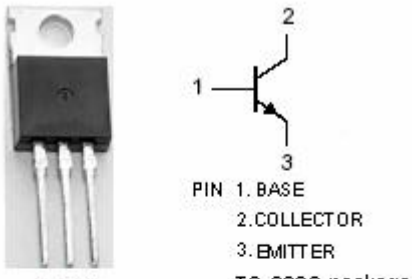
# isc Silicon NPN Power Transistors — BUW40/A/B

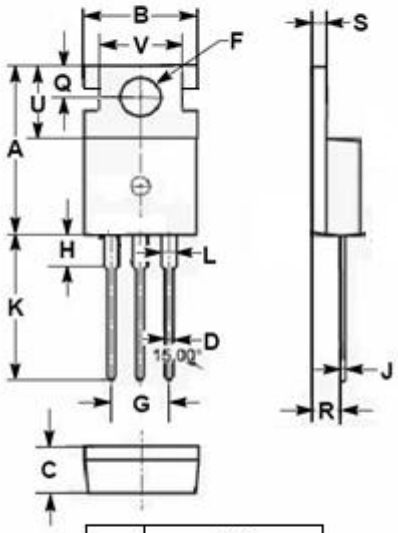
## DESCRIPTION

- Collector-Emitter Sustaining Voltage-
  : $V_{CEO(SUS)}$ = 300V(Min)- BUW40
  = 350V(Min)- BUW40A
  = 400V(Min)- BUW40B
- High Switching Speed
- High Power Dissipation
- Minimum Lot-to-Lot variations for robust device performance and reliable operation




## APPLICATIONS

- Designed for high voltage and switching applications.




| DIM | mm MIN | MAX |
|---|---|---|
| A | 15.50 | 15.90 |
| B | 9.80 | 10.20 |
| C | 4.20 | 4.50 |
| D | 0.70 | 0.90 |
| F | 3.40 | 3.70 |
| G | 4.98 | 5.18 |
| H | 2.68 | 2.90 |
| J | 0.44 | 0.60 |
| K | 12.80 | 13.40 |
| L | 1.20 | 1.45 |
| Q | 2.70 | 2.90 |
| R | 2.30 | 2.70 |
| S | 1.29 | 1.35 |
| U | 6.45 | 6.65 |
| V | 8.66 | 8.86 |

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

| SYMBOL | PARAMETER | | VALUE | UNIT |
|---|---|---|---|---|
| $V_{CEV}$ | Collector-Emitter Voltage $V_{BE}$= -1.5V | BUW40 | 450 | V |
| | | BUW40A | 550 | |
| | | BUW40B | 650 | |
| $V_{CEO(SUS)}$ | Collector-Emitter Voltage | BUW40 | 300 | V |
| | | BUW40A | 350 | |
| | | BUW40B | 400 | |
| $V_{EBO}$ | Emitter-Base Voltage | | 6 | V |
| $I_C$ | Collector Current-Continuous | | 1 | A |
| $I_{CM}$ | Collector Current-Peak | | 2 | A |
| $P_C$ | Collector Power Dissipation@$T_C$=25℃ | | 40 | W |
| $T_J$ | Junction Temperature | | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | | -65~150 | ℃ |

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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 | BUW40 | $I_C$= 50mA ; $I_B$= 0 | 300 | | | V |
| | | BUW40A | | 350 | | | |
| | | BUW40B | | 400 | | | |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | | $I_E$= 1mA ; $I_C$= 0 | 6 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | | $I_C$= 1A; $I_B$= 0.2A<br>$I_C$= 1A; $I_B$= 0.2A,$T_C$= 150℃ | | | 1.0<br>2.0 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | | $I_C$= 1A ; $V_{CE}$= 3V | | | 1.5 | V |
| $I_{CEV}$ | Collector Cutoff Current | BUW40 | $V_{CE}$= 450V;$V_{BE}$= -1.5V<br>$V_{CE}$= 450V;$V_{BE}$= -1.5V,$T_C$= 150℃ | | | 0.1<br>1.0 | mA |
| | | BUW40A | $V_{CE}$= 550V;$V_{BE}$= -1.5V<br>$V_{CE}$= 550V;$V_{BE}$= -1.5V,$T_C$= 150℃ | | | 0.1<br>1.0 | |
| | | BUW40B | $V_{CE}$= 650V;$V_{BE}$= -1.5V<br>$V_{CE}$= 650V;$V_{BE}$= -1.5V,$T_C$= 150℃ | | | 0.1<br>1.0 | |
| $I_{EBO}$ | Emitter Cutoff Current | | $V_{EB}$= 6V; $I_C$=0 | | | 1.0 | mA |
| $h_{FE}$ | DC Current Gain | | $I_C$= 1A ; $V_{CE}$= 3V | 10 | | 50 | |
| $f_T$ | Current-Gain—Bandwidth Product | | $I_C$= 0.5A ;$V_{CE}$= 10V | 10 | | | MHz |