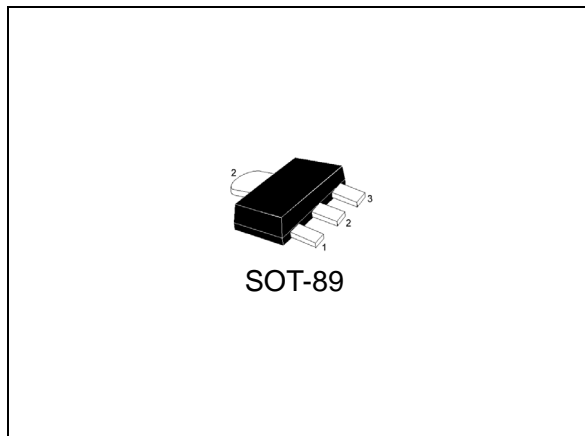
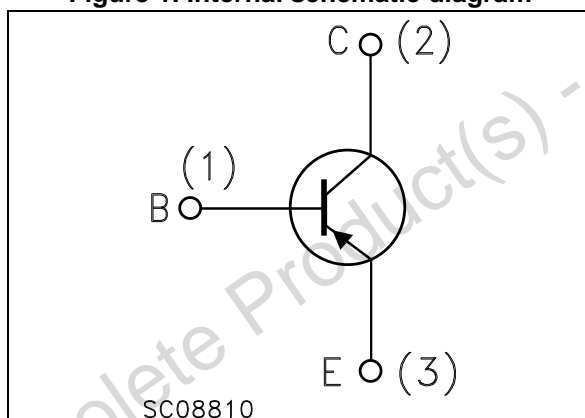


**PNP medium power transistor**

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

# Contents

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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 cm<sup>2</sup>.

## 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	$\mu\text{A}$
$I_{CEO}$	Collector cut-off current ( $I_B = 0$ )	$V_{CE} = -30\text{ V}$			-100	$\mu\text{A}$
$I_{EBO}$	Emitter cut-off current ( $I_C = 0$ )	$V_{EB} = -5\text{ V}$			-10	$\mu\text{A}$
$V_{(BR)CBO}$	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  $V_{CE} = 2\text{ V}$

