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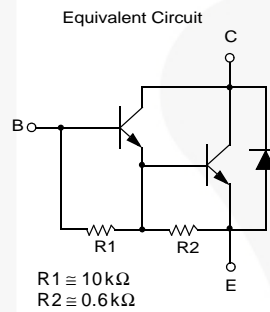
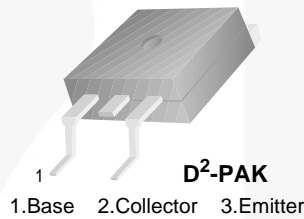
December 2014

FJB102 — NPN High-Voltage Power Darlington Transistor

# FJB102 NPN High-Voltage Power Darlington Transistor

## Features

- High DC Current Gain :  $h_{FE} = 1000$  at  $V_{CE} = 4\text{ V}$ ,  $I_C = 3\text{ A}$  (Minimum)
- Low Collector-Emitter Saturation Voltage



## Ordering Information

Part Number	Top Mark	Package	Packing Method
FJB102TM	FJB102	TO-263 2L (D2PAK)	Tape and Reel

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_C = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$V_{CBO}$	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) <sup>(1)</sup>	15	A
$I_B$	Base Current (DC)	1	A
$P_C$	Collector Dissipation ( $T_C = 25^\circ\text{C}$ )	80	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-65 to 150	$^\circ\text{C}$

### Note:

1. Pulse test:  $p_w \leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$ .

## Electrical Characteristics

Values are at  $T_C = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
$BV_{CEO(sus)}$	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	$V_{CE} = 50\text{ V}, I_B = 0$		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	$V_{CE} = 4\text{ V}, I_C = 3\text{ A}$	1000	20000	
		$V_{CE} = 4\text{ V}, I_C = 8\text{ A}$	200		
$V_{CE(sat)}$	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	
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = 4\text{ V}, I_C = 8\text{ A}$		2.8	V
$C_{ob}$	Output Capacitance	$V_{CB} = 10\text{ V}, I_E = 0,$ $f = 1\text{ MHz}$		200	pF

