

## PNP MEDIUM POWER TRANSISTOR

### General features

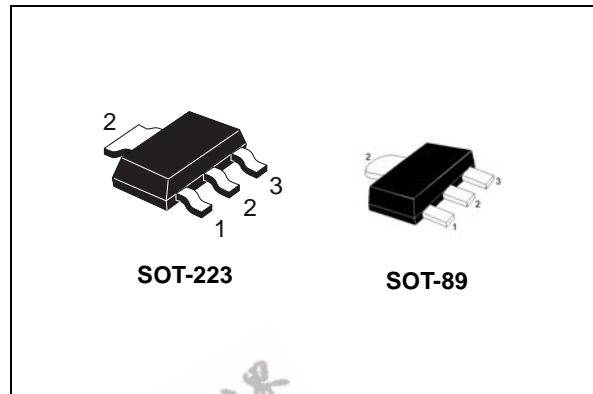
- SURFACE-MOUNTING DEVICES IN MEDIUM POWER SOT-223 AND SOT-89 PACKAGES
- AVAILABLE IN TAPE & REEL PACKING

### Description

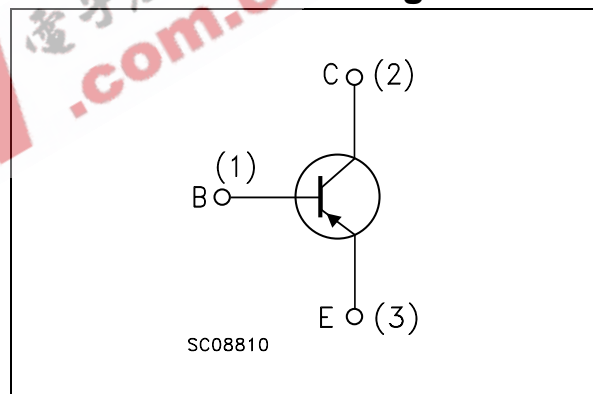
The STF817A - STN817A are PNP transistor manufactured using Planar Technology resulting in rugged high performance devices.

### Applications

- VOLTAGE REGULATION
- RELAY DRIVER
- GENERIC SWITCH



### Internal schematic diagram



### Order codes

Sales Type	Marking	Package	Packaging
STF817A	817A	SOT-89	TAPE & REEL
STN817A	N817A	SOT-223	TAPE & REEL

# 1 Electrical ratings

**Table 1. Absolute maximum ratings**

Symbol	Parameter	Value		Unit
		SOT-223	SOT-89	
$V_{CBO}$	Collector-Base Voltage ( $I_E=0$ )	-80		V
$V_{CEO}$	Collector-Emitter Voltage ( $I_E=0$ )	-80		V
$V_{EBO}$	Emitter-Base Voltage ( $I_C=0$ )	-5		V
$I_C$	Collector Current	-1.5		A
$I_{CM}$	Collector Peak Current ( $t_p<5ms$ )	-2		A
$I_B$	Base Current	-0.3		A
$I_{BM}$	Base Peak Current ( $t_p<5ms$ )	-0.6		A
$P_{TOT}$	Total Dissipation at $T_{amb} = 25^\circ C$	1.6	1.4	W
$T_j$ $T_{stg}$	Operating Junction Temperature Storage Temperature	-65 to 150		$^\circ C$

**Table 2. Thermal data**

	Parameter	SOT-223	SOT-89	Unit
$R_{thj-amb}$ <i>Note 1</i>	Thermal Resistance Junction-amb Max	78	89	$^\circ C/W$

## 2 Electrical characteristics

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

**Table 3. On/off states**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{ECS}$	Collector Cut-off Current ( $V_{BE}=0$ )	$V_{CE} = -80\text{ V}$			-500	$\mu\text{A}$
$I_{CEO}$	Collector Cut-off Current ( $I_B=0$ )	$V_{CE} = -80\text{ V}$			-1	mA
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = -5\text{V}$			-100	$\mu\text{A}$
$V_{CEO(sus)}$ <i>Note 2</i>	Collector-Emitter Sustaining Voltage ( $I_B = 0$ )	$I_C=-10\text{mA}$	-80			V
$V_{CE(sat)}$ <i>Note 2</i>	Collector-Emitter Saturation Voltage	$I_C= -100\text{ mA}, I_B= -10\text{m A}$ $I_C= -1\text{ A}, I_B= -100\text{m A}$			-0.25 -0.5	V V
$V_{BE(sat)}$ <i>Note 2</i>	Base-Emitter Saturation Voltage	$I_C= -100\text{ mA}, I_B= -10\text{m A}$ $I_C= -1\text{ A}, I_B= -100\text{m A}$			-1 -1.1	V V
$h_{FE}$ <i>Note 2</i>	DC Current Gain	$I_C= -100\text{ mA}, V_{CE} = -2\text{V}$ $I_C= -500\text{ mA}, V_{CE} = -2\text{V}$ $I_C= -1\text{A}, V_{CE} = -2\text{V}$	140 80 30			
$f_T$	Transition Frequency	$I_C= -0.1\text{A}, V_{CE} = -10\text{V}$		50		MHz

