

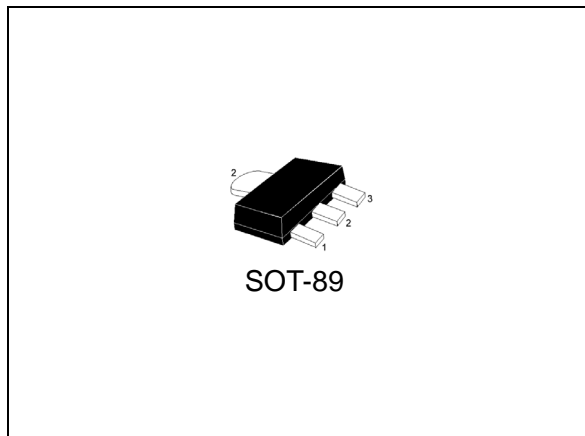
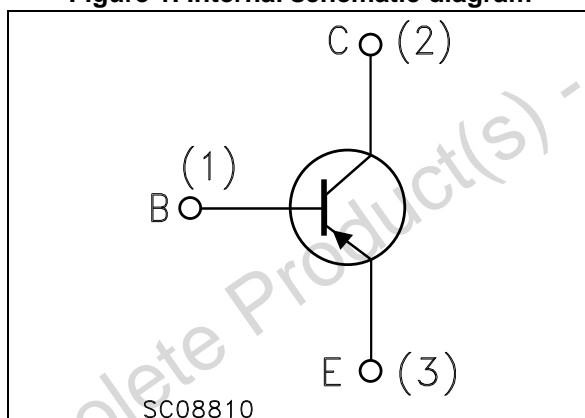


THE DATASHEET OF STF826



PNP medium power transistor

Datasheet - production data


Figure 1. Internal schematic diagram

Features

- In compliance with the 2002/93/EC European directive
- Available in tape & reel packing
- Surface mounting devices in medium power SOT-223 and SOT-89 packages

Applications

- Voltage regulation
- Relay driver
- Generic switch

Description

The STF826 is a PNP transistor manufactured using planar Technology resulting in rugged high performance devices.

Table 1. Device summary

Order code	Marking	Package	Packaging
STF826	826	SOT-89	Tape and reel

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1 Absolute maximum ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base voltage ($I_E = 0$)	-60	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	-30	V
V_{EBO}	Collector-base voltage ($I_C = 0$)	-5	V
I_C	Collector current	-3	A
I_{CM}	Collector peak current ($t_p < 5$ ms)	-6	A
I_B	Base current	-1	A
I_{BM}	Base peak current ($t_p < 5$ ms)	-2	A
P_{TOT}	Total dissipation at $T_C = 25$ °C	1.4	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
$R_{thj-amb}^{(1)}$	Thermal Resistance Junction-Amb max.	89	°C/W

1. Device mounted on a PCB area of 1 cm².

2 Electrical characteristics

($T_{CASE} = 25\text{ °C}$; unless otherwise specified)

Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector cut-off current ($V_{BE} = 0$)	$V_{CE} = -60\text{ V}$			-10	μA
I_{CEO}	Collector cut-off current ($I_B = 0$)	$V_{CE} = -30\text{ V}$			-100	μA
I_{EBO}	Emitter cut-off current ($I_C = 0$)	$V_{EB} = -5\text{ V}$			-10	μA
$V_{(BR)CBO}$	Collector-base breakdown voltage ($I_E = 0$)	$I_C = -100\text{ }\mu\text{A}$	-60			V
$V_{(BR)CEO}^{(1)}$	Collector-emitter breakdown voltage ($I_B = 0$)	$I_C = -10\text{ mA}$	-30			V
$V_{(BR)EBO}$	Collector-emitter breakdown voltage ($I_C = 0$)	$I_E = -100\text{ }\mu\text{A}$	-5			V
$V_{CE(sat)}^{(1)}$	Collector-emitter saturation voltage	$I_C = -1\text{ A}, I_B = -50\text{ mA}$ $I_C = -2\text{ A}, I_B = -100\text{ mA}$ $I_C = -3\text{ A}, I_B = -150\text{ mA}$			-0.4 -0.7 -1.1	V V V
$V_{BE(sat)}^{(1)}$	Base-emitter saturation voltage	$I_C = -2\text{ A}, I_B = -100\text{ mA}$			-1.2	V
h_{FE}	DC current gain	$I_C = -100\text{ mA}, V_{CE} = -2\text{ V}$ $I_C = -1\text{ A}, V_{CE} = -2\text{ V}$ $I_C = -3\text{ A}, V_{CE} = -2\text{ V}$	100 80 30		300	
f_T	Transistor frequency	$V_{CE} = -10\text{ V}, I_C = -0.1\text{ A}$		100		MHz

