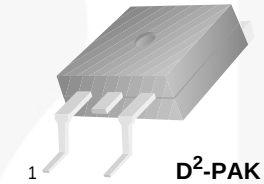
December 2014

FJB102
NPN High-Voltage Power Darlington Transistor

Features

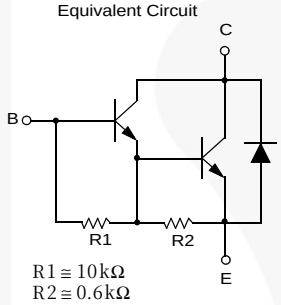
- High DC Current Gain : h_{FE} = 1000 at V_{CE} = 4 V, I_C = 3 A (Minimum)
- Low Collector-Emitter Saturation Voltage



D^2-PAK

1.Base 2.Collector 3.Emitter

Equivalent Circuit



$R1 \cong 10k\Omega$
$R2 \cong 0.6k\Omega$

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°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)[1]	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 Range	-65 to 150	°C

Note:

1. Pulse test: pw ≤ 300 μs, duty cycle ≤ 2%.

Electrical Characteristics

Values are at T_C = 25°C unless otherwise noted.

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

Typical Performance Characteristics

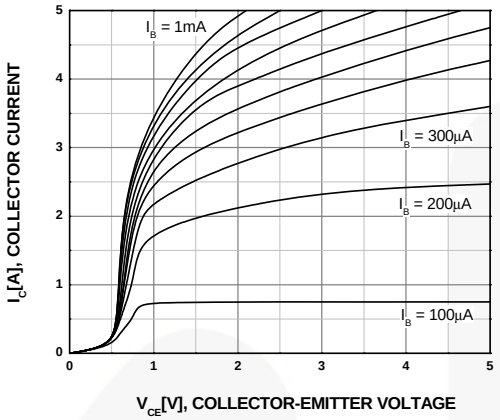


Figure 1. Static Characteristic

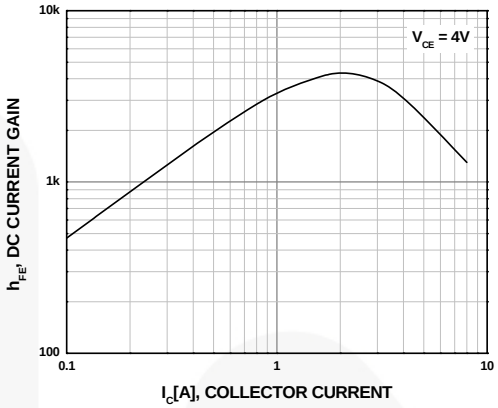


Figure 2. DC Current Gain

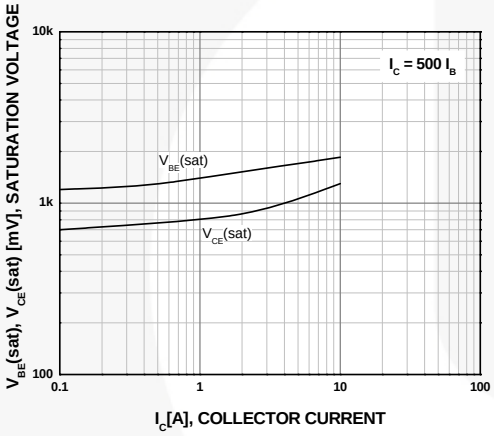


Figure 3. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

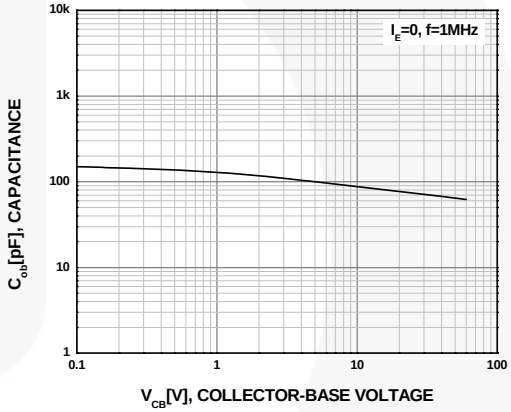


Figure 4. Collector Output Capacitance

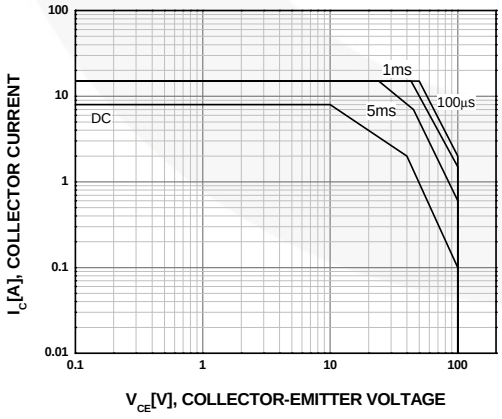


Figure 5. Forward Biased Safe Operating Area

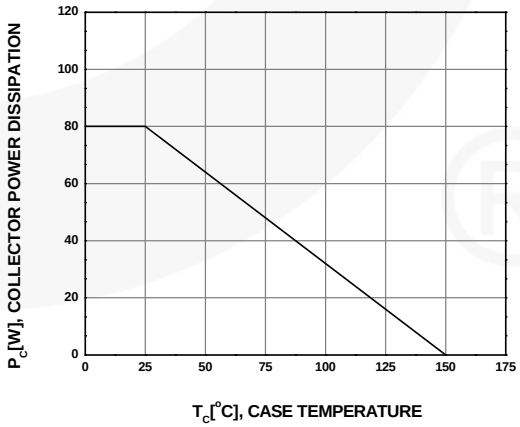


Figure 6. Power Derating

Physical Dimensions

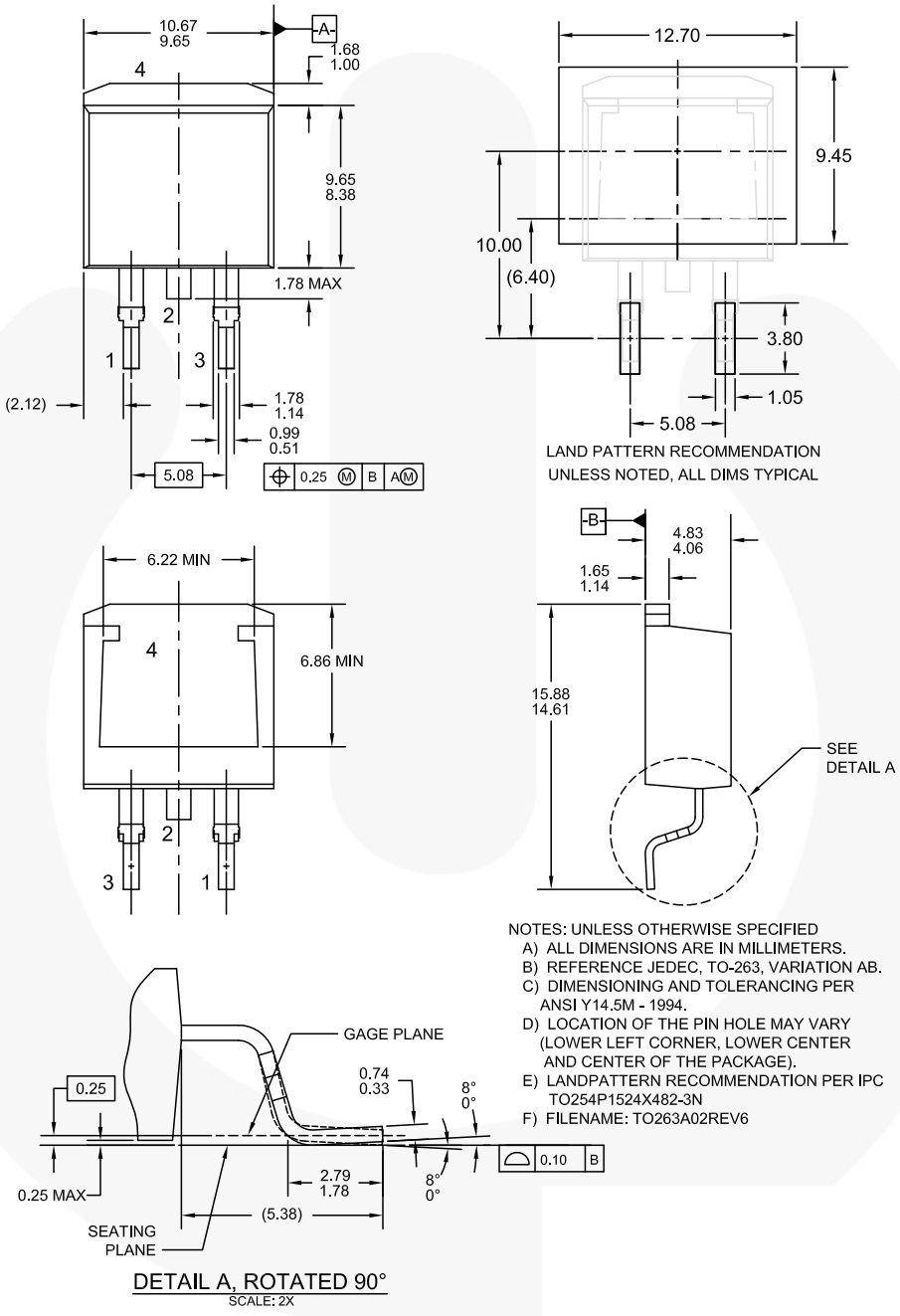


Figure 7. 2-LEAD, TO263, D2PAK, SURFACE MOUNT

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