(1) Device mounted on a PCB area of  $1\text{ cm}^2$

(2) Pulsed: Pulse duration =  $300\mu\text{s}$ , duty cycle 1.5%

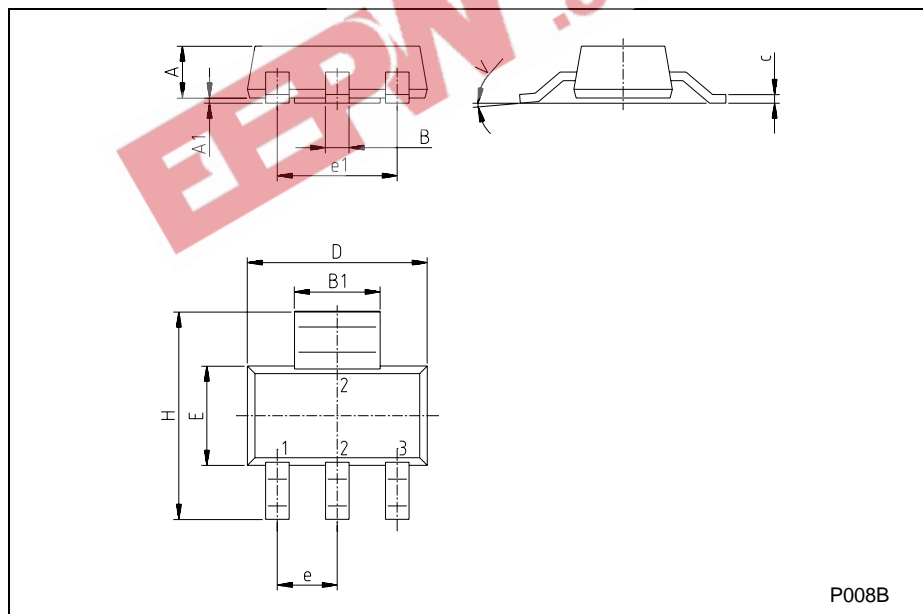
### 3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect . The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: [www.st.com](http://www.st.com)

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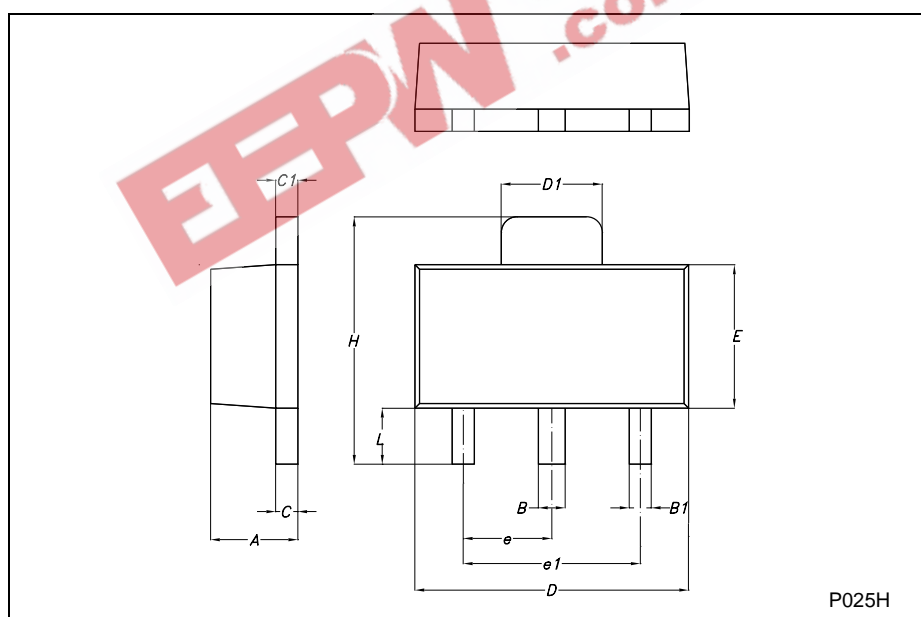
## SOT-223 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.80			0.071
B	0.60	0.70	0.80	0.024	0.027	0.031
B1	2.90	3.00	3.10	0.114	0.118	0.122
c	0.24	0.26	0.32	0.009	0.010	0.013
D	6.30	6.50	6.70	0.248	0.256	0.264
e		2.30			0.090	
e1		4.60			0.181	
E	3.30	3.50	3.70	0.130	0.138	0.146
H	6.70	7.00	7.30	0.264	0.276	0.287
V			10°			10°
A1		0.02				



## SOT-89 MECHANICAL DATA

DIM.	mm			mils		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	1.4		1.6	55.1		63.0
B	0.44		0.56	17.3		22.0
B1	0.36		0.48	14.2		18.9
C	0.35		0.44	13.8		17.3
C1	0.35		0.44	13.8		17.3
D	4.4		4.6	173.2		181.1
D1	1.62		1.83	63.8		72.0
E	2.29		2.6	90.2		102.4
e	1.42		1.57	55.9		61.8
e1	2.92		3.07	115.0		120.9
H	3.94		4.25	155.1		167.3
L	0.89		1.2	35.0		47.2



## 4 Revision History

Date	Revision	Changes
03-Nov-2005	1	First release

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