

NPN High-Voltage Power Darlington Transistor

FJB102

Features

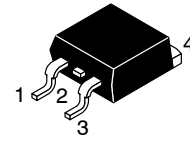
- High DC Current Gain: $h_{FE} = 1000$ at $V_{CE} = 4$ V, $I_C = 3$ A (Minimum)
- Low Collector-Emitter Saturation Voltage
- Pb-Free, Halogen Free and RoHS Compliance

MAXIMUM RATINGS ($T_C = 25$ °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) (Note 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

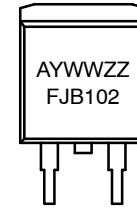
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Pulse test: $p_w \leq 300$ μ s, duty cycle $\leq 2\%$.



D²PAK-3
(TO-263, 3-LEAD)
CASE 418AJ

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
ZZ = Lot Traceability
FJB102 = Specific Device Code

ORDERING INFORMATION

See detailed ordering, marking and shipping information in the package dimensions section on page 2 of this data sheet.

FJB102

ELECTRICAL CHARACTERISTICS (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 A	–	50	μA
I _{CEO}	Collector Cut-Off Current	V _{CE} = 50 V, I _B = 0 A	–	50	μA
I _{EBO}	Emitter Cut-Off Current	V _{EB} = 5 V, I _C = 0 A	–	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

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

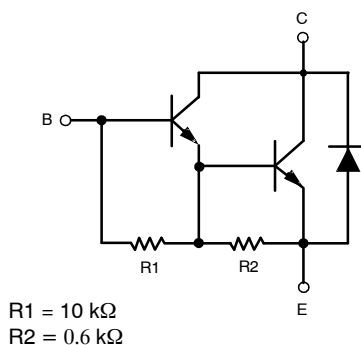


Figure 1. Equivalent Circuit

ORDERING INFORMATION

Device	Marking	Package	Shipping [†] (Qty / Packing)
FJB102TM	FJB102	D ² PAK (TO-263 3-LEAD) (Pb-Free / Halogen Free)	800 / Tape & Reel

