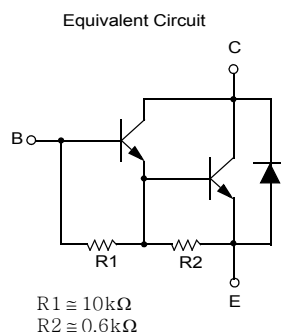
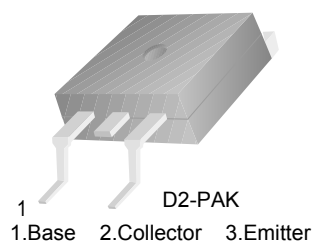


# FJB102

## High Voltage Power Darlington Transistor

### Features

- High DC Current Gain :  $h_{FE}=1000$  @  $V_{CE}=4V$ ,  $I_C=3A$  (Min.)
- Low Collector-Emitter Saturation Voltage
- High Collector-Emitter Sustaining Voltage
- Monolithic Construction with Built-in Base-Emitter Shunt Resistors
- Industrial Use



### Absolute Maximum Ratings

| Symbol    | Parameter                                    | Value     | Units      |
|-----------|----------------------------------------------|-----------|------------|
| $V_{CBO}$ | Collector-Base Voltage                       | 100       | V          |
| $V_{CEO}$ | Collector-Emitter Voltage                    | 100       | V          |
| $V_{EBO}$ | Emitter-Base Voltage                         | 5         | V          |
| $I_C$     | Collector Current (DC)                       | 8         | A          |
| $I_{CP}$  | * Collector Current (Pulse)                  | 15        | A          |
| $I_B$     | Base Current (DC)                            | 1         | A          |
| $P_C$     | Collector Dissipation ( $T_C = 25^\circ C$ ) | 80        | W          |
| $T_J$     | Junction Temperature                         | 150       | $^\circ C$ |
| $T_{STG}$ | Storage Temperature                          | -65 ~ 150 | $^\circ C$ |

\* Pulse Test:  $PW = 300\mu s$ , Duty Cycle = 2% Pulsed

### Package Marking and Ordering Information

| Device Marking | Device | Package | Reel Size | Tape Width | Quantity |
|----------------|--------|---------|-----------|------------|----------|
| FJB102         | FJB102 | D2-PAK  | 13" Dia   | -          | 800      |

**Electrical Characteristics**  $T_C = 25^\circ\text{C}$  unless otherwise noted

| Symbol          | Parameter                            | Conditions                                                                           | Min.        | Typ. | Max   | Units         |
|-----------------|--------------------------------------|--------------------------------------------------------------------------------------|-------------|------|-------|---------------|
| $BV_{CEO(sus)}$ | Collector-Emitter Sustaining Voltage | $I_C = 30\text{mA}$ , $I_B = 0$                                                      | 100         |      |       | V             |
| $BV_{EBO}$      | Emitter-Base Breakdown Voltage       | $I_E = 500\mu\text{A}$ , $I_C = 0$                                                   | 10          |      |       | V             |
| $I_{CBO}$       | Collector Cut-off Current            | $V_{CB} = 100\text{V}$ , $I_E = 0$                                                   |             |      | 50    | $\mu\text{A}$ |
| $I_{CEO}$       | Collector Cut-off Current            | $V_{CE} = 50\text{V}$ , $I_E = 0$                                                    |             |      | 50    | $\mu\text{A}$ |
| $I_{EBO}$       | Emitter Cut-off Current              | $V_{EB} = 5\text{V}$ , $I_C = 0$                                                     |             |      | 2     | mA            |
| $h_{FE}$        | DC Current Gain                      | $V_{CE} = 4\text{V}$ , $I_C = 3\text{A}$<br>$V_{CE} = 4\text{V}$ , $I_C = 8\text{A}$ | 1000<br>200 |      | 20000 |               |
| $V_{CE(sat)}$   | Collector-Emitter Saturation Voltage | $I_C = 3\text{A}$ , $I_B = 6\text{mA}$                                               |             |      | 2.0   | V             |
|                 |                                      | $I_C = 8\text{A}$ , $I_B = 80\text{mA}$                                              |             |      | 2.5   | V             |
| $V_{BE(ON)}$    | Base-Emitter Saturation Voltage      | $V_{CE} = 4\text{V}$ , $I_C = 8\text{A}$                                             |             |      | 2.8   | V             |
| $C_{ob}$        | Output Capacitance                   | $V_E = 10\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$                                   |             |      | 200   | pF            |

