

## 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.

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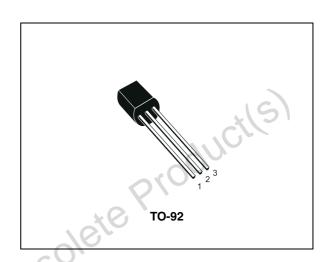


Figure 1. Internal schematic diagram

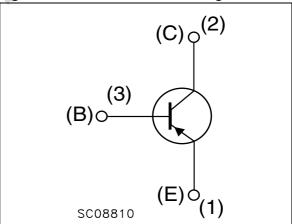


Table 1. Device summary

Order code	Marking	Package	Packaging
STX826	X826	TO-92	Bag

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Electrical ratings STX826

# 1 Electrical ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-base voltage (I <sub>E</sub> = 0)	-60	V
V <sub>CEO</sub>	Collector-emitter voltage (I <sub>B</sub> = 0)	-30	V
V <sub>EBO</sub>	Emitter-base voltage (I <sub>C</sub> = 0)	-5	٧
I <sub>C</sub>	Collector current	-3	Α
I <sub>CM</sub>	Collector peak current (t <sub>P</sub> < 5 ms)	-6	Α
Ι <sub>Β</sub>	Base current	-1 (9	Α
I <sub>BM</sub>	Base peak current (t <sub>P</sub> < 5 ms)	-2	Α
P <sub>tot</sub>	Total dissipation at T <sub>a</sub> = 25 °C	0.9	W
T <sub>stg</sub>	Storage temperature	-65 to 150	°C
T <sub>J</sub>	Max. operating junction temperature	150	°C

Table 3. Thermal data

	Symbol	Parameter	Value	Unit	
	R <sub>thj-case</sub>	Thermal resistance junction-case max 44.6		°C/W	
	R <sub>thj-amb</sub>	Thermal resistance junction-ambient max	139	°C/W	
Obsole	te P	oducils)			

#### **Electrical characteristics** 2

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

**Electrical characteristics** Table 4.

Symbol	Parameter	Test conditions	Min.	Тур.	Max.	Unit
I <sub>CES</sub>	Collector cut-off current (V <sub>BE</sub> = 0)	V <sub>CE</sub> = -60 V			-10	μΑ
I <sub>CEO</sub>	Collector cut-off current (I <sub>B</sub> = 0)	V <sub>CE</sub> = -30 V			-100	μA
I <sub>EBO</sub>	Emitter cut-off current (I <sub>C</sub> = 0)	V <sub>EB</sub> = -5 V			-10	μА
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage (I <sub>E</sub> = 0)	Ι <sub>C</sub> = -100 μΑ	-60	90		V
V <sub>(BR)CEO</sub> <sup>(1)</sup>	Collector-emitter breakdown voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = -10 mA	-30			V
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage (I <sub>C</sub> = 0)	Ι <sub>Ε</sub> = -100 μΑ	-5			V
(4)	Collector-emitter	$I_C = -1 \text{ A}$ $I_B = -50 \text{ mA}$			-0.4	V
V <sub>CE(sat)</sub> <sup>(1)</sup>	saturation voltage	$I_C = -2 A$ $I_B = -100 \text{ mA}$ $I_C = -3 A$ $I_B = -150 \text{ mA}$			-0.7 -1.1	V V
V <sub>BE(sat)</sub> <sup>(1)</sup>	Base-emitter saturation voltage	$I_C = -2 \text{ A}$ $I_B = -100 \text{ mA}$			-1.2	V
	(C)	$I_C = -100 \text{ mA}$ $V_{CE} = -2 \text{ V}$	100		300	
h <sub>FE</sub>	DC current gain	$I_C = -1 A$ $V_{CE} = -2 V$	80			
	9~	$I_C = -3 A$ $V_{CE} = -2 V$	30			
f <sub>T</sub>	Transition frequency	$V_{CE} = -10 \text{ V}$ $I_{C} = -0.1 \text{ A}$		100		MHz
1. Pulse durati	on = 300 µs, duty cycle ≤ 1.5 %					

Electrical characteristics STX826

### 2.1 Electrical characteristics (curves)

Figure 2. DC current gain (V<sub>CE</sub>=2 V) Figure 3. DC Current Gain (V<sub>CE</sub>=5 V)

