

Silicon NPN Darlington Power Transistor

BDW63/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 BDW64/A/B/C/D

APPLICATIONS

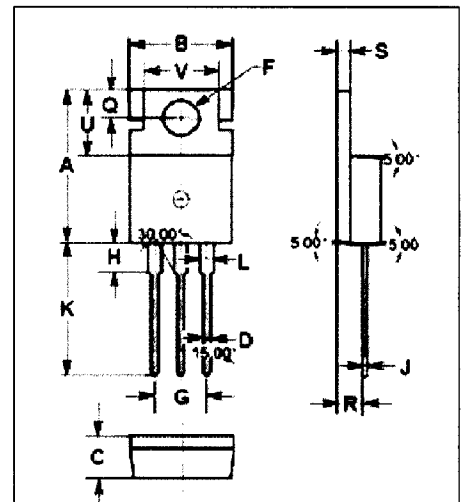
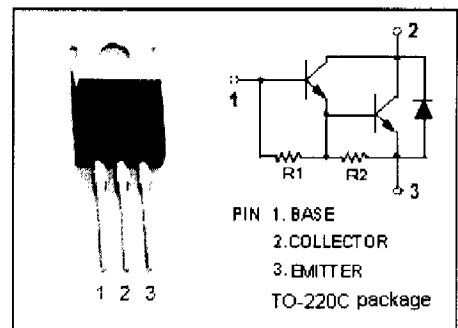
- Designed for audio output stages and general amplifier and switching applications

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

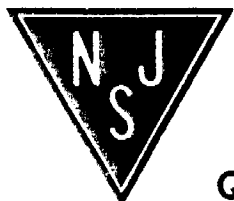
| SYMBOL | PARAMETER | VALUE | UNIT | |
|-----------|--|---------|------------|---|
| V_{CBO} | Collector-Base Voltage | BDW63 | 45 | V |
| | | BDW63A | 60 | |
| | | BDW63B | 80 | |
| | | BDW63C | 100 | |
| | | BDW63D | 120 | |
| V_{CEO} | Collector-Emitter Voltage | BDW63 | 45 | V |
| | | BDW63A | 60 | |
| | | BDW63B | 80 | |
| | | BDW63C | 100 | |
| | | BDW63D | 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 | $^\circ C/W$ |



| 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 |



Silicon NPN Darlington Power Transistor

BDW63/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 | BDW63 | $I_C=30\text{mA}; I_B=0$ | | | V |
| | | BDW63A | | | | |
| | | BDW63B | | | | |
| | | BDW63C | | | | |
| | | BDW63D | | | | |
| $V_{CE(sat)-1}$ | 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 | BDW63 | $V_{CE}=30\text{V}; I_B=0$ | | | mA |
| | | BDW63A | | | | |
| | | BDW63B | | | | |
| | | BDW63C | | | | |
| | | BDW63D | | | | |
| I_{CBO} | Collector Cutoff Current | BDW63 | $V_{CE}=30\text{V}; I_B=0$ | | | mA |
| | | BDW63A | | | | |
| | | BDW63B | | | | |
| | | BDW63C | | | | |
| | | BDW63D | | | | |
| I_{EBO} | Emitter Cutoff Current | BDW63 | $V_{EB}=5\text{V}; I_C=0$ | | | mA |
| | | BDW63A | | | | |
| | | BDW63B | | | | |
| | | BDW63C | | | | |
| | | BDW63D | | | | |
| 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 | $I_C=3\text{A}; I_{B1}=-I_{B2}=12\text{mA}; V_{BE(off)}=-4.5\text{V}; R_L=10\Omega$ | | 1.0 | | μs |
| t_{off} | Turn-off Time | | | 5.0 | | μs |