1. Pulsed duration = 300 ms, duty cycle $\leq 1.5\%$.

2.1 Electrical characteristics (curves)

Figure 2. DC current gain $V_{CE} = 2\text{ V}$

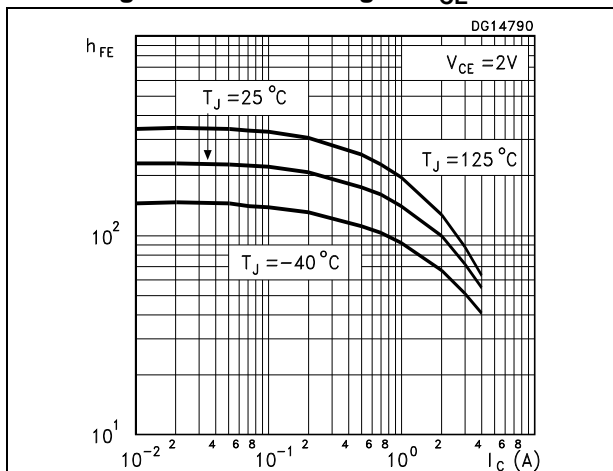


Figure 3. DC current gain $V_{CE} = 5\text{ V}$

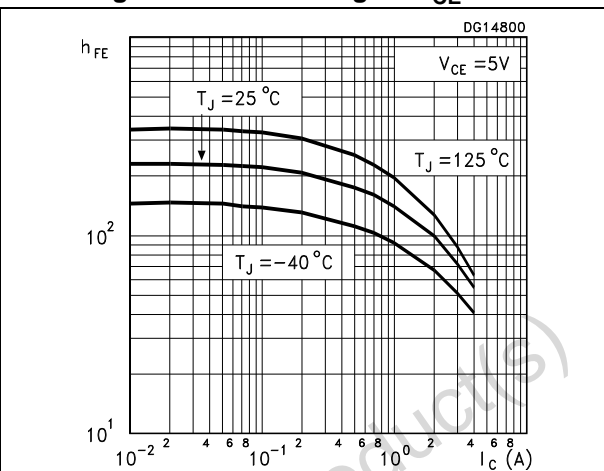


Figure 4. Collector-emitter saturation voltage

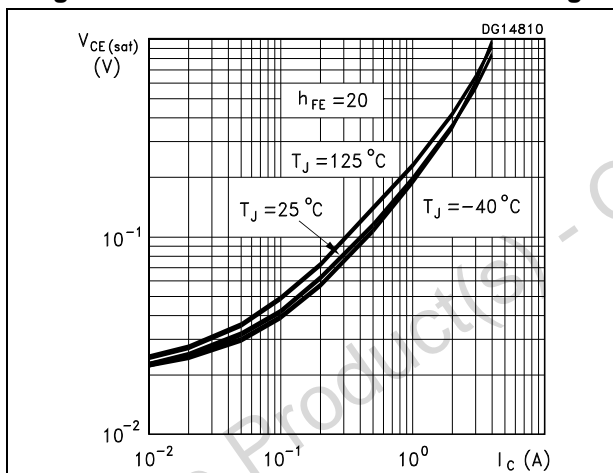


Figure 5. Base-emitter saturation voltage

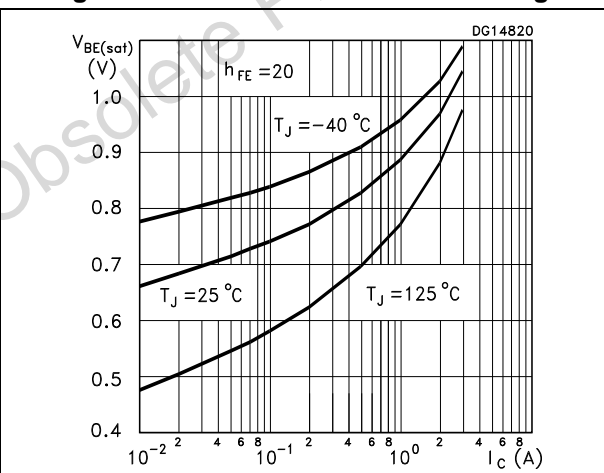


Figure 6. Switching times on resistive load OFF Figure 7. Switching times resistive on load ON