[†] For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

TYPICAL PERFORMANCE CHARACTERISTICS

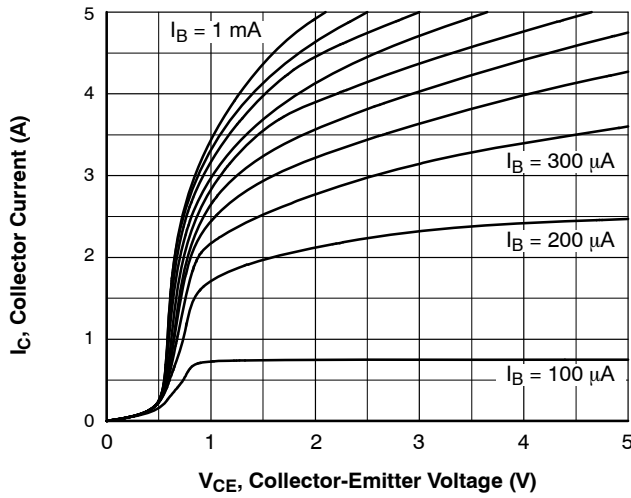


Figure 2. Static Characteristic

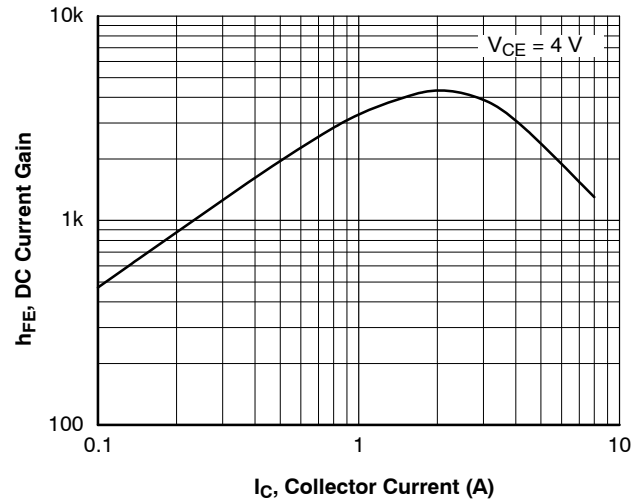


Figure 3. DC Current Gain

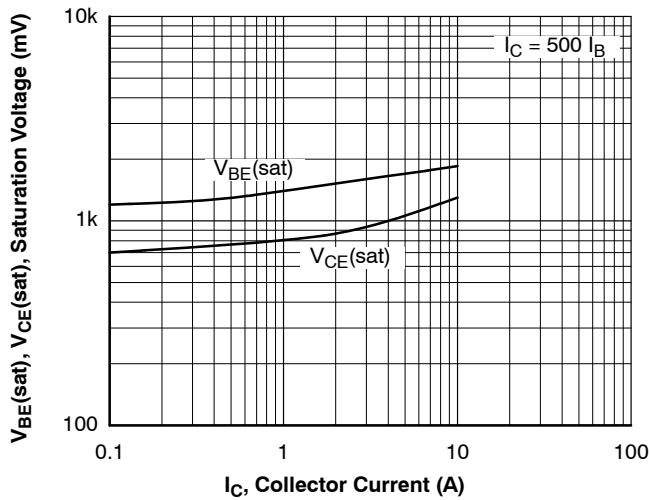


Figure 4. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

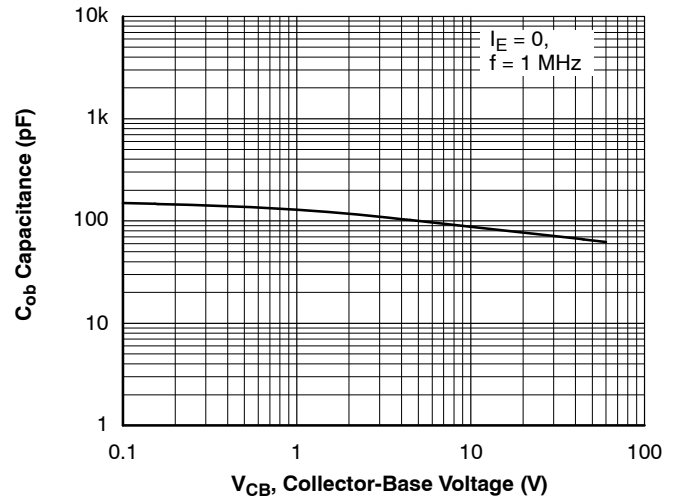


Figure 5. Collector Output Capacitance

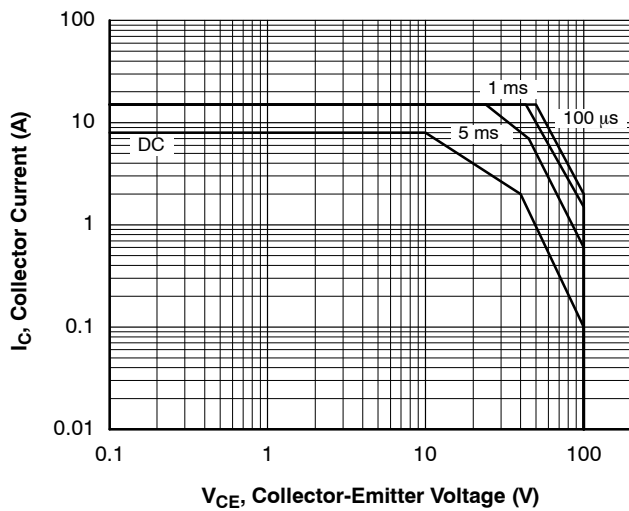


Figure 6. Forward Biased Safe Operating Area

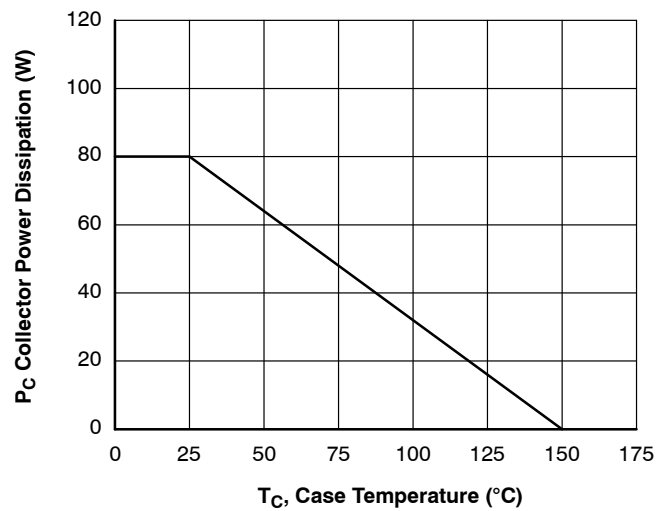


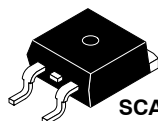
Figure 7. Power Derating

REVISION HISTORY

Revision	Description of Changes	Date
2	Converted the Document to onsemi format.	12/3/2025