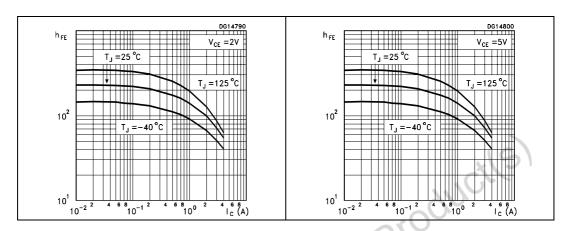


Figure 4. Collector-emitter saturation Figure 4. voltage

Figure 5. Base-emitter saturation voltage

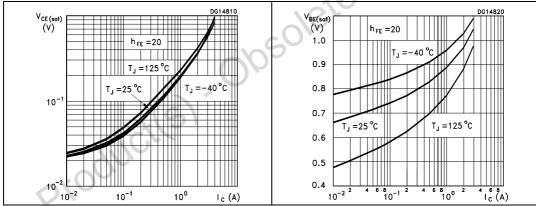
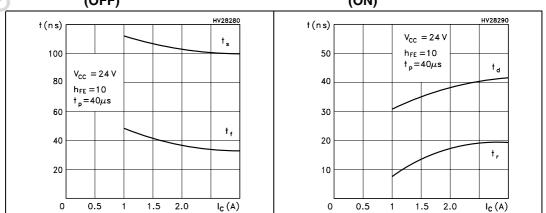


Figure 6. Resistive load switching time Figure 7. Resistive load switching time (OFF) (ON)



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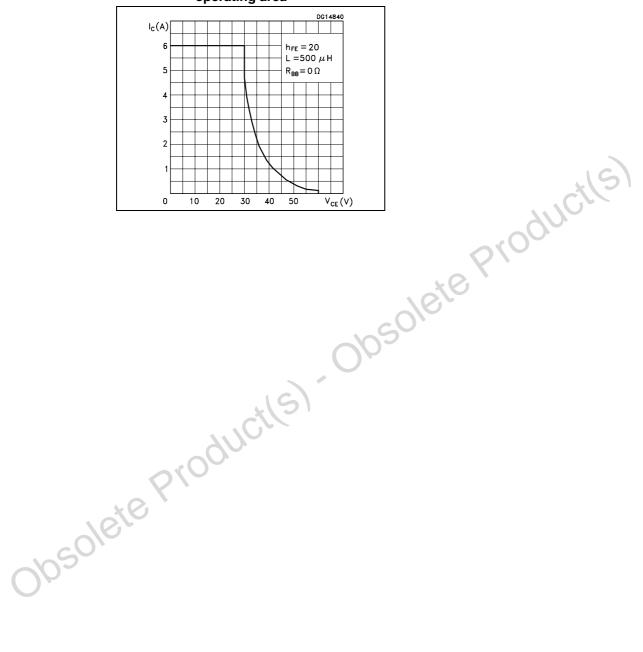


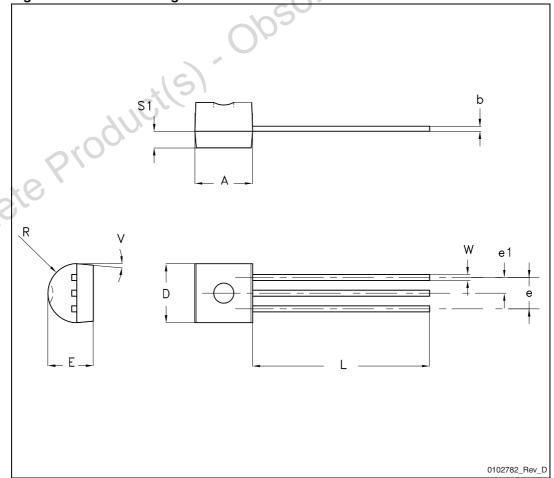
Figure 8. Reverse biased safe operating area

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Table 5. TO-92 mechanical data

Dim.	mm				
	Min.	Тур.	Max.		
Α	4.32		4.95		
b	0.36		0.51		
D	4.45		4.95		
E	3.30		3.94		
е	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	0.56		
V		5°			

Figure 9. TO-92 drawings



## 3 Package mechanical data

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Obsolete Product(s). Obsolete Product(s)

Revision history STX826

## 4 Revision history

Table 6. Document revision history

Date	Revision	Changes
18-Oct-2005	2	Curves inserted
27-Apr-2011	3	Changed: Figure 1



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