

## isc Silicon PNP Power Transistor

## BDW94/A/B/C

## DESCRIPTION

- Collector Current  $-I_C = -12A$
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = -45V(\text{Min})$ - BDW94;  $-60V(\text{Min})$ - BDW94A  
 $-80V(\text{Min})$ - BDW94B;  $-100V(\text{Min})$ - BDW94C
- Complement to Type BDW93/A/B/C
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

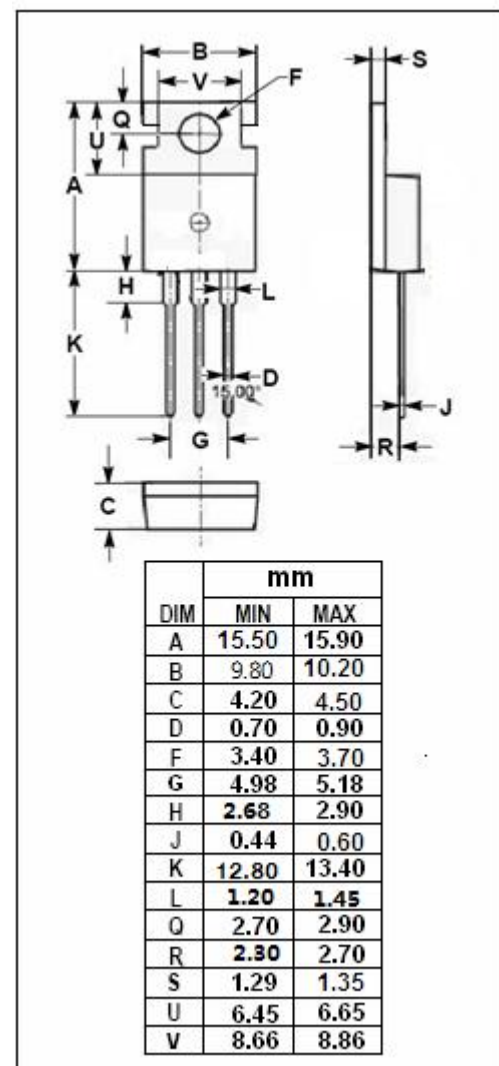
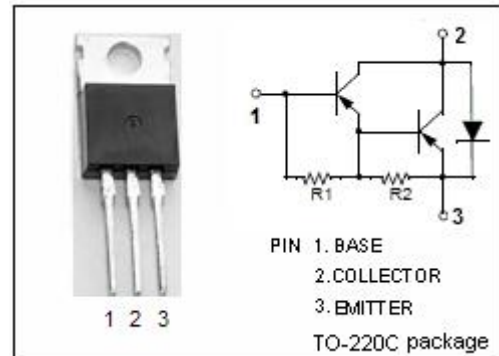
- Designed for hammer drivers, audio amplifier applications.

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

| SYMBOL    | PARAMETER                                               | VALUE   | UNIT             |
|-----------|---------------------------------------------------------|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                                  | BDW94   | -45              |
|           |                                                         | BDW94A  | -60              |
|           |                                                         | BDW94B  | -80              |
|           |                                                         | BDW94C  | -100             |
| $V_{CEO}$ | Collector-Emitter Voltage                               | BDW94   | -45              |
|           |                                                         | BDW94A  | -60              |
|           |                                                         | BDW94B  | -80              |
|           |                                                         | BDW94C  | -100             |
| $V_{EBO}$ | Emitter-Base Voltage                                    | -5      | V                |
| $I_C$     | Collector Current-Continuous                            | -12     | A                |
| $I_{CM}$  | Collector Current-Peak                                  | -15     | A                |
| $I_B$     | Base Current                                            | -0.2    | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_C=25^\circ\text{C}$ | 80      | 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 | 1.5 | $^\circ\text{C/W}$ |



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## ELECTRICAL CHARACTERISTICS

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

| SYMBOL          | PARAMETER                            |        | CONDITIONS                               | MIN  | TYP. | MAX   | UNIT |
|-----------------|--------------------------------------|--------|------------------------------------------|------|------|-------|------|
| $V_{CEO(SUS)}$  | Collector-Emitter Sustaining Voltage | BDW94  | $I_C = -50\text{mA}; I_B = 0$            | -45  |      |       | V    |
|                 |                                      | BDW94A |                                          | -60  |      |       |      |
|                 |                                      | BDW94B |                                          | -80  |      |       |      |
|                 |                                      | BDW94C |                                          | -100 |      |       |      |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage |        | $I_C = -5\text{A}; I_B = -20\text{mA}$   |      |      | -2.0  | V    |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage |        | $I_C = -10\text{A}; I_B = -0.1\text{A}$  |      |      | -3.0  | V    |
| $V_{BE(sat)-1}$ | Base-Emitter Saturation Voltage      |        | $I_C = -5\text{A}; I_B = -20\text{mA}$   |      |      | -2.5  | V    |
| $V_{BE(sat)-1}$ | Base-Emitter Saturation Voltage      |        | $I_C = -10\text{A}; I_B = -0.1\text{A}$  |      |      | -4.0  | V    |
| $I_{CBO}$       | Collector Cutoff Current             | BDW94  | $V_{CB} = -45\text{V}; I_E = 0$          |      |      | -0.1  | mA   |
|                 |                                      | BDW94A | $V_{CB} = -60\text{V}; I_E = 0$          |      |      |       |      |
|                 |                                      | BDW94B | $V_{CB} = -80\text{V}; I_E = 0$          |      |      |       |      |
|                 |                                      | BDW94C | $V_{CB} = -100\text{V}; I_E = 0$         |      |      |       |      |
| $I_{CEO}$       | Collector Cutoff Current             | BDW94  | $V_{CE} = -45\text{V}; I_B = 0$          |      |      | -1.0  | mA   |
|                 |                                      | BDW94A | $V_{CE} = -60\text{V}; I_B = 0$          |      |      |       |      |
|                 |                                      | BDW94B | $V_{CE} = -80\text{V}; I_B = 0$          |      |      |       |      |
|                 |                                      | BDW94C | $V_{CE} = -100\text{V}; I_B = 0$         |      |      |       |      |
| $I_{EBO}$       | Emitter Cutoff Current               |        | $V_{EB} = -5\text{V}; I_C = 0$           |      |      | -2.0  | mA   |
| $h_{FE-1}$      | DC Current Gain                      |        | $I_C = -3\text{A}; V_{CE} = -3\text{V}$  | 1000 |      |       |      |
| $h_{FE-2}$      | DC Current Gain                      |        | $I_C = -5\text{A}; V_{CE} = -3\text{V}$  | 750  |      | 20000 |      |
| $h_{FE-3}$      | DC Current Gain                      |        | $I_C = -10\text{A}; V_{CE} = -3\text{V}$ | 100  |      |       |      |
| $V_{ECF-1}$     | C-E Diode Forward Voltage            |        | $I_F = -5\text{A}$                       |      |      | -2.0  | V    |
| $V_{ECF-2}$     | C-E Diode Forward Voltage            |        | $I_F = -10\text{A}$                      |      |      | -4.0  | V    |

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