

isc Silicon PNP Darlington Power Transistor

BDW64/A/B/C/D

DESCRIPTION

- Collector Current  $-I_C = -6A$
- High DC Current Gain- $h_{FE} = 750(\text{Min.}) @ I_C = -2A$
- Complement to Type BDW63/A/B/C/D

APPLICATIONS

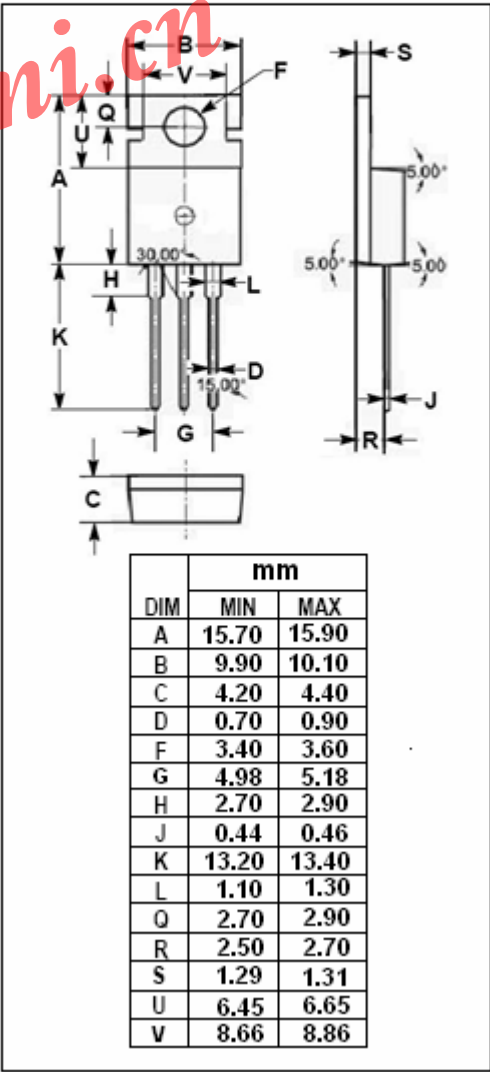
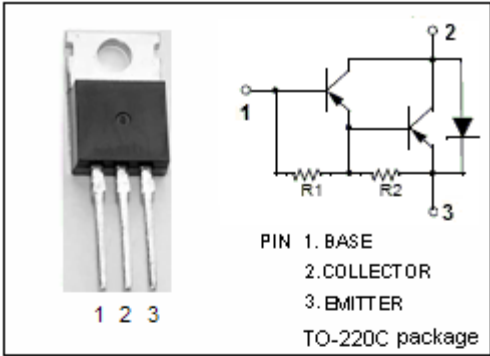
- Designed for audio output stages and general amplifier and switching applications

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

| SYMBOL    | PARAMETER                                       | VALUE   | UNIT        |
|-----------|-------------------------------------------------|---------|-------------|
| $V_{CBO}$ | Collector-Base Voltage                          | BDW64   | -45         |
|           |                                                 | BDW64A  | -60         |
|           |                                                 | BDW64B  | -80         |
|           |                                                 | BDW64C  | -100        |
|           |                                                 | BDW64D  | -120        |
| $V_{CEO}$ | Collector-Emitter Voltage                       | BDW64   | -45         |
|           |                                                 | BDW64A  | -60         |
|           |                                                 | BDW64B  | -80         |
|           |                                                 | BDW64C  | -100        |
|           |                                                 | BDW64D  | -120        |
| $V_{EBO}$ | Emitter-Base Voltage                            | -5      | V           |
| $I_C$     | Collector Current-Continuous                    | -6      | A           |
| $I_B$     | Base Current-Continuous                         | -0.1    | A           |
| $P_C$     | Collector Power Dissipation @ $T_a=25^{\circ}C$ | 2       | W           |
|           | Collector Power Dissipation @ $T_C=25^{\circ}C$ | 60      |             |
| $T_J$     | Junction Temperature                            | 150     | $^{\circ}C$ |
| $T_{stg}$ | Storage Temperature Range                       | -65~150 | $^{\circ}C$ |

THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                            | MAX  | UNIT          |
|---------------|--------------------------------------|------|---------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 2.08 | $^{\circ}C/W$ |
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 62.5 | $^{\circ}C/W$ |



