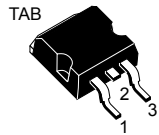
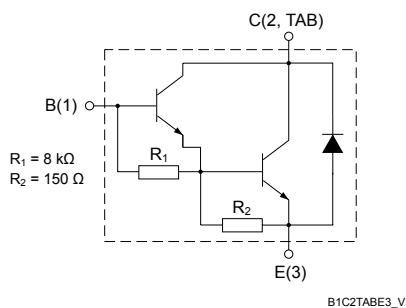


Low voltage NPN power Darlington transistor



D²PAK



Features

- Good h_{FE} linearity
- High f_T frequency
- Monolithic Darlington configuration with integrated antiparallel collector-emitter diode

Application

- Linear and switching industrial equipment

Description

The device is a low voltage NPN transistor in monolithic special Darlington configuration, manufactured in planar technology with “base island” layout.



Product status link

[2STBN15D100](#)

Product summary

Order code	2STBN15D100
Marking	2STBN15D100
Package	D²PAK
Packing	Tape and reel

1 Electrical ratings

Table 1. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-emitter voltage ($I_E = 0$)	100	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	100	V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	5	V
I_C	Collector current	12	A
I_{CM}	Collector peak current	15	A
I_B	Base current	0.2	A
P_{TOT}	Total power dissipation at $T_C = 25\text{ °C}$	70	W
T_{stg}	Storage temperature range	-65 to 150	°C
T_J	Maximum operating junction temperature	150	°C

Table 2. Thermal data

Symbol	Parameter	Value	Unit
R_{thJC}	Thermal resistance, junction-to-case	1.8	°C/W

2 Electrical characteristics

$T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

Table 3. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current	$I_E = 0\text{ A}$, $V_{CB} = 100\text{ V}$	-	-	100	μA
I_{CEO}	Collector cut-off current	$I_B = 0\text{ A}$, $V_{CE} = 50\text{ V}$	-	-	100	μA
I_{EBO}	Emitter cut-off current	$I_C = 0\text{ A}$, $V_{EB} = 5\text{ V}$	0.12	-	2	mA
$V_{CEO(sus)}^{(1)}$	Collector-emitter sustaining voltage	$I_B = 0\text{ A}$, $I_C = 100\text{ mA}$	100	-	-	V
$V_{CE(sat)}^{(1)}$	Collector-emitter saturation voltage	$I_C = 0.5\text{ A}$, $I_B = 1\text{ mA}$	-	-	1.5	V
		$I_C = 4\text{ A}$, $I_B = 4\text{ mA}$	-	-	1.3	
$V_{BE(on)}^{(1)}$	Base-emitter saturation voltage	$I_C = 3\text{ A}$, $V_{CE} = 3\text{ V}$	-	-	2.5	V
$h_{FE}^{(1)}$	DC current gain	$I_C = 3\text{ A}$, $V_{CE} = 3\text{ V}$	750	-	-	
V_F	Diode forward voltage	$I_F = 3\text{ A}$	-	-	2.5	V