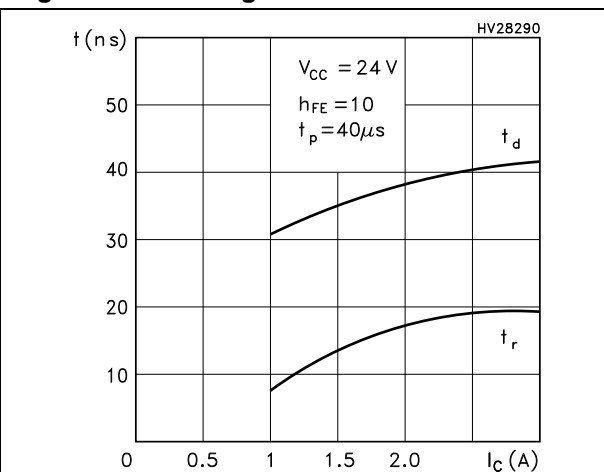
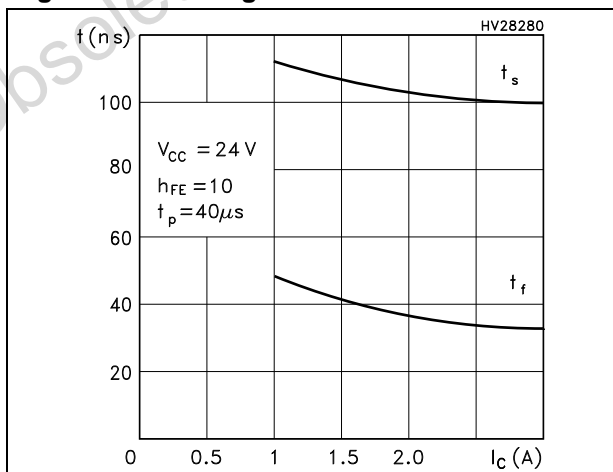
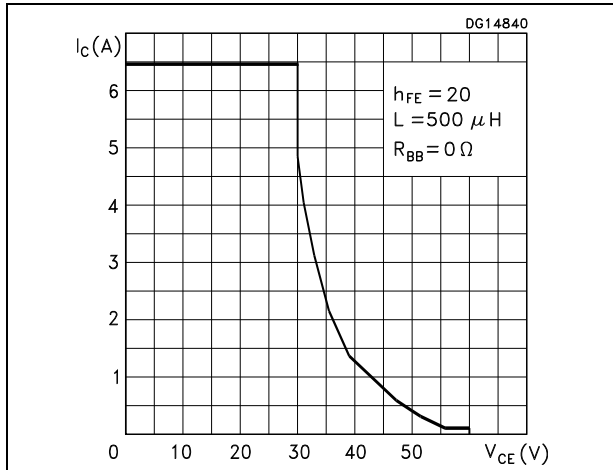


