

## Low voltage PNP transistor

### Features

- TO-92 package suitable for through-hole PCB assembly

### Application

- Voltage regulation
- Relay driver
- Generic switch

### Description

The STX826 is a low voltage PNP transistor manufactured in planar technology with base island layout.

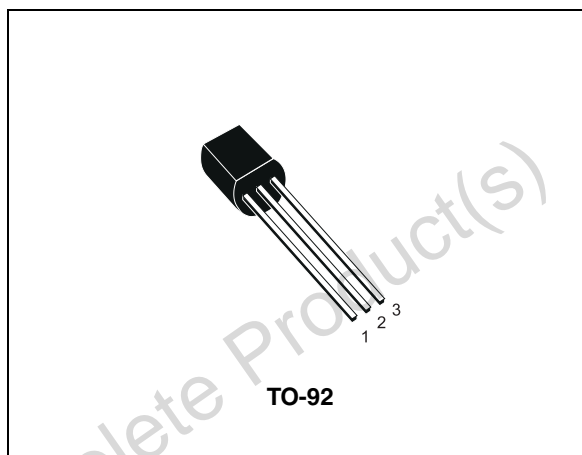


Figure 1. Internal schematic diagram

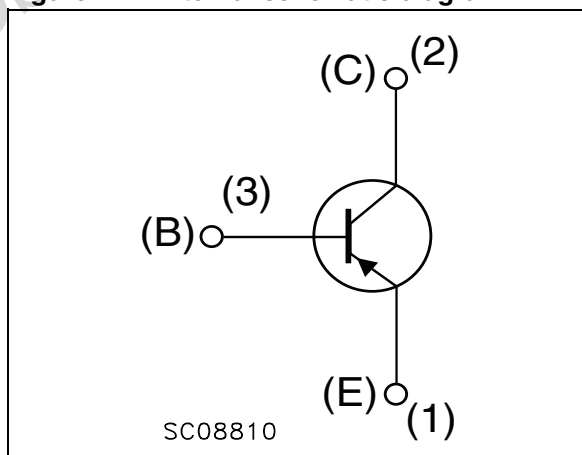


Table 1. Device summary

Order code	Marking	Package	Packaging
STX826	X826	TO-92	Bag

# 1 Electrical 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
$V_{EBO}$	Emitter-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 $T_a = 25$ °C	0.9	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
$R_{thj-case}$	Thermal resistance junction-case max	44.6	°C/W
$R_{thj-amb}$	Thermal resistance junction-ambient max	139	°C/W

## 2 Electrical characteristics

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

**Table 4. Electrical characteristics**

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

1. Pulse duration = 300  $\mu\text{s}$ , duty cycle  $\leq 1.5\%$

## 2.1 Electrical characteristics (curves)

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

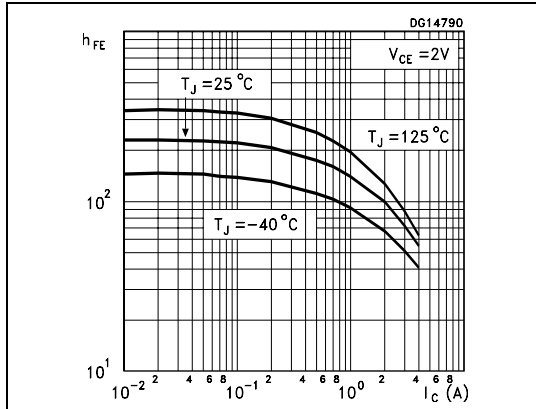


Figure 3. DC Current Gain ( $V_{CE}=5\text{ V}$ )

