STP03D200

2kV NPN Darlington transistor

Preliminary Data

Features

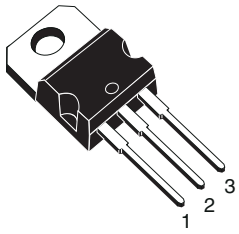
- Extra high voltage capability
- High gain characteristic

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

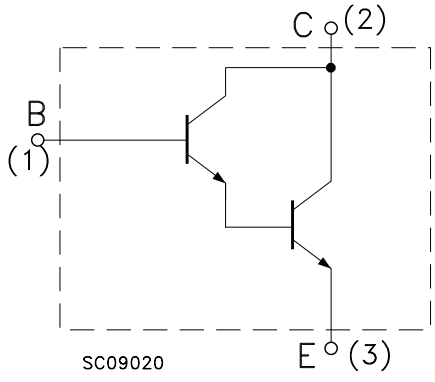


Table 1. Device summary

Order code	Marking	Package	Packaging
STP03D200	P03D200	TO-220	Tube

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 < 5ms)	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
$R_{thJ\text{-}C}$	Thermal resistance junction-case max	3.13	°C/W

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	400 350			

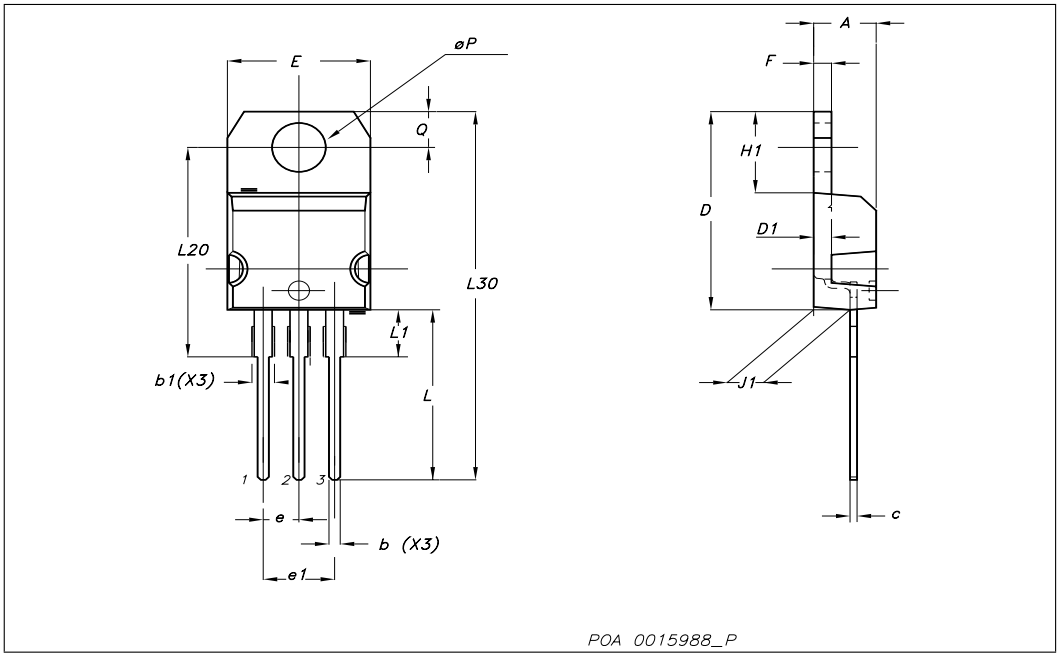
1. Pulsed: pulse duration = 300 µs, duty cycle 1.5%

3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect. The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com

TO-220 mechanical data

Dim	mm			inch		
	Min	Typ	Max	Min	Typ	Max
A	4.40		4.60	0.173		0.181
b	0.61		0.88	0.024		0.034
b1	1.14		1.70	0.044		0.066
c	0.49		0.70	0.019		0.027
D	15.25		15.75	0.6		0.62
D1		1.27			0.050	
E	10		10.40	0.393		0.409
e	2.40		2.70	0.094		0.106
e1	4.95		5.15	0.194		0.202
F	1.23		1.32	0.048		0.051
H1	6.20		6.60	0.244		0.256
J1	2.40		2.72	0.094		0.107
L	13		14	0.511		0.551
L1	3.50		3.93	0.137		0.154
L20		16.40			0.645	
L30		28.90			1.137	
∅P	3.75		3.85	0.147		0.151
Q	2.65		2.95	0.104		0.116



4 Revision history

Table 5. Document revision history

Date	Revision	Changes
22-Oct-2007	1	Initial release.