE}=V_{CESmax}; V_{BE}=0; T_J=125^\circ\text{C}$ |                                  |      | 1<br>2 | mA   |
| $I_{EBO}$     | Emitter Cutoff Current               | $V_{EB}=9\text{V}; I_C=0$   |                                  |      | 10     | mA   |
| $h_{FE}$      | DC Current Gain                      | $I_C=1\text{A}; V_{CE}=5\text{V}$   |                                  | 25   |        |      |

## Switching Times; Resistive Load

|          |              |  |  |     |  |               |
|----------|--------------|--|--|-----|--|---------------|
| $t_{on}$ | Turn-On Time | For BUP22B<br>$I_C=6\text{A}; I_{B1}=-I_{B2}=0.8\text{A}$<br>For BUP22C<br>$I_C=6\text{A}; I_{B1}=-I_{B2}=1\text{A}$ |  | 0.5 |  | $\mu\text{s}$ |
| $t_s$    | Storage Time |  |  | 3.0 |  | $\mu\text{s}$ |
| $t_f$    | Fall Time    |  |  | 0.3 |  | $\mu\text{s}$ |