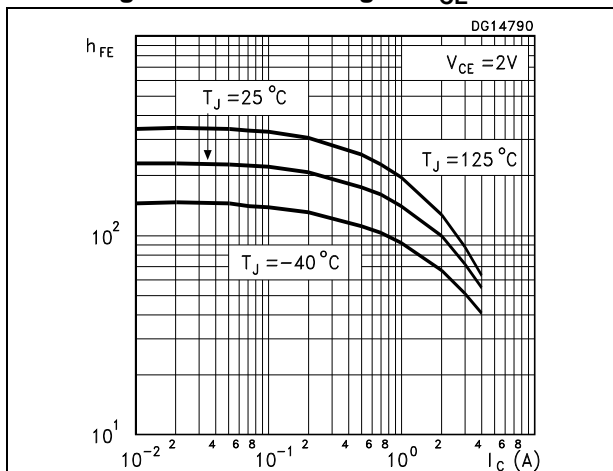


Figure 3. DC current gain  $V_{CE} = 5\text{ V}$

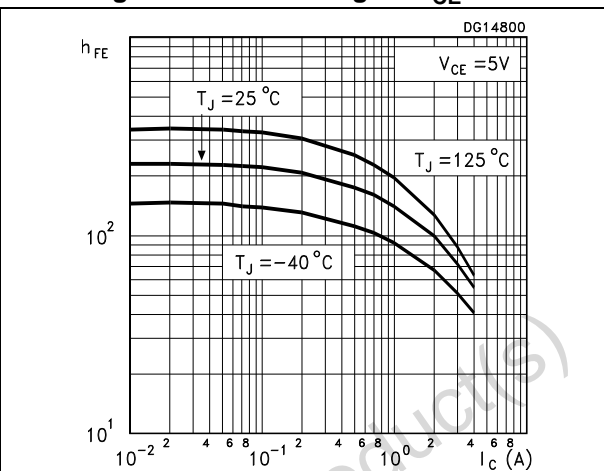


Figure 4. Collector-emitter saturation voltage

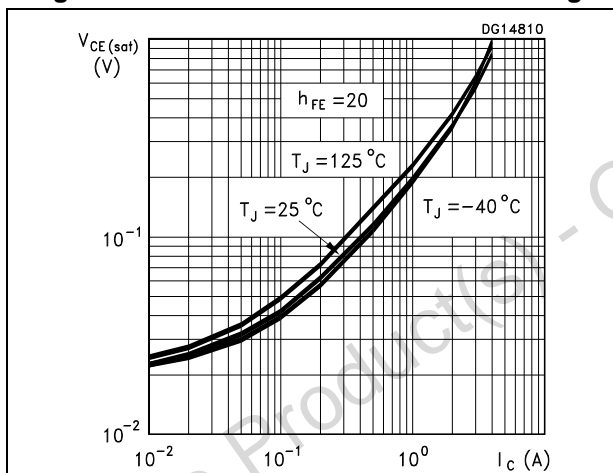


Figure 5. Base-emitter saturation voltage

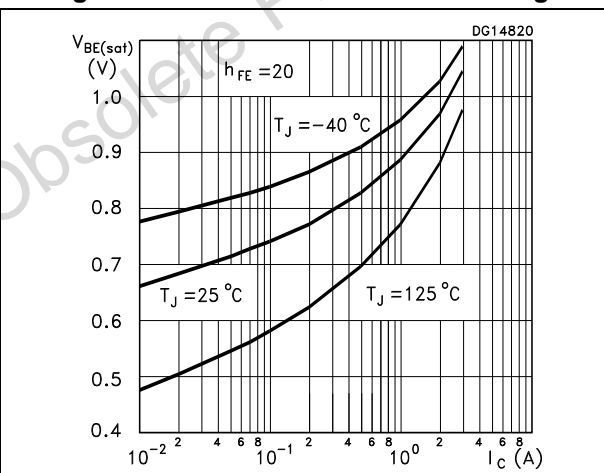


Figure 6. Switching times on resistive load OFF Figure 7. Switching times resistive on load ON

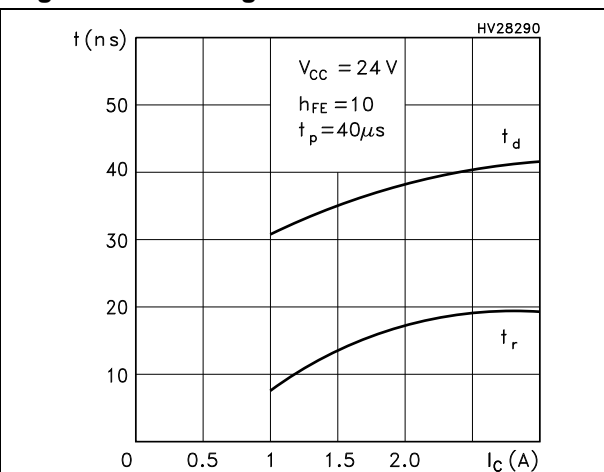
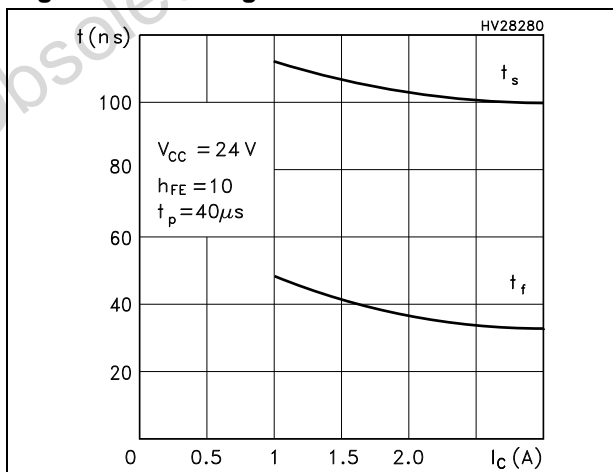
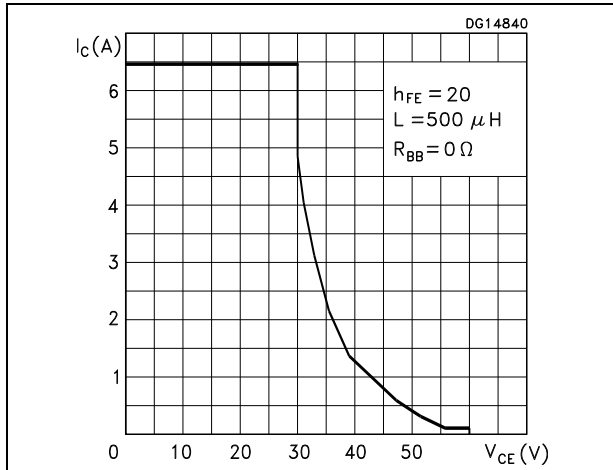