## Typical Performance Characteristics

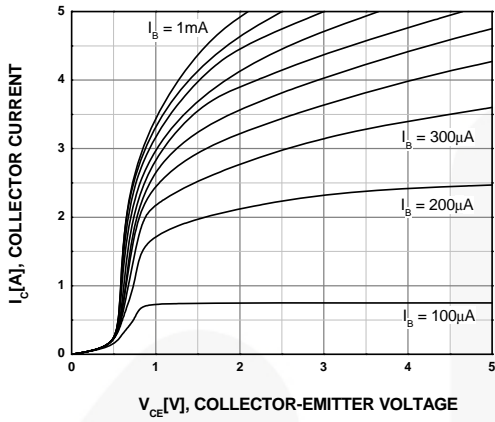


Figure 1. Static Characteristic

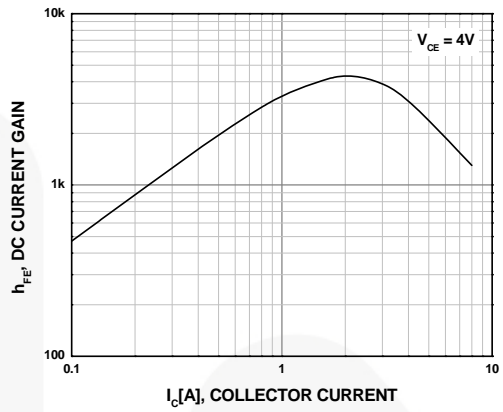


Figure 2. DC Current Gain

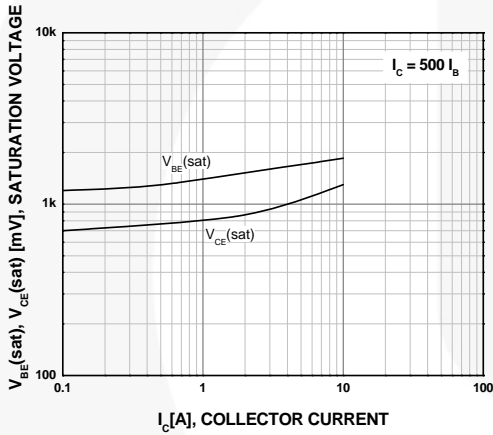


Figure 3. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

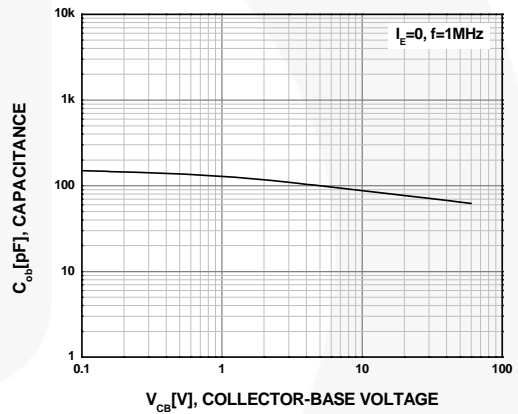


Figure 4. Collector Output Capacitance

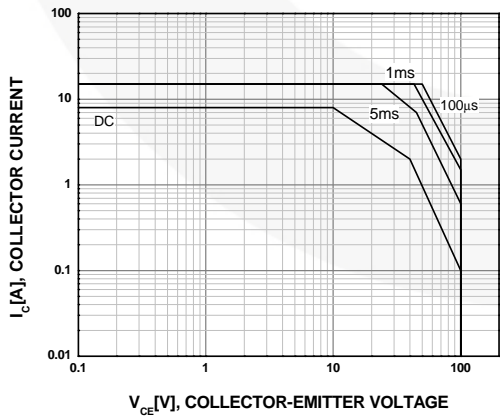


Figure 5. Forward Biased Safe Operating Area

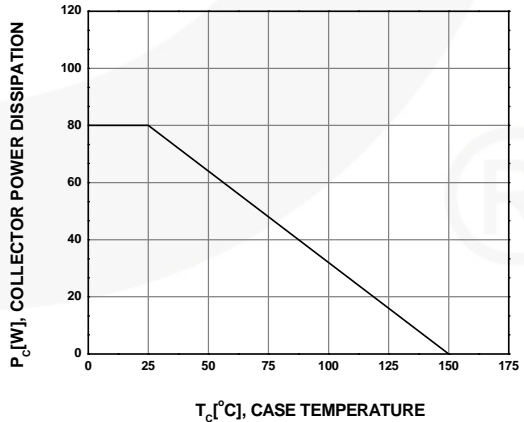
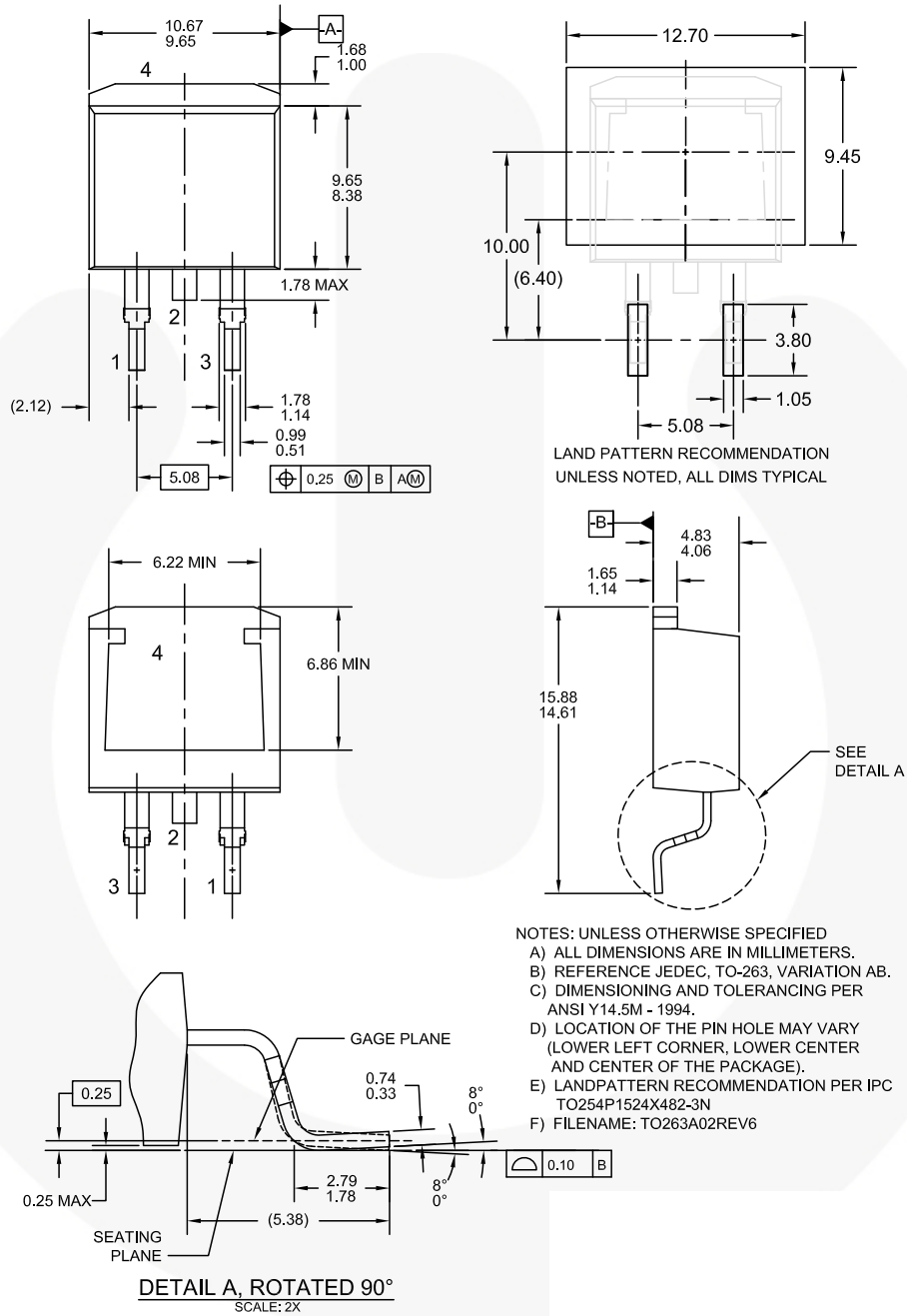


Figure 6. Power Derating

**Physical Dimensions**



**Figure 7. 2-LEAD, TO263, D2PAK, SURFACE MOUNT**



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No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

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