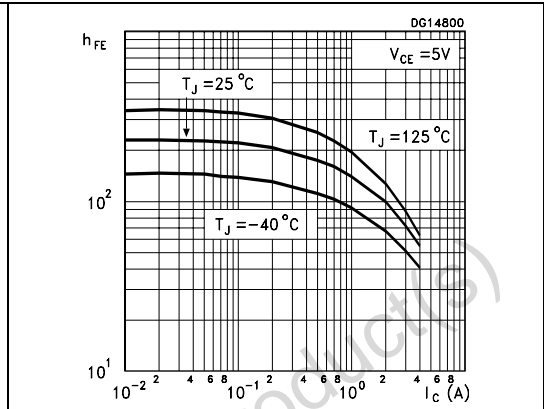


Figure 4. Collector-emitter saturation voltage

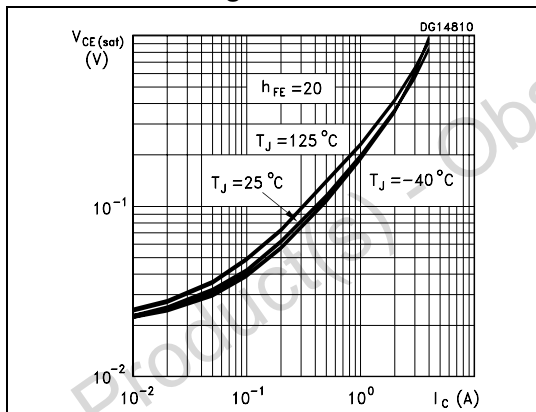


Figure 5. Base-emitter saturation voltage

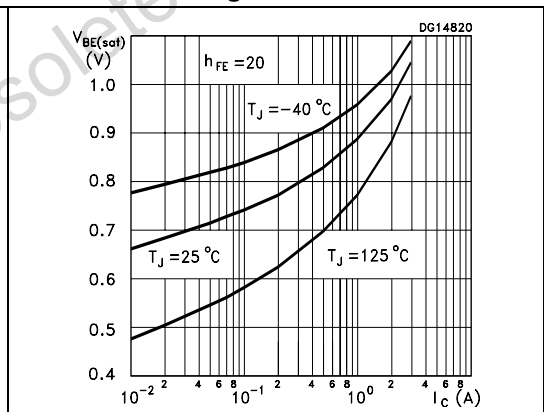


Figure 6. Resistive load switching time (OFF)

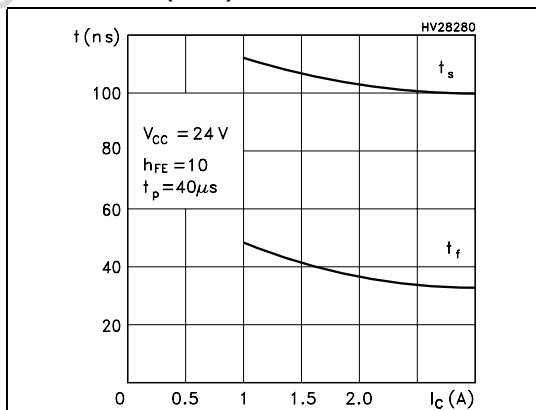


Figure 7. Resistive load switching time (ON)

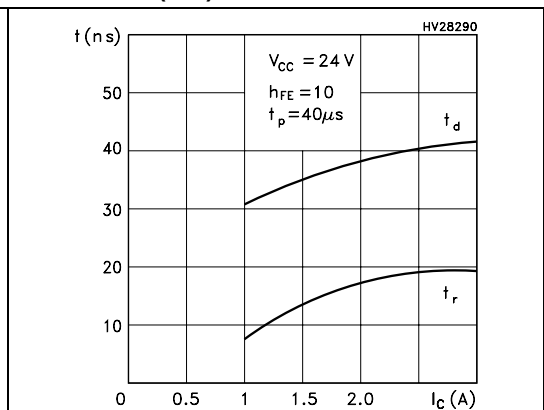
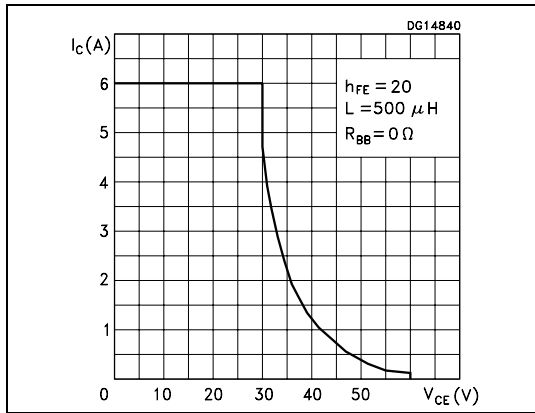