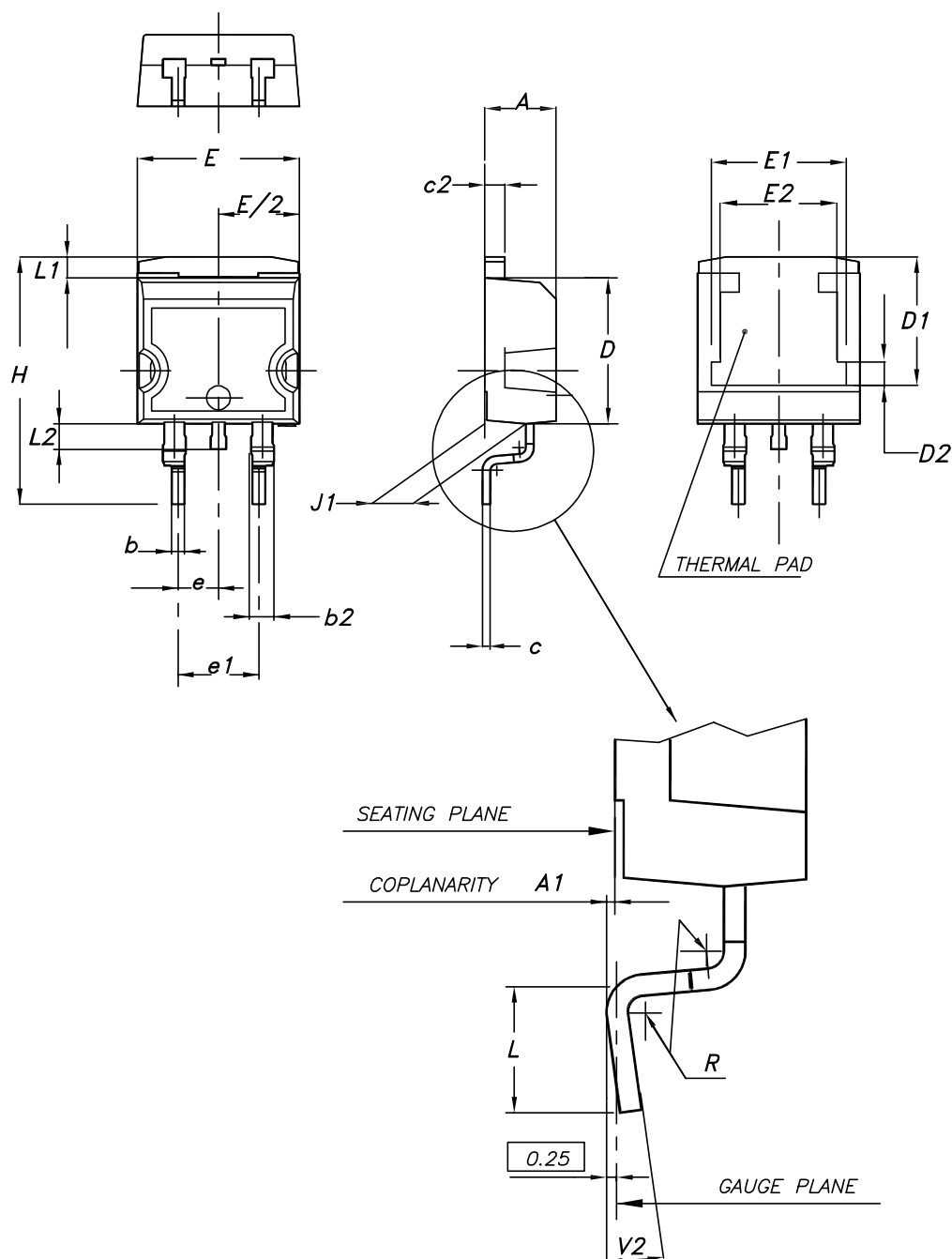
1. Pulse test: pulse duration $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

3 Package information

To meet environmental requirements, ST offers these devices in different grades of **ECOPACK** packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions, and product status are available at: www.st.com. ECOPACK is an ST trademark.

