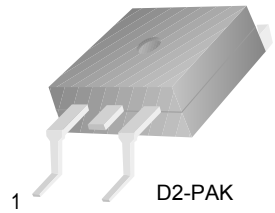
FAIRCHILD
SEMICONDUCTOR®

FJB102

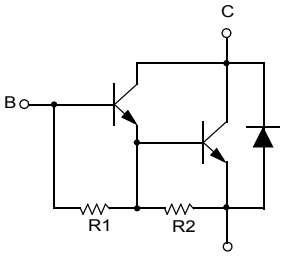
High Voltage Power Darlington Transistor

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



Equivalent Circuit



R1 ≅ 10kΩ
R2 ≅ 0.6kΩ

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°C)	80	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-65 ~ 150	°C

* Pulse Test: PW = 300μs, 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°C unless otherwise noted

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

Typical Performance Characteristics

Figure 1. Static Characterstic

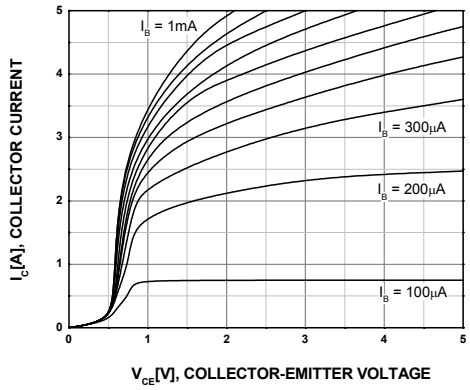


Figure 2. DC Current Gain

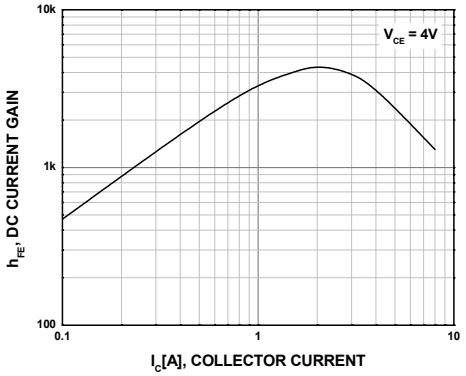


Figure 3. Saturation Voltage

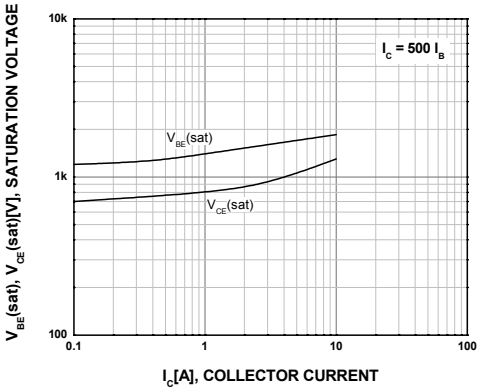


Figure 4. Collector Output Capacitance

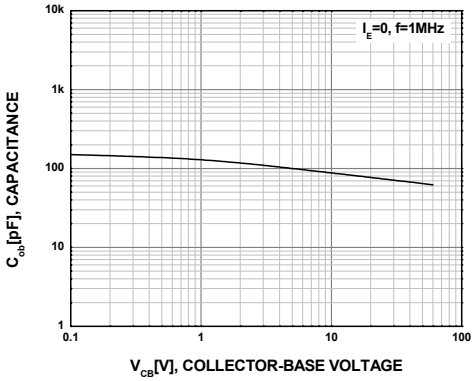


Figure 5. Forward Biased Safe Operating Area

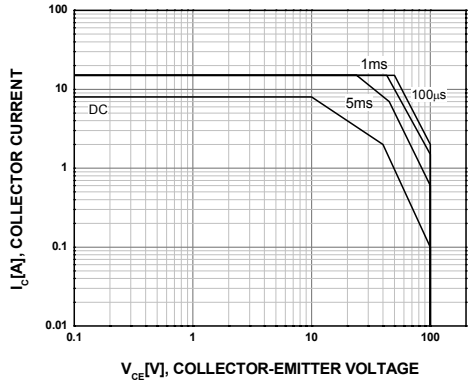
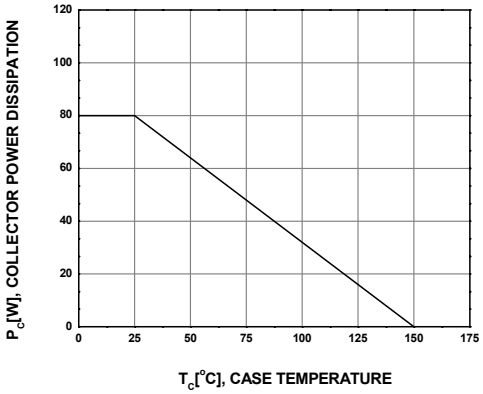
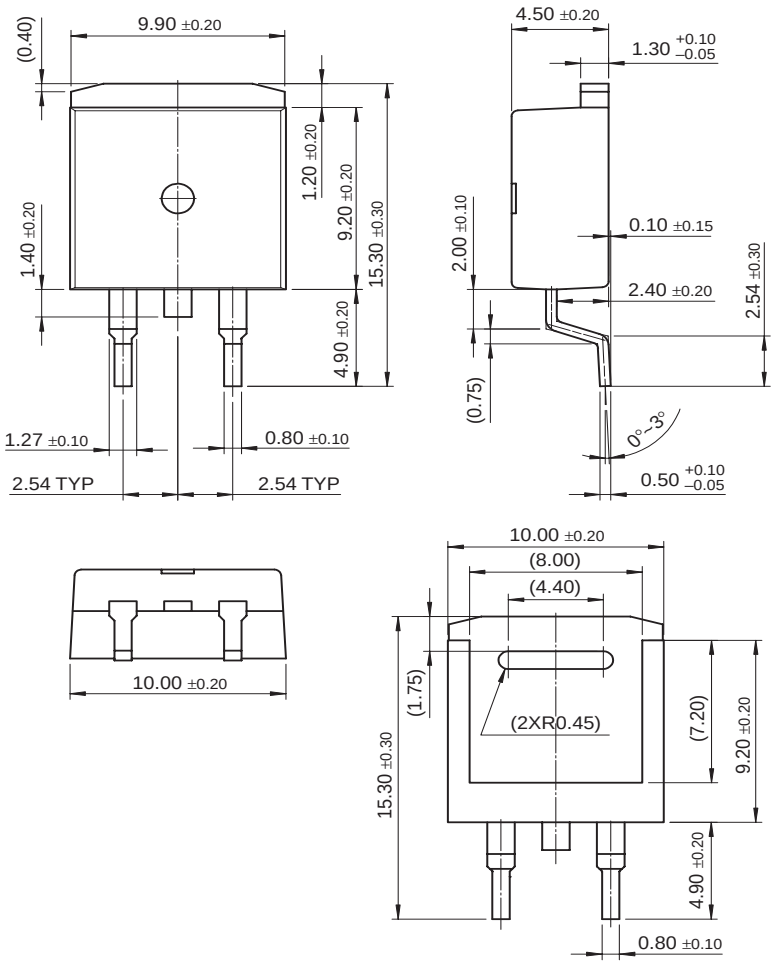


Figure 6. Power Derating



Mechanical Dimensions

D^2-PAK



Dimensions in Millimeters

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