## Typical Performance Characteristics

Figure 1. Static Characteristic

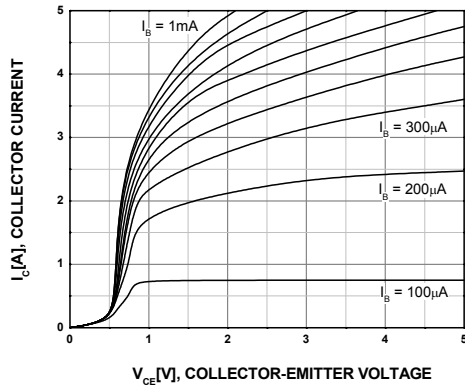


Figure 2. DC Current Gain

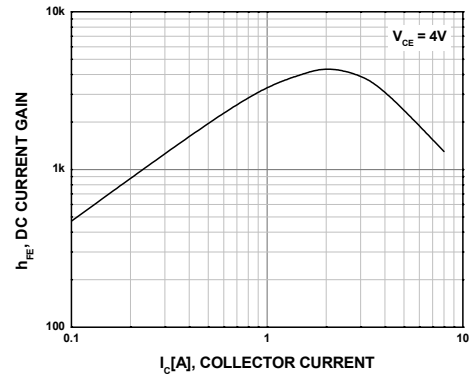


Figure 3. Saturation Voltage

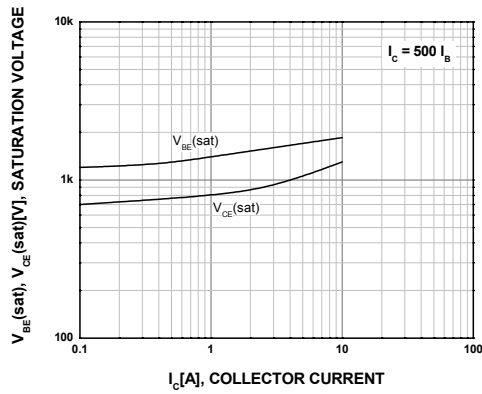


Figure 4. Collector Output Capacitance

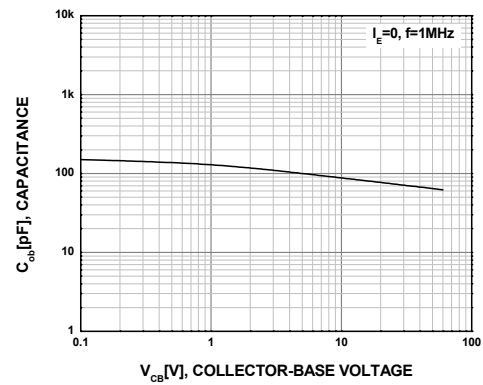


Figure 5. Forward Biased Safe Operating Area

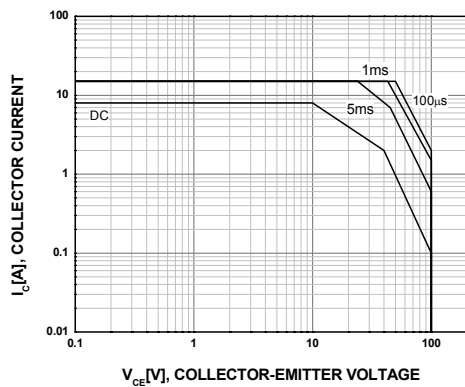
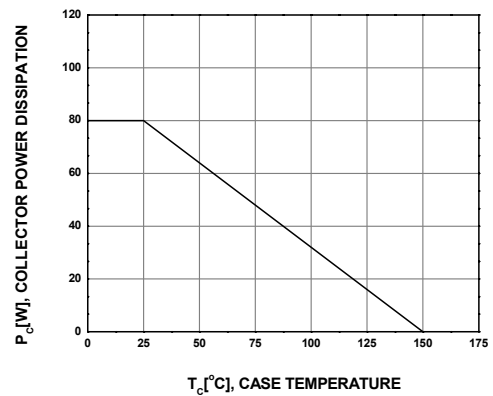


Figure 6. Power Derating





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| ActiveArray™                         | FASTr™              | LittleFET™    | PowerTrench®        | SyncFET™        |
| Bottomless™                          | FPS™                | MICROCOUPLER™ | QFET®               | TinyLogic®      |
| Build it Now™                        | FRFET™              | MicroFET™     | QS™                 | TINYOPTO™       |
| CoolFET™                             | GlobalOptoisolator™ | MicroPak™     | QT Optoelectronics™ | TruTranslation™ |
| CROSSVOLT™                           | GTO™                | MICROWIRE™    | Quiet Series™       | UHC™            |
| DOME™                                | HiSeC™              | MSX™          | RapidConfigure™     | UltraFET®       |
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| Across the board. Around the world.™ |                     | PACMAN™       | Stealth™            |                 |
| The Power Franchise®                 |                     | POP™          | SuperFET™           |                 |
| Programmable Active Droop™           |                     | Power247™     | SuperSOT™-3         |                 |
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