STP03D200

2 kV NPN Darlington transistor

Features

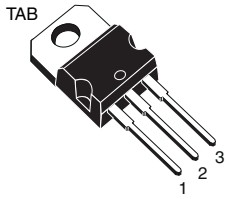
- Extra high voltage capability
- High gain characteristic

Application

- Active start-up network in 3 phase S.M.P.S. (see application note AN2454)

Description

The STP03D200 is made by two extra high voltage NPN transistors in Darlington configuration housed in a single package. The resulting device shows high gain performance.



TO-220

Figure 1. Internal schematic diagram

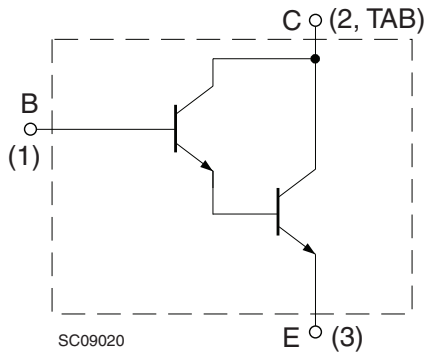


Table 1. Device summary

Order code	Marking	Package	Packaging
STP03D200	P03D200	TO-220	Tube

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1 Electrical ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base voltage (I_E = 0)	2000	V
V_{CEO}	Collector-emitter voltage (I_B = 0)	1200	V
V_{EBO}	Emitter-base voltage (I_C = 0)	20	V
I_C	Collector current	100	mA
I_{CM}	Collector peak current (t_P < 5 ms)	200	mA
P_{TOT}	Total dissipation at T_c = 25 °C	40	W
T_{STG}	Storage temperature	-65 to 150	°C
T_J	Max. operating junction temperature	150	°C

Table 3. Thermal data

Symbol	Parameter	Value	Unit
R_{thJC}	Thermal resistance junction-case max	3.13	°C/W

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2 Electrical characteristics

T_{CASE} = 25 °C unless otherwise specified.

Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current (I_E = 0)	V_{CB} = 2000 V			100	µA
I_{CEO}	Collector cut-off current (I_B = 0)	V_{CE} = 1200 V			100	µA
$V_{(BR)CEO}$	Collector-emitter breakdown voltage (I_B = 0)	I_C = 1 mA	1200			V
V_{EBO}	Emitter-base voltage (I_C = 0)	I_E = 10 µA	20			V
$V_{CE(sat)}$ (1)	Collector-emitter saturation voltage	I_C = 50 mA; I_B = 500 µA			2	V
$V_{BE(sat)}$ (1)	Base-emitter saturation voltage	I_C = 50 mA; I_B = 500 µA			2	V
h_{FE}	DC current gain	I_C = 20 mA; V_{CE} = 10 V I_C = 30 mA; V_{CE} = 10 V	230 200			

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

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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.

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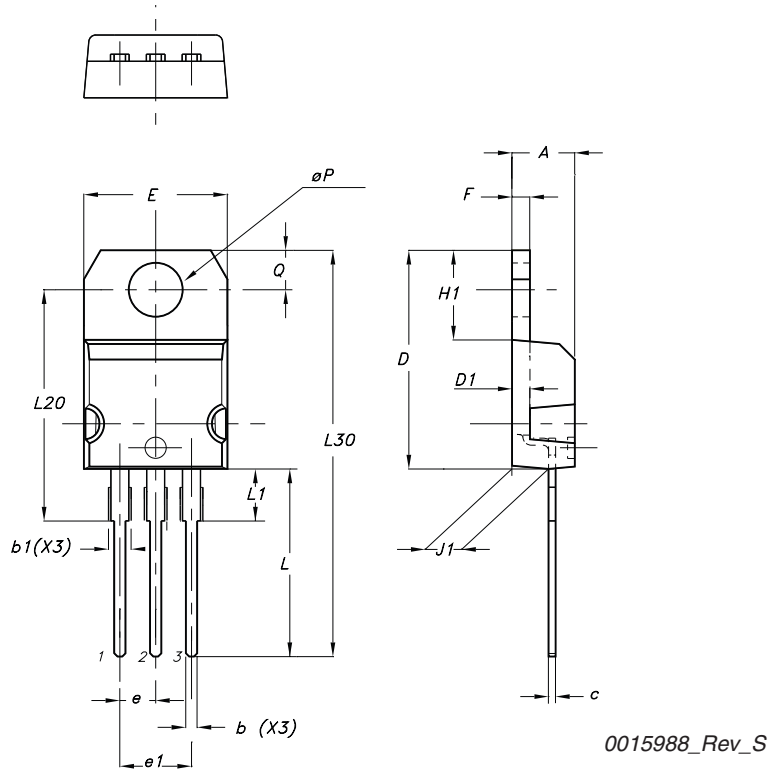
TO-220 type A mechanical data

Dim	mm		
	Min	Typ	Max
A	4.40		4.60
b	0.61		0.88
b1	1.14		1.70
c	0.48		0.70
D	15.25		15.75
D1		1.27	
E	10		10.40
e	2.40		2.70
e1	4.95		5.15
F	1.23		1.32
H1	6.20		6.60
J1	2.40		2.72
L	13		14
L1	3.50		3.93
L20		16.40	
L30		28.90	
∅P	3.75		3.85
Q	2.65		2.95



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4 Revision history

Table 5. Document revision history

Date	Revision	Changes
22-Oct-2007	1	Initial release.
19-Feb-2010	2	Document status promoted from preliminary data to datasheet, modified h_{FE} minimum values *Table 4 on page 3*.

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