Figure 8. Reverse biased area



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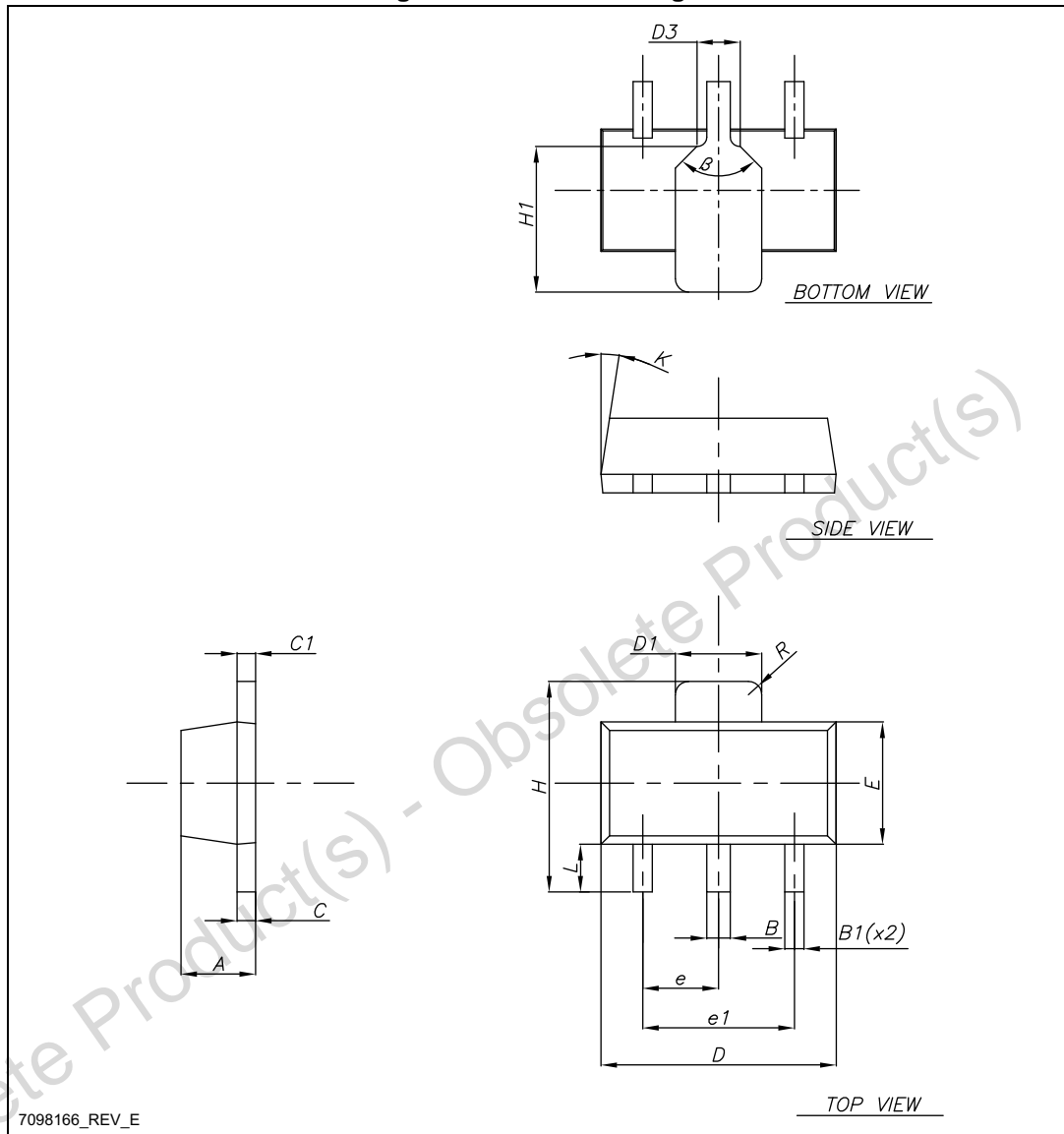
### 3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK<sup>®</sup> packages, depending on their level of environmental compliance. ECOPACK<sup>®</sup> specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK<sup>®</sup> 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

