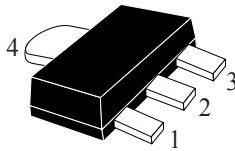
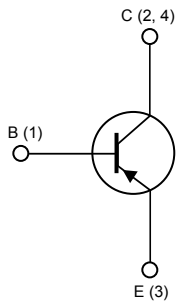


Low voltage fast-switching PNP power transistor


SOT-89


PNPB1C24E3

Features

- Very low collector-emitter saturation voltage
- High current gain characteristic
- Fast switching speed

Applications

- Led
- Battery charger
- Mobile equipment
- Voltage regulation

Description

The device is a PNP transistor manufactured using new “PB-HCD” (power bipolar high current density) technology. The resulting transistor shows exceptional high gain performances coupled with very low saturation voltage.



Product status link

[2STF2550](#)

Product summary

Order code	2STF2550
Marking	2550
Package	SOT-89
Packing	Tape and reel

1 Electrical ratings

Table 1. Absolute maximum rating

Symbol	Parameter	Value	Unit
V_{CES}	Collector-emitter voltage ($V_{CE} = 0$ V)	-50	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$ A)	-50	V
V_{EBO}	Emitter-base voltage ($I_C = 0$ A)	-5	V
I_C	Collector current	-5	A
I_{CM}	Collector peak current ($t_p < 5$ ms)	-10	A
I_B	Base current	-1	A
P_{TOT}	Total power dissipation at $T_A = 25$ °C	1.4	W
T_{stg}	Storage temperature range	-65 to 150	°C
T_J	Maximum operating junction temperature	150	°C

Table 2. Thermal data

Symbol	Parameter	Value	Unit
$R_{thJA}^{(1)}$	Thermal resistance, junction-to-ambient	89	°C/W

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

2 Electrical characteristics

$T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

Table 3. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current	$V_{CB} = -50\text{ V}$, $I_E = 0\text{ A}$			-0.1	μA
I_{EBO}	Emitter cut-off current	$V_{EB} = -4\text{ V}$, $I_C = 0\text{ A}$			-0.1	μA
$V_{(BR)CBO}^{(1)}$	Collector-base breakdown voltage	$I_C = -100\text{ }\mu\text{A}$, $I_E = 0\text{ A}$	-50			V
$V_{(BR)CEO}^{(1)}$	Collector-emitter breakdown voltage	$I_B = 0\text{ A}$, $I_C = -10\text{ mA}$	-50			V
$V_{(BR)EBO}^{(1)}$	Emitter-base breakdown voltage	$I_C = 0\text{ A}$, $I_E = -100\text{ }\mu\text{A}$	-5			V
$V_{CE(sat)}^{(1)}$	Collector-emitter saturation voltage	$I_C = -3\text{ A}$, $I_B = -300\text{ mA}$		-0.39	-0.55	V
$V_{BE(sat)}^{(1)}$	Base-emitter saturation voltage	$I_C = -3\text{ A}$, $I_B = -300\text{ mA}$		-1	-1.2	V
$h_{FE}^{(1)}$	DC current gain	$I_C = -0.5\text{ A}$, $V_{CE} = -2\text{ V}$		350		
		$I_C = -2\text{ A}$, $V_{CE} = -2\text{ V}$	110		350	
		$I_C = -3\text{ A}$, $V_{CE} = -2\text{ V}$	80			
		$I_C = -5\text{ A}$, $V_{CE} = -5\text{ V}$		70		
C_{CBO}	Collector-base capacitance	$I_E = 0$, $V_{CB} = -10\text{ V}$, $f = 1\text{ MHz}$		30		pF
	Resistive load					
t_{on}	Turn-on time	$I_C = -1.5\text{ A}$, $V_{CC} = -10\text{ V}$,		80		ns
t_{off}	Turn-off time	$I_{B(on)} = -I_{B(off)} = -150\text{ mA}$		300		ns

1. Pulsed: Pulse duration = 300 μs , duty cycle $\leq 1.5\%$.

3 Package information

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.