## ISC Silicon PNP Darlington Power Transistor

## BDW64/A/B/C/D

## ELECTRICAL CHARACTERISTICS

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

| SYMBOL          | PARAMETER                            |        | CONDITIONS                                                                                             | MIN  | TYP. | MAX          | UNIT           |
|-----------------|--------------------------------------|--------|--------------------------------------------------------------------------------------------------------|------|------|--------------|----------------|
| $V_{(BR)CEO}$   | Collector-Emitter Breakdown Voltage  | BDW64  | $I_C = -30\text{mA}; I_B = 0$                                                                          | -45  |      |              | V              |
|                 |                                      | BDW64A |                                                                                                        | -60  |      |              |                |
|                 |                                      | BDW64B |                                                                                                        | -80  |      |              |                |
|                 |                                      | BDW64C |                                                                                                        | -100 |      |              |                |
|                 |                                      | BDW64D |                                                                                                        | -120 |      |              |                |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage |        | $I_C = -2\text{A}; I_B = -12\text{mA}$                                                                 |      |      | -2.5         | V              |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage |        | $I_C = -6\text{A}; I_B = -60\text{mA}$                                                                 |      |      | -4.0         | V              |
| $V_{BE(on)}$    | Base-Emitter On Voltage              |        | $I_C = -2\text{A}; V_{CE} = -3\text{V}$                                                                |      |      | -2.5         | V              |
| $V_{ECF}$       | C-E Diode Forward Voltage            |        | $I_F = -6\text{A}$                                                                                     |      |      | -3.5         | V              |
| $I_{CEO}$       | Collector Cutoff Current             | BDW64  | $V_{CE} = -30\text{V}; I_B = 0$                                                                        |      |      | -0.5         | mA             |
|                 |                                      | BDW64A | $V_{CE} = -30\text{V}; I_B = 0$                                                                        |      |      |              |                |
|                 |                                      | BDW64B | $V_{CE} = -40\text{V}; I_B = 0$                                                                        |      |      |              |                |
|                 |                                      | BDW64C | $V_{CE} = -50\text{V}; I_B = 0$                                                                        |      |      |              |                |
|                 |                                      | BDW64D | $V_{CE} = -60\text{V}; I_B = 0$                                                                        |      |      |              |                |
| $I_{CBO}$       | Collector Cutoff Current             | BDW64  | $V_{CB} = -45\text{V}; I_E = 0$<br>$V_{CB} = -45\text{V}; I_E = 0; T_J = 150^{\circ}\text{C}$          |      |      | -0.2<br>-5.0 | mA             |
|                 |                                      | BDW64A | $V_{CB} = -60\text{V}; I_E = 0$<br>$V_{CB} = -60\text{V}; I_E = 0; T_J = 150^{\circ}\text{C}$          |      |      | -0.2<br>-5.0 |                |
|                 |                                      | BDW64B | $V_{CB} = -80\text{V}; I_E = 0$<br>$V_{CB} = -80\text{V}; I_E = 0; T_J = 150^{\circ}\text{C}$          |      |      | -0.2<br>-5.0 |                |
|                 |                                      | BDW64C | $V_{CB} = -100\text{V}; I_E = 0$<br>$V_{CB} = -100\text{V}; I_E = 0; T_J = 150^{\circ}\text{C}$        |      |      | -0.2<br>-5.0 |                |
|                 |                                      | BDW64D | $V_{CB} = -120\text{V}; I_E = 0$<br>$V_{CB} = -120\text{V}; I_E = 0; T_J = 150^{\circ}\text{C}$        |      |      | -0.2<br>-5.0 |                |
| $I_{EBO}$       | Emitter Cutoff Current               |        | $V_{EB} = -5\text{V}; I_C = 0$                                                                         |      |      | -2.0         | mA             |
| $h_{FE-1}$      | DC Current Gain                      |        | $I_C = -2\text{A}; V_{CE} = -3\text{V}$                                                                | 750  |      | 20000        |                |
| $h_{FE-2}$      | DC Current Gain                      |        | $I_C = -6\text{A}; V_{CE} = -3\text{V}$                                                                | 100  |      |              |                |
| Switching times |                                      |        |                                                                                                        |      |      |              |                |
| $t_{on}$        | Turn-on Time                         |        | $I_C = -3\text{A}; I_{B1} = -I_{B2} = -12\text{mA};$<br>$V_{BE(off)} = -4.5\text{V}, R_L = 10\ \Omega$ |      | 1.0  |              | $\mu\text{ S}$ |
| $t_{off}$       | Turn-off Time                        |        |                                                                                                        |      | 5.0  |              | $\mu\text{ S}$ |