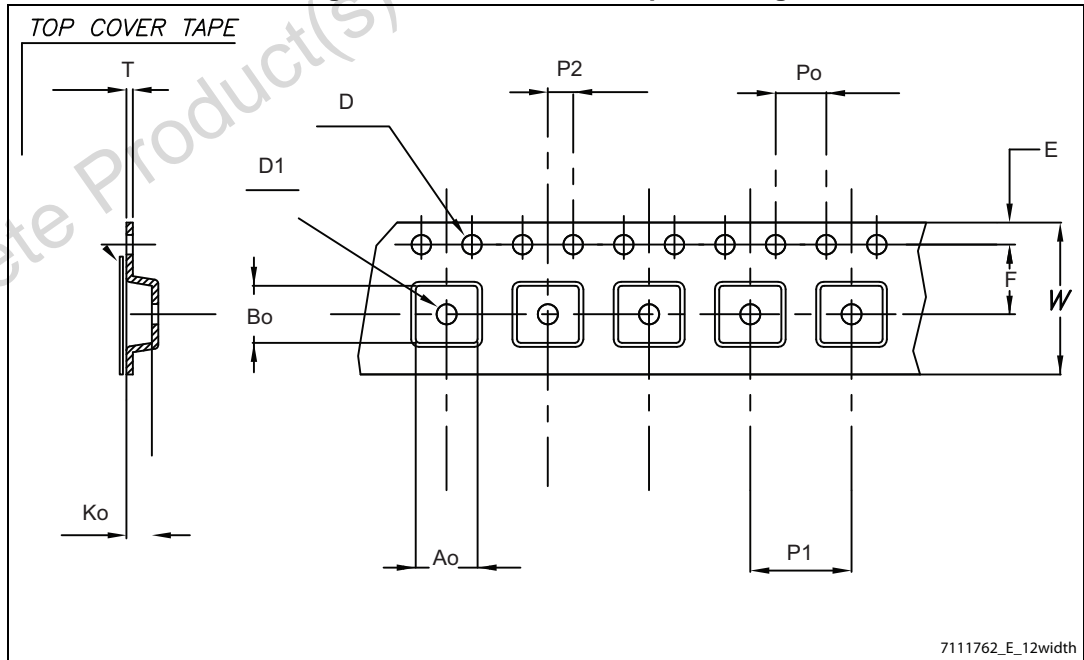
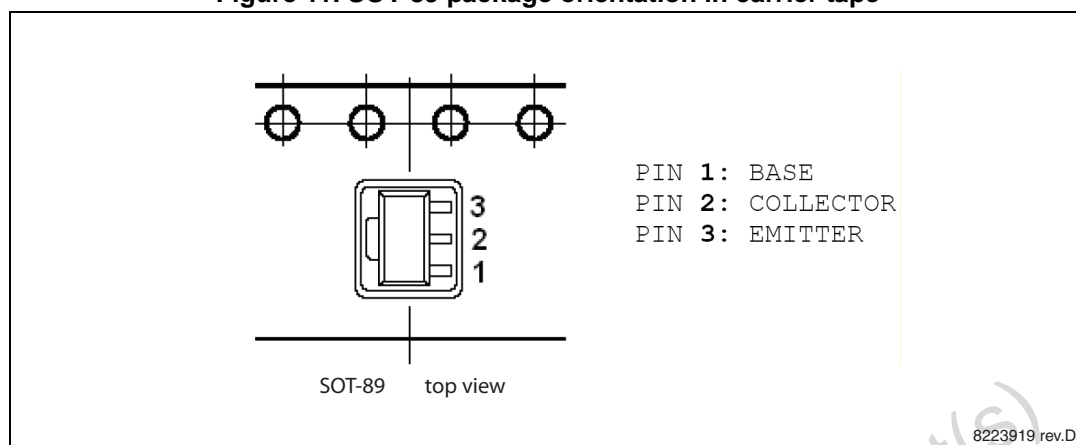


Figure 11. SOT-89 package orientation in carrier tape



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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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