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

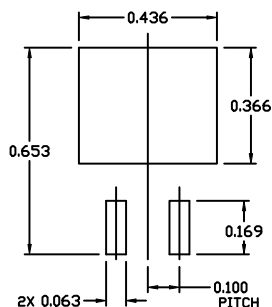




SCALE 1:1

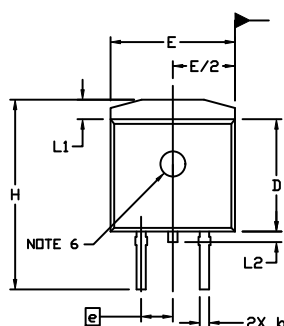
D²PAK-3 (TO-263, 3-LEAD)
CASE 418AJ
ISSUE F

DATE 11 MAR 2021



**RECOMMENDED
MOUNTING FOOTPRINT**

For additional information on our Pb-free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERM1.

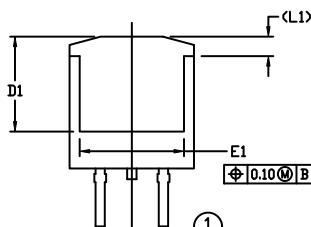
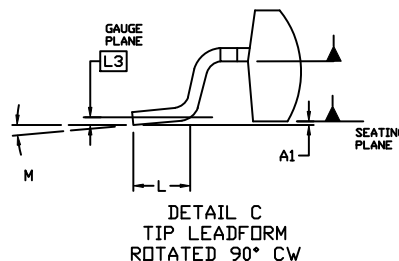
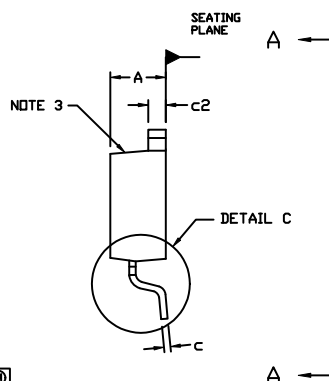


0.100 BSC 0.100 BSC

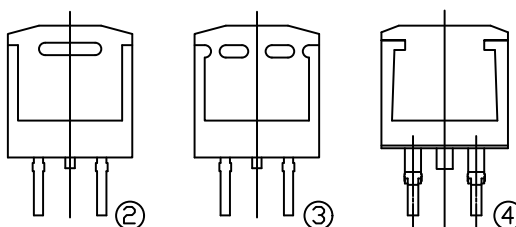
NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. CONTROLLING DIMENSION: INCHES
3. CHAMFER OPTIONAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.005 PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY AT DATUM H.
5. THERMAL PAD CONTOUR IS OPTIONAL WITHIN DIMENSIONS E, L1, D1, AND E1.
6. OPTIONAL MOLD FEATURE.
7. ①, ② ... OPTIONAL CONSTRUCTION FEATURE CALL OUTS.

DIM	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.160	0.190	4.06	4.83
A1	0.000	0.010	0.00	0.25
b	0.020	0.039	0.51	0.99
c	0.012	0.029	0.30	0.74
c2	0.045	0.065	1.14	1.65
D	0.330	0.380	8.38	9.65
D1	0.260	---	6.60	---
E	0.380	0.420	9.65	10.67
E1	0.245	---	6.22	---
e	0.100 BSC	---	2.54 BSC	---
H	0.575	0.625	14.60	15.88
L	0.070	0.110	1.78	2.79
L1	---	0.066	---	1.68
L2	---	0.070	---	1.78
L3	0.010 BSC	---	0.25 BSC	---
M	0°	8°	0°	8°

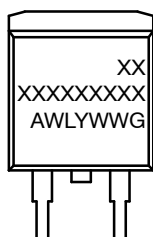


VIEW A-A

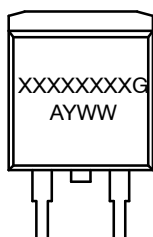


VIEW A-A
OPTIONAL CONSTRUCTIONS

GENERIC MARKING DIAGRAMS*



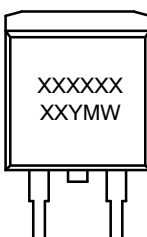
IC



Standard



Rectifier



SSG

XXXXXX = Specific Device Code
A = Assembly Location
WL = Wafer Lot
Y = Year
WW = Work Week
W = Week Code (SSG)
M = Month Code (SSG)
G = Pb-Free Package
AKA = Polarity Indicator

*This information is generic. Please refer to device data sheet for actual part marking. Pb-free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

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DESCRIPTION:	D²PAK-3 (TO-263, 3-LEAD)	PAGE 1 OF 1

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