*New Jersey Semi-Conductor Products, Inc.*

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

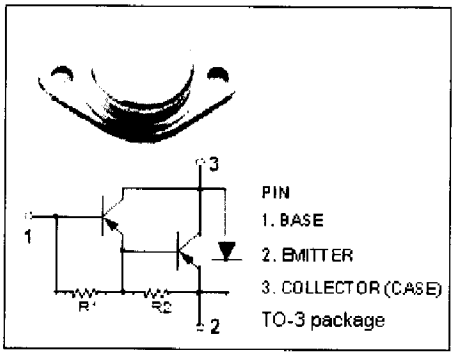
# Silicon PNP Darlington Power Transistor — BDX88/A/B/C

## DESCRIPTION

- High DC Current Gain-
  : $h_{FE}$= 750(Min)@ $I_C$= -6A
- Collector-Emitter Sustaining Voltage-
  : $V_{CEO(SUS)}$ = -45V(Min)- BDX88; -60V(Min)- BDX88A
  -80V(Min)- BDX88B; -100V(Min)- BDX88C
- Complement to Type BDX87/A/B/C

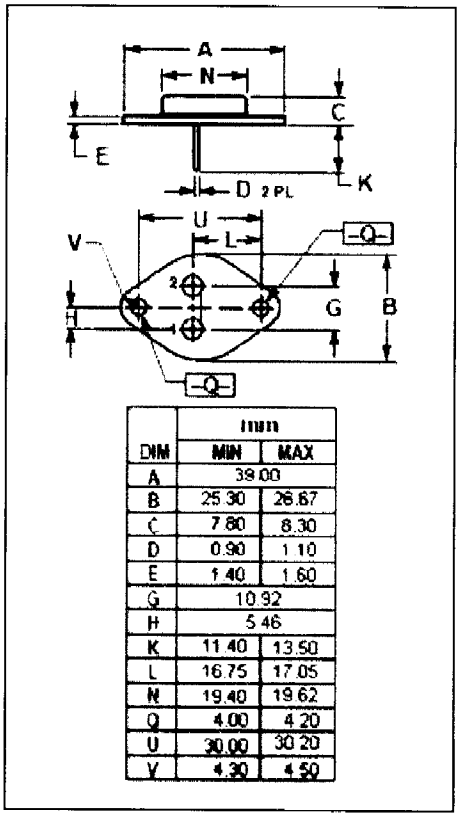
## APPLICATIONS

- Designed for use in power linear and switching applications.




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

| SYMBOL | PARAMETER | | VALUE | UNIT |
|---|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | BDX88 | -45 | V |
| | | BDX88A | -60 | |
| | | BDX88B | -80 | |
| | | BDX88C | -100 | |
| $V_{CEO}$ | Collector-Emitter Voltage | BDX88 | -45 | V |
| | | BDX88A | -60 | |
| | | BDX88B | -80 | |
| | | BDX88C | -100 | |
| $V_{EBO}$ | Emitter-Base Voltage | | -5 | V |
| $I_C$ | Collector Current-Continuous | | -12 | A |
| $I_{CM}$ | Collector Current-Peak | | -18 | A |
| $I_B$ | Base Current | | -200 | mA |
| $P_C$ | Collector Power Dissipation @ $T_C$=25℃ | | 120 | W |
| $T_J$ | Junction Temperature | | 200 | ℃ |
| $T_{stg}$ | Storage Temperature Range | | -65~200 | ℃ |




| DIM | mm MIN | MAX |
|---|---|---|
| A | 39.00 | |
| B | 25.30 | 26.67 |
| C | 7.80 | 8.30 |
| D | 0.90 | 1.10 |
| E | 1.40 | 1.60 |
| G | 10.92 | |
| H | 5.46 | |
| K | 11.40 | 13.50 |
| L | 16.75 | 17.05 |
| N | 19.40 | 19.62 |
| Q | 4.00 | 4.20 |
| U | 30.00 | 30.20 |
| V | 4.30 | 4.50 |

## THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---|---|---|---|
| $R_{th\ j\text{-}c}$ | Thermal Resistance,Junction to Case | 1.45 | ℃/W |

## ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage | BDX88 | $I_C$= -100mA; $I_B$= 0 | -45 | | | V |
| | | BDX88A | | -60 | | | |
| | | BDX88B | | -80 | | | |
| | | BDX88C | | -100 | | | |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | | $I_C$= -6A; $I_B$= -24mA | | | -2.0 | V |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | | $I_C$= -12A; $I_B$= -120mA | | | -3.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | | $I_C$= -12A; $I_B$= -120mA | | | -4.0 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | | $I_C$= -6A; $V_{CE}$= -3V | | | -2.8 | V |
| $I_{CBO}$ | Collector Cutoff Current | BDX88 | $V_{CB}$= -45V; $I_E$= 0<br>$V_{CB}$= -45V; $I_E$= 0; $T_C$= 150℃ | | | -0.5<br>-5.0 | mA |
| | | BDX88A | $V_{CB}$= -60V; $I_E$= 0<br>$V_{CB}$= -60V; $I_E$= 0; $T_C$= 150℃ | | | -0.5<br>-5.0 | |
| | | BDX88B | $V_{CB}$= -80V; $I_E$= 0<br>$V_{CB}$= -80V; $I_E$= 0; $T_C$= 150℃ | | | -0.5<br>-5.0 | |
| | | BDX88C | $V_{CB}$= -100V; $I_E$= 0<br>$V_{CB}$= -100V; $I_E$= 0; $T_C$= 150℃ | | | -0.5<br>-5.0 | |
| $I_{CEO}$ | Collector Cutoff Current | BDX88 | $V_{CE}$= -22V; $I_B$= 0 | | | -1.0 | mA |
| | | BDX88A | $V_{CE}$= -30V; $I_B$= 0 | | | | |
| | | BDX88B | $V_{CE}$= -40V; $I_B$= 0 | | | | |
| | | BDX88C | $V_{CE}$= -50V; $I_B$= 0 | | | | |
| $I_{EBO}$ | Emitter Cutoff Current | | $V_{EB}$= -5V; $I_C$= 0 | | | -2.0 | mA |
| $h_{FE-1}$ | DC Current Gain | | $I_C$= -5A; $V_{CE}$= -3V | 1000 | | | |
| $h_{FE-2}$ | DC Current Gain | | $I_C$= -6A; $V_{CE}$= -3V | 750 | | 18000 | |
| $h_{FE-3}$ | DC Current Gain | | $I_C$= -12A; $V_{CE}$= -3V | 100 | | | |