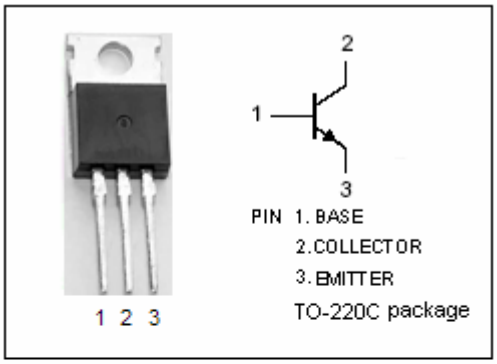
# isc Silicon NPN Power Transistors BUT22B/C

## DESCRIPTION

- Collector-Emitter Sustaining Voltage-
  : $V_{CEO(SUS)}$ = 400V(Min)- BUT22B
  450V(Min)- BUT22C
- High Switching Speed

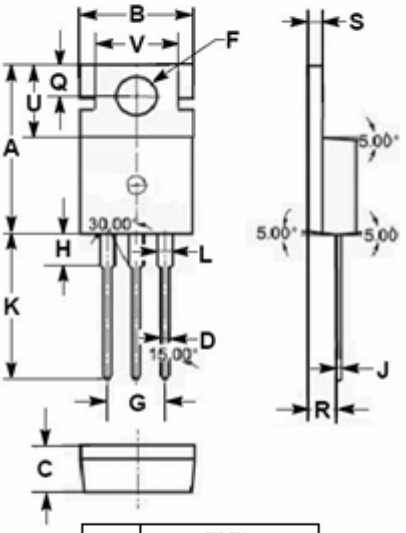
## APPLICATIONS

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




## ABSOLUTE MAXIMUM RATINGS($T_a$=25℃)

| SYMBOL | PARAMETER | | VALUE | UNIT |
|---|---|---|---|---|
| $V_{CES}$ | Collector-Emitter Voltage $V_{BE}$= 0 | BUT22B | 750 | V |
| | | BUT22C | 850 | |
| $V_{CEO}$ | Collector-Emitter Voltage | BUT22B | 400 | V |
| | | BUT22C | 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℃ | | 125 | W |
| $T_J$ | Junction Temperature | | 150 | ℃ |
| $T_{stg}$ | Storage Temperature Range | | -65~150 | ℃ |




| DIM | mm MIN | MAX |
|---|---|---|
| A | 15.70 | 15.90 |
| B | 9.90 | 10.10 |
| C | 4.20 | 4.40 |
| D | 0.70 | 0.90 |
| F | 3.40 | 3.60 |
| G | 4.98 | 5.18 |
| H | 2.70 | 2.90 |
| J | 0.44 | 0.46 |
| K | 13.20 | 13.40 |
| L | 1.10 | 1.30 |
| Q | 2.70 | 2.90 |
| R | 2.50 | 2.70 |
| S | 1.29 | 1.31 |
| U | 6.45 | 6.65 |
| V | 8.66 | 8.86 |

## THERMAL CHARACTERISTICS

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

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## ELECTRICAL CHARACTERISTICS

**$T_C$=25℃ unless otherwise specified**

| SYMBOL | PARAMETER | | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage | BUT22B | $I_C$= 0.1A ;$I_B$= 0; L= 25mH | 400 | | | V |
| | | BUT22C | | 450 | | | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | BUT22B | $I_C$= 6A; $I_B$= 0.8A | | | 1.5 | V |
| | | BUT22C | $I_C$= 6A; $I_B$= 1.0A | | | 1.5 | |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | BUT22B | $I_C$= 6A; $I_B$= 0.8A | | | 1.5 | V |
| | | BUT22C | $I_C$= 6A; $I_B$= 1.0A | | | 1.5 | |
| $I_{CES}$ | Collector Cutoff Current | | $V_{CE}$= $V_{CESmax}$;$V_{BE}$= 0 | | | 1.0 | mA |
| $I_{EBO}$ | Emitter Cutoff Current | | $V_{EB}$= 9V; $I_C$=0 | | | 10 | mA |
| $h_{FE}$ | DC Current Gain | | $I_C$= 1A ; $V_{CE}$= 5V | | 25 | | |
| Switching Times; Resistive Load | | | | | | | |
| $t_{on}$ | Turn-On Time | | For BUT22B<br>$I_C$= 6A; $I_{B1}$= -$I_{B2}$= 0.8A<br>For BUT22C<br>$I_C$= 6A; $I_{B1}$= -$I_{B2}$= 1.0A | | | 1.0 | μs |
| $t_{stg}$ | Storage Time | | | | | 4.5 | μs |
| $t_f$ | Fall Time | | | | | 0.7 | μs |