3.1 D²PAK (TO-263) type A package information

Figure 1. D²PAK (TO-263) type A package outline

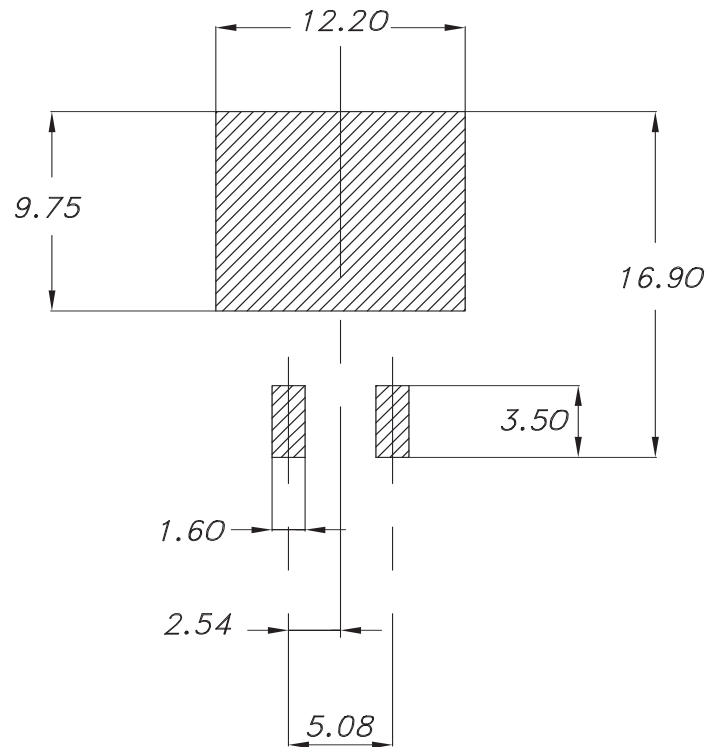


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Table 4. D²PAK (TO-263) type A package mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A	4.40		4.60
A1	0.03		0.23
b	0.70		0.93
b2	1.14		1.70
c	0.45		0.60
c2	1.23		1.36
D	8.95		9.35
D1	7.50	7.75	8.00
D2	1.10	1.30	1.50
E	10.00		10.40
E1	8.30	8.50	8.70
E2	6.85	7.05	7.25
e		2.54	
e1	4.88		5.28
H	15.00		15.85
J1	2.49		2.69
L	2.29		2.79
L1	1.27		1.40
L2	1.30		1.75
R		0.40	
V2	0°		8°

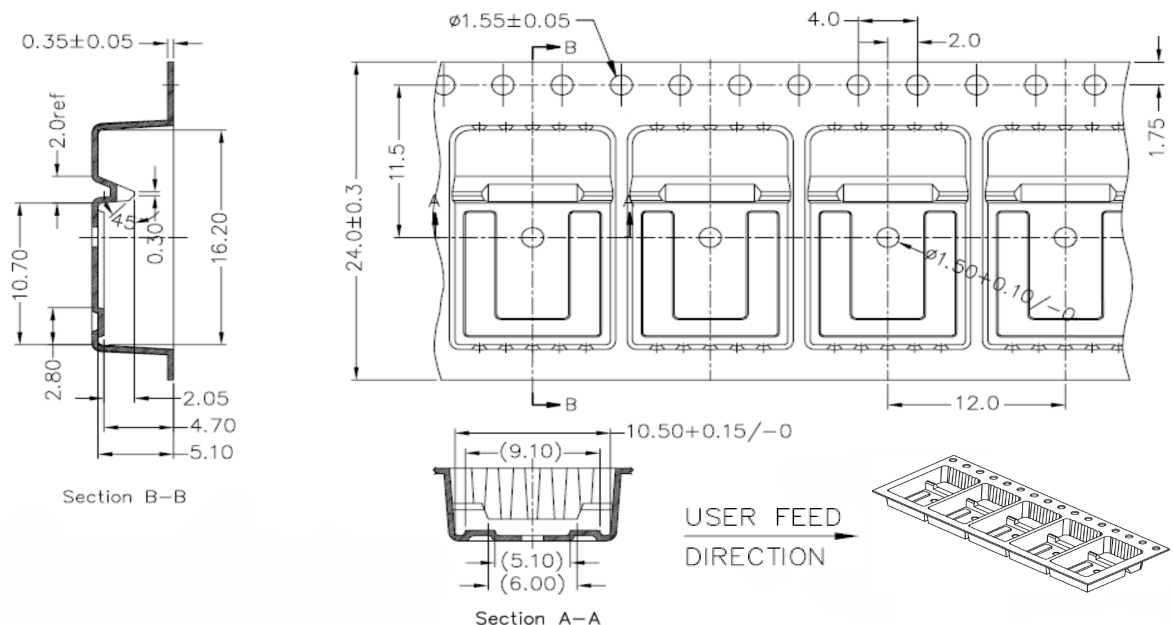
Figure 2. D²PAK (TO-263) recommended footprint (dimensions are in mm)



0079457_Rev27_footprint

3.2 D²PAK packing information

Figure 3. D²PAK tape drawing (dimensions are in mm)



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Revision history

Table 5. Document revision history

Date	Version	Changes
01-Sep-2009	1	First release.
19-Jan-2010	2	Modified <i>Section Device summary</i> .
17-Jun-2025	3	Updated Section 3: Package information . Minor text changes.

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