Figure 8. Reverse biased area



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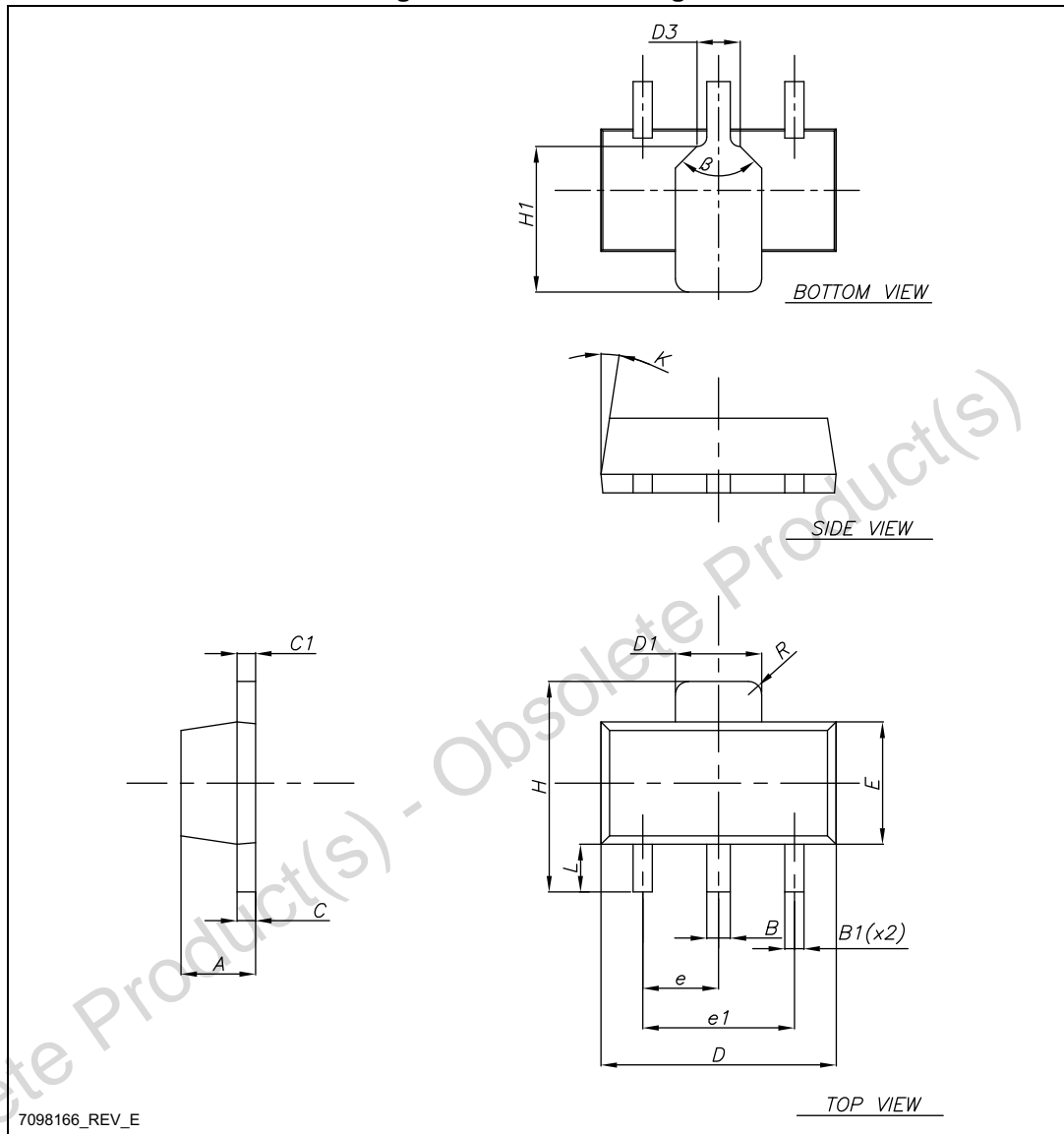
3 Package mechanical data

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.

Table 5. SOT-89 mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A	1.40		1.60
B	0.44		0.56
B1	0.36		0.48
C	0.35		0.44
C1	0.35		0.44
D	4.40		4.60
D1	1.62		1.83
D3		0.90	
E	2.29		2.60
e	1.42		1.57
e1	2.92		3.07
H	3.94		4.25
H1	2.70		3.10
K	1°		8°
L	0.89		1.20
R		0.25	
β		90°	

Figure 9. SOT-89 drawings



4 Packaging mechanical data

Table 6. SOT-89 carrier tape dimensions

Dim.	mm.	
	Values	Tolerance
Ao	4.91	± 0.10
Bo	4.52	± 0.10
Ko	1.90	± 0.10
F	5.50	± 0.10
E	1.75	± 0.10
W	12	± 0.30
P2	2	± 0.10
Po	4	± 0.10
P1	8	± 0.10
T	0.30	± 0.10
D	∅ 1.55	± 0.05
D1	∅ 1.60	± 0.10

