2STW100
2STW200

Complementary power Darlington transistors

Preliminary data

Features

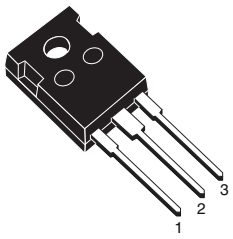
- Complementary NPN - PNP transistors
- Monolithic Darlington configuration

Applications

- Audio power amplifier
- DC-AC converter
- Low voltage DC motor drive
- General purpose switching applications

Description

The devices are manufactured in planar technology with “base island” layout and monolithic Darlington configuration.



TO-247

Figure 1. Internal schematic diagrams

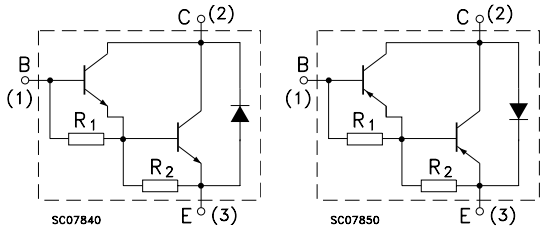


Table 1. Device summary

Order code	Marking	Package	Packaging
2STW100	2STW100	TO-247	Tube
2STW200	2STW200		

1 Absolute maximun ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value		Unit
		NPN	2STW100	
		PNP	2STW200	
V_{CBO}	Collector-emitter voltage (I_E = 0)		80	V
V_{CEO}	Collector-emitter voltage (I_B = 0)		80	V
I_C	Collector current		25	A
I_{CM}	Collector peak current (t_P < 5 ms)		40	A
I_B	Base current		6	A
I_{BM}	Base peak current (t_P < 5 ms)		10	A
P_{TOT}	Total dissipation at $T_c \leq$ 25 °C		130	W
T_{STG}	Storage temperature		-65 to 150	°C
T_J	Max. operating junction temperature		150	°C

Note: For PNP type voltage and current values are negative

Table 3. Thermal data

Symbol	Parameter	Value	Unit
R_{thJC}	Thermal resistance junction-case max	0.96	°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_{CE} = 80 V			0.5	mA
I_{CEV}	Collector cut-off current (V_{BE} = - 0.3 V)	V_{CE} = 80 V			0.1	mA
I_{CEO}	Collector cut-off current (I_B = 0)	V_{CE} = 60 V			0.5	mA
I_{EBO}	Emitter cut-off current (I_C = 0)	V_{EB} = 5 V			2	mA
$V_{CEO(sus)}$ (1)	Collector-emitter sustaining voltage (I_B = 0)	I_C = 50 mA	80			V
$V_{CE(sat)}$ (1)	Collector-emitter saturation voltage	I_C = 5 A I_B = 20 mA I_C = 10 A I_B = 40 mA I_C = 20 A I_B = 80 mA			1.2 1.75 3.5	V V V
$V_{BE(sat)}$ (1)	Base-emitter saturation voltage	I_C = 20 A I_B = 80 mA			3.3	V
V_{BE} (1)	Base-emitter voltage	I_C = 10 A V_{CE} = 3 V	1		3	V
h_{FE} (1)	DC current gain	I_C = 5 A V_{CE} = 3 V I_C = 10 A V_{CE} = 3 V I_C = 20 A V_{CE} = 3 V	600 500 300		15000 12000 6000	
V_F (1)	Diode forward voltage	I_F = 10 A		TBD		V
$I_{s/b}$	Second breakdown current	V_{CE} = 25 V t = 500 ms		TBD		A

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

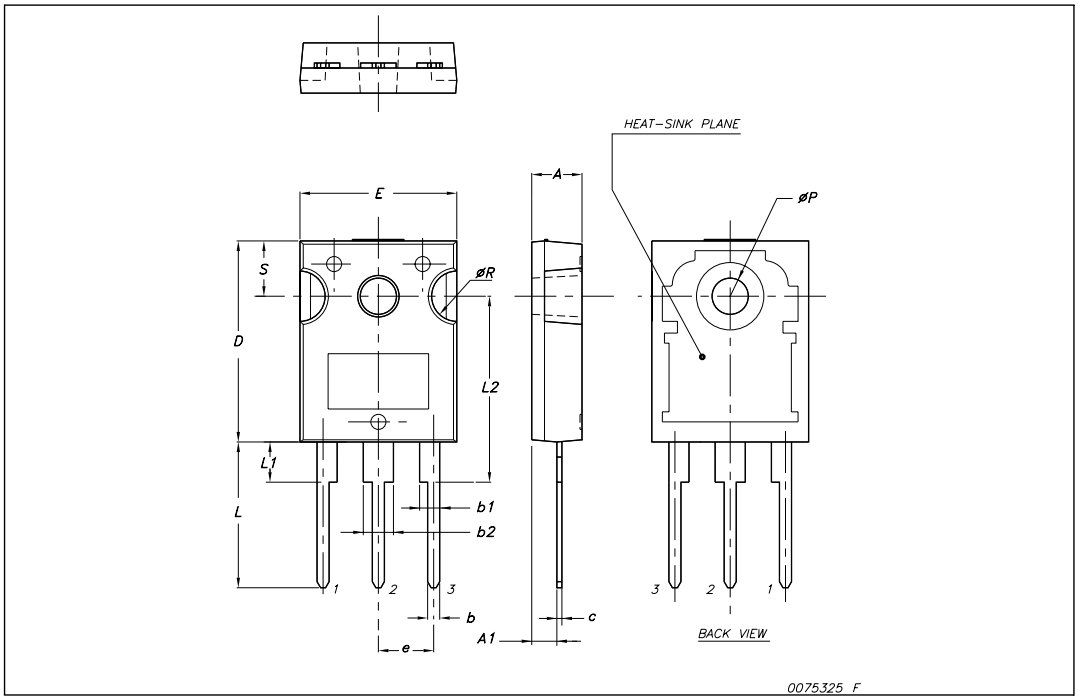
For PNP type voltage and current values are negative.

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.

TO-247 Mechanical data

Dim.	mm.		
	Min.	Typ	Max.
A	4.85		5.15
A1	2.20		2.60
b	1.0		1.40
b1	2.0		2.40
b2	3.0		3.40
c	0.40		0.80
D	19.85		20.15
E	15.45		15.75
e		5.45	
L	14.20		14.80
L1	3.70		4.30
L2		18.50	
øP	3.55		3.65
øR	4.50		5.50
S		5.50	



4 Revision history

Table 5. Document revision history

Date	Revision	Changes
08-Mar-2010	1	First release.