Figure 8. Reverse biased safe operating area

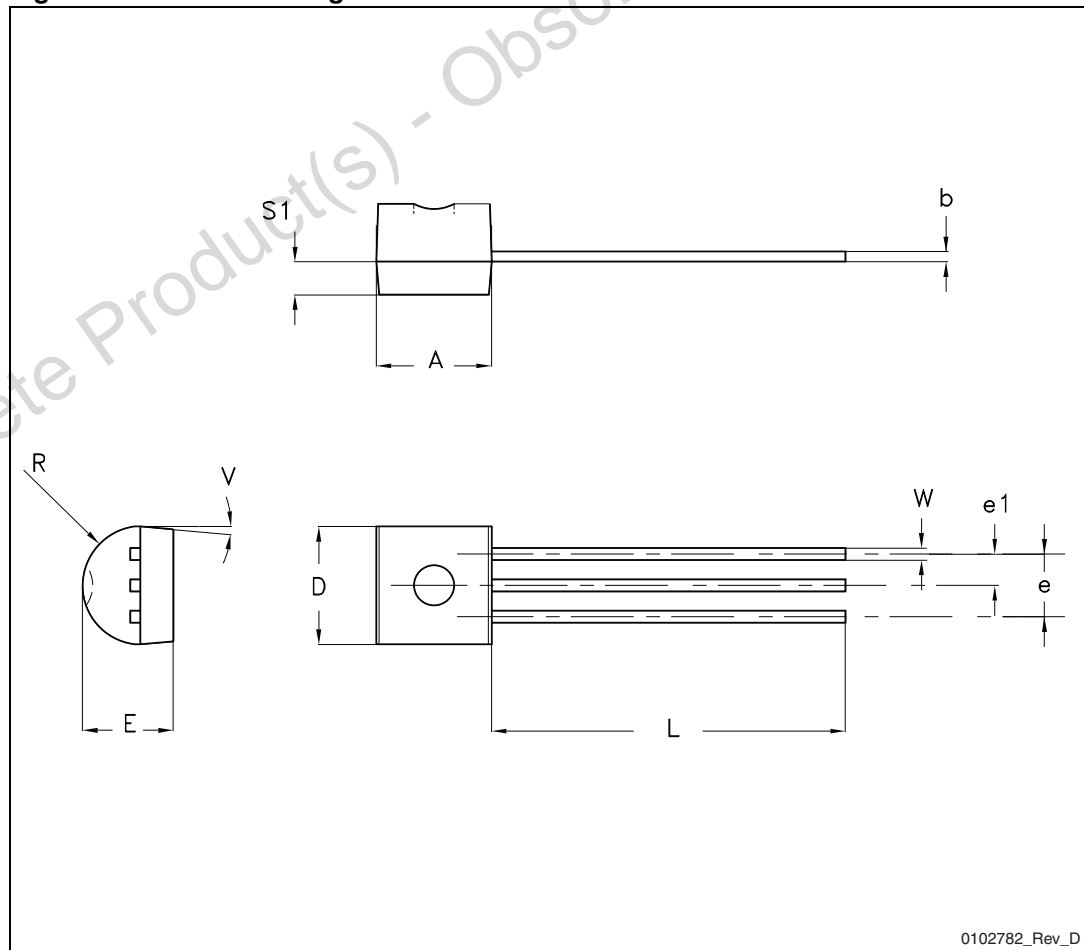


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Table 5. TO-92 mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A	4.32		4.95
b	0.36		0.51
D	4.45		4.95
E	3.30		3.94
e	2.41		2.67
e1	1.14		1.40
L	12.70		15.49
R	2.16		2.41
S1	0.92		1.52
W	0.41		0.56
V		5°	

Figure 9. TO-92 drawings



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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](http://www.st.com). ECOPACK is an ST trademark.

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## 4 Revision history

**Table 6. Document revision history**

Date	Revision	Changes
18-Oct-2005	2	Curves inserted
27-Apr-2011	3	Changed: <a href="#">Figure 1</a>

Obsolete Product(s) - Obsolete Product(s)



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