Figure 10. SOT-89 carrier tape drawing

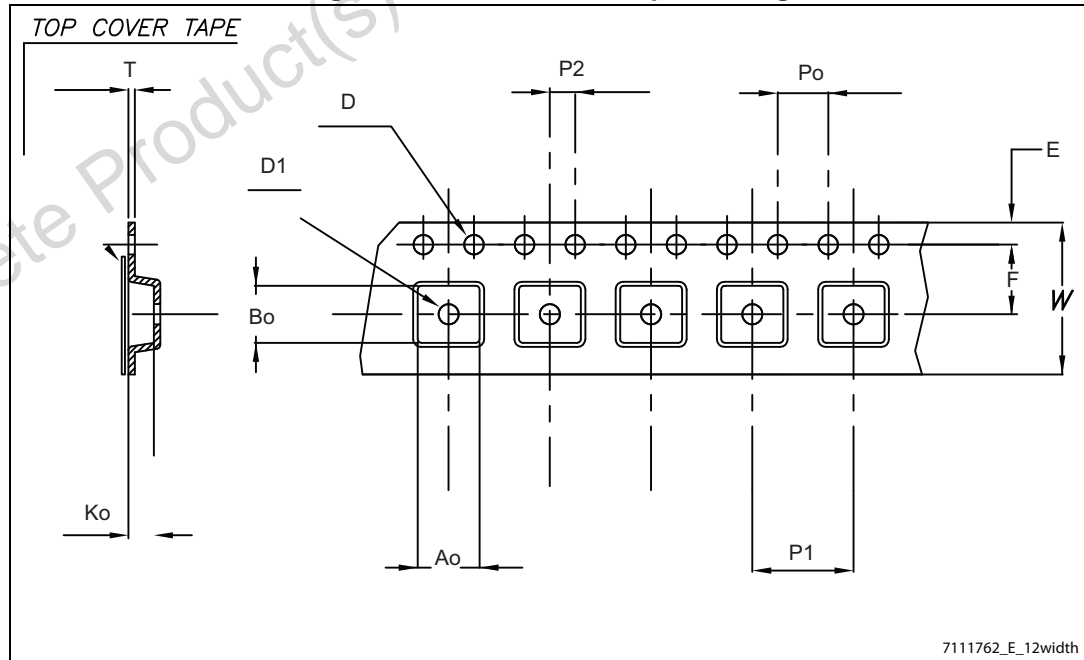
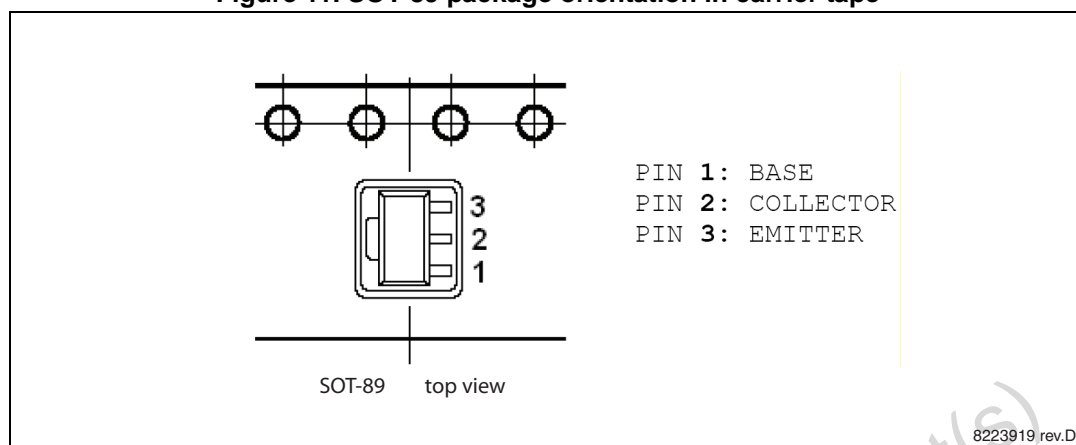


Figure 11. SOT-89 package orientation in carrier tape



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5 Revision history

Table 7. Document revision history

Date	Revision	Changes
03-Aug-2005	1	Initial release.
25-Feb-2013	2	Removed part number STN826 in SOT-223 package.

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