3.1 SOT-89 package information

Figure 1. SOT-89 package outline

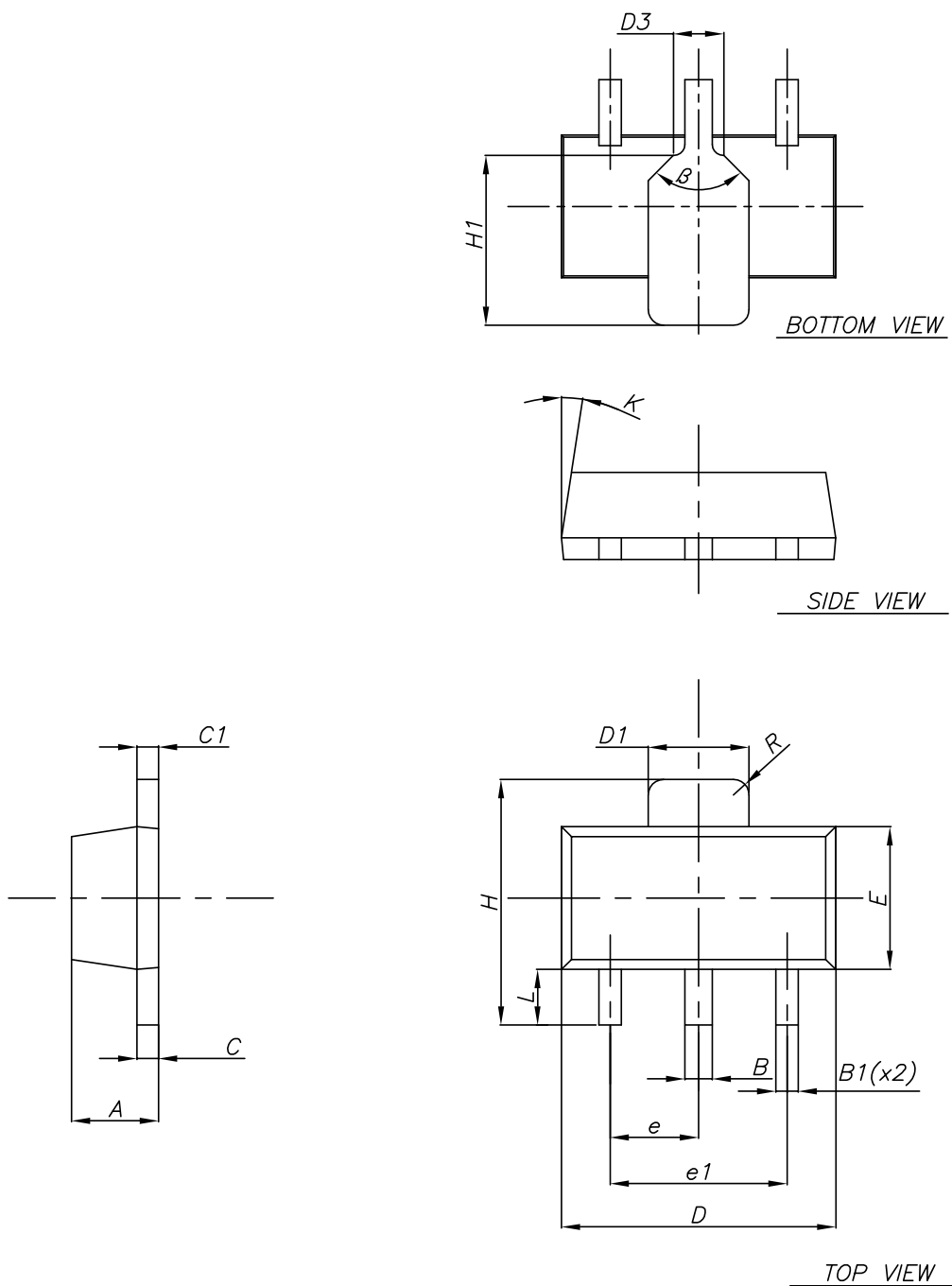
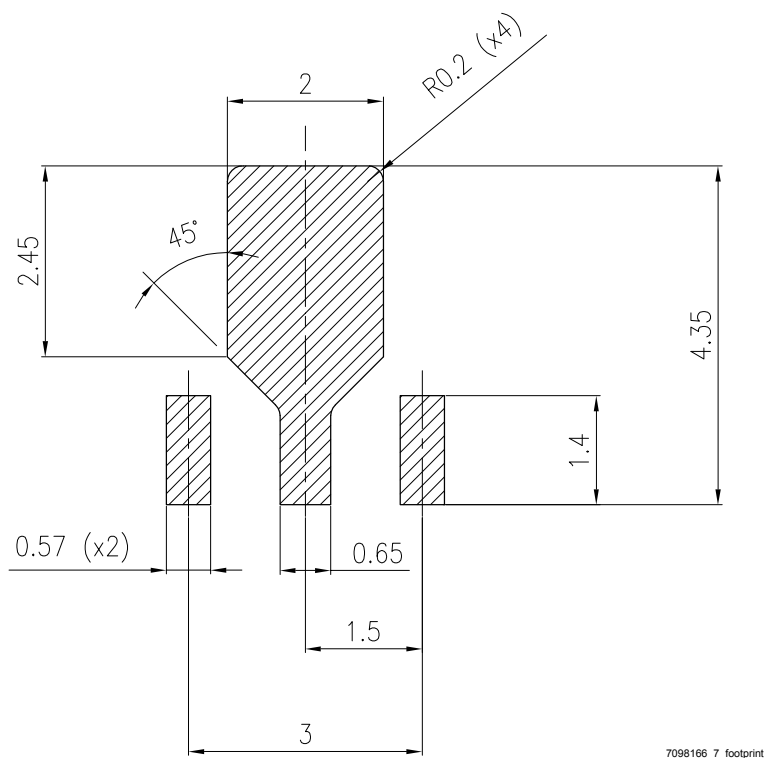


Table 4. SOT-89 package mechanical data

Ref.	Dimensions (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 2. SOT-89 recommended footprint


Note: Dimensions are in mm.

Revision history

Table 5. Document revision history

Date	Revision	Changes
12-Nov-2008	1	Initial release.
09-Dec-2025	2	The part number 2STN2550 has been removed and the document has been updated accordingly. Updated Section 3: Package information . Minor text changes.

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