

2STBN15D100

Low voltage NPN power Darlington transistor

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 manufactured in planar technology with "base island" layout and monolithic Darlington configuration.

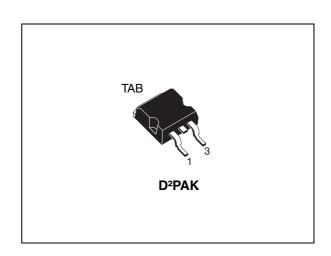


Figure 1. Internal schematic diagrams

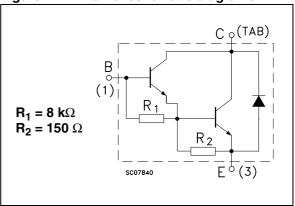


Table 1. Device summary

	Order code	Marking	Package	Packaging
Ī	2STBN15D100T4	BN15D100	D ² PAK	Tape and reel

Electrical ratings 2STBN15D100

1 Electrical ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base 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	Α
I _{CM}	Collector peak current	15	Α
I _B	Base current	0.2	Α
P _{TOT}	Total dissipation at T _{case} = 25 °C	70	W
T _{STG}	Storage temperature	-65 to 150	°C
TJ	Max. operating junction temperature	150	°C

Table 3. Thermal data

Syı	mbol	Parameter	Value	Unit
R	thJC	Thermal resistance junction-case max.	1.8	°C/W

2 Electrical characteristics

 T_{case} = 25 °C; unless otherwise specified.

Table 4. Electrical characteristics

Symbol	Parameter	ameter Test conditions		Тур.	Max.	Unit
I _{CBO}	Collector cut-off current (I _E = 0)	V _{CB} = 100 V		1	100	μА
I _{CEO}	Collector cut-off current (I _B = 0)	V _{CE} = 50 V		-	100	μΑ
I _{EBO}	Emitter cut-off current (I _C = 0)	V _{EB} = 5 V	0.12	-	2	mA
V _{CEO(sus)} (1)	Collector-emitter sustaining voltage (I _B = 0)	I _C = 100 mA	100	1		V
V _{CE(sat)} ⁽¹⁾	Collector-emitter saturation voltage	$I_C = 0.5 \text{ A}$ $I_B = 1 \text{ mA}$ $I_C = 4 \text{ A}$ $I_B = 4 \text{ mA}$		-	1.5 1.3	V V
V _{BE(on)} ⁽¹⁾	Base-emitter on voltage	$I_C = 3 A$ $V_{CE} = 3 V$		-	2.5	V
h _{FE} ⁽¹⁾	DC current gain	$I_C = 3 A$ $V_{CE} = 3 V$	750	-		
V _F	Diode forward voltage	I _F = 3 A		-	2.5	V

^{1.} Pulse test: pulse duration \leq 300 μ s, duty cycle \leq 2 %.

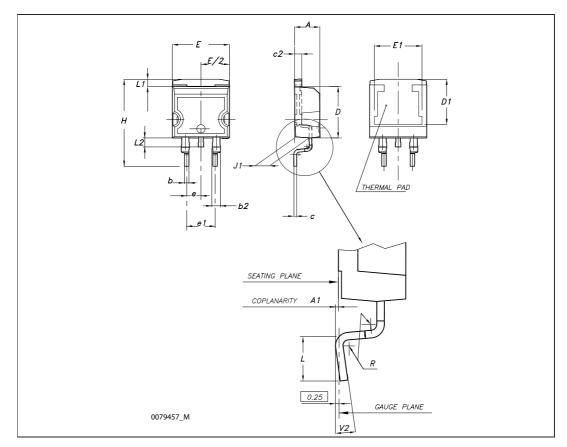
3 Package mechanical data

In order 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.

577

D²PAK (TO-263) mechanical data

Dim		mm			inch	
Dim	Min	Тур	Max	Min	Тур	Max
Α	4.40		4.60	0.173		0.181
A1	0.03		0.23	0.001		0.009
b	0.70		0.93	0.027		0.037
b2	1.14		1.70	0.045		0.067
С	0.45		0.60	0.017		0.024
c2	1.23		1.36	0.048		0.053
D	8.95		9.35	0.352		0.368
D1	7.50			0.295		
Е	10		10.40	0.394		0.409
E1	8.50			0.334		
е		2.54			0.1	
e1	4.88		5.28	0.192		0.208
Н	15		15.85	0.590		0.624
J1	2.49		2.69	0.099		0.106
L	2.29		2.79	0.090		0.110
L1	1.27		1.40	0.05		0.055
L2	1.30		1.75	0.051		0.069
R		0.4			0.016	
V2	0°		8°	0°		8°



477

Revision history 2STBN15D100

Doc ID 16117 Rev 2

4 Revision history

Table 5. Document revision history

Date	Revision	Changes	
01-Sep-2009	1	First release.	
19-Jan-2010	2	Modified Table 1 on page 1.	

Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS EXPRESSLY APPROVED IN WRITING BY AN AUTHORIZED ST REPRESENTATIVE, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2010 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com

