

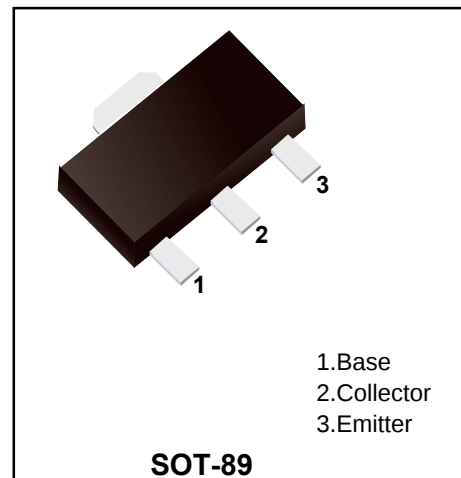
NPN Silicon Epitaxial Planar Transistor

FEATURES

- ◆Case: SOT-89
- ◆Low collector-emitter saturation voltage V_{CEsat}
- ◆High collector current capability: I_C and I_{CM}
- ◆Higher efficiency leading to less heat generation
- ◆Reduced printed-circuit board requirements.

APPLICATIONS

- ◆Power management
- DC/DC converters
- Supply line switching
- Battery charger
- LCD backlighting



Marking Code

PBSS4350SI

S43

Limiting Values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Parameter	Conditions	Symbol	Value	Unit
collector-base voltage	open emitter	V_{CBO}	50	V
collector-emitter voltage	open base	V_{CEO}	50	V
emitter-base voltage	open collector	V_{EBO}	5	V
collector current (DC)	note 4	I_C	3	A
peak collector current	limited by $T_{j(max)}$	I_{CM}	5	A
base current (DC)		I_B	0.5	A
total power dissipation	$T_{amb} \leq 25^\circ C$	P_{tot}		mW
	note 1		550	
	note 2		1	
	note 3		1.4	
	note 4		1.6	W
storage temperature		T_{stg}	-65 +150	$^\circ C$
junction temperature		T_j	150	$^\circ C$
ambient temperature		T_{amb}	-65 +150	$^\circ C$

Notes

- 1.Device mounted on a FR4 printed-circuit board; single-sided copper; tin-plated; standard footprint.
- 2.Device mounted on a FR4 printed-circuit board; single-sided copper; tin-plated; mounting pad for collector 1 cm².
- 3.Device mounted on a FR4 printed-circuit board; single-sided copper; tin-plated; mounting pad for collector 6 cm².
- 4.Device mounted on a ceramic printed-circuit board 7 cm², single-sided copper, tin-plated.

CHARACTERISTICS

Tamb = 25°C unless otherwise specified.

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
collector-base cut-off current	$V_{CB} = 50\text{ V}; I_E = 0\text{ A}$	I_{CBO}			100	nA
	$V_{CB} = 50\text{ V}; I_E = 0\text{ A}; T_j = 150^\circ\text{C}$				50	A
collector-emitter cut-off current	$V_{CE} = 50\text{ V}; V_{BE} = 0\text{ V}$	I_{CES}			100	nA
emitter-base cut-off current	$V_{EB} = 5\text{ V}; I_C = 0\text{ A}$	I_{EBO}			100	nA
DC current gain	$V_{CE} = 2\text{ V}$ $I_C = 0.1\text{ A}$ $I_C = 0.5\text{ A}$ $I_C = 1\text{ A}; \text{note 1}$ $I_C = 2\text{ A}; \text{note 1}$ $I_C = 3\text{ A}; \text{note 1}$	h_{FE}	300 300 300 200 100		700	
collector-emitter saturation voltage	$I_C = 0.5\text{ A}; I_B = 50\text{ mA}$	$R_{CE(sat)}$			80	mV
	$I_C = 1\text{ A}; I_B = 50\text{ mA}$				160	mV
	$I_C = 2\text{ A}; I_B = 100\text{ mA}$				280	mV
	$I_C = 2\text{ A}; I_B = 200\text{ mA}; \text{note 1}$				260	mV
	$I_C = 3\text{ A}; I_B = 300\text{ mA}; \text{note 1}$				370	mV
equivalent on-resistance	$I_C = 2\text{ A}; I_B = 200\text{ mA}; \text{note 1}$	$R_{CE(sat)}$			130	m
base-emitter saturation voltage	$I_C = 2\text{ A}; I_B = 100\text{ mA}$	$V_{BE(sat)}$			1.1	V
	$I_C = 3\text{ A}; I_B = 300\text{ mA}; \text{note 1}$				1.2	V
base-emitter turn-on voltage	$V_{CE} = 2\text{ V}; I_C = 1\text{ A}$	$V_{BE(on)}$			1.1	V
transition frequency	$I_C = 100\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	f_T	100			MHz
collector capacitance	$V_{CB} = 10\text{ V}; I_E = I_{e} = 0\text{ A}; f = 1\text{ MHz}$	C_C			30	pF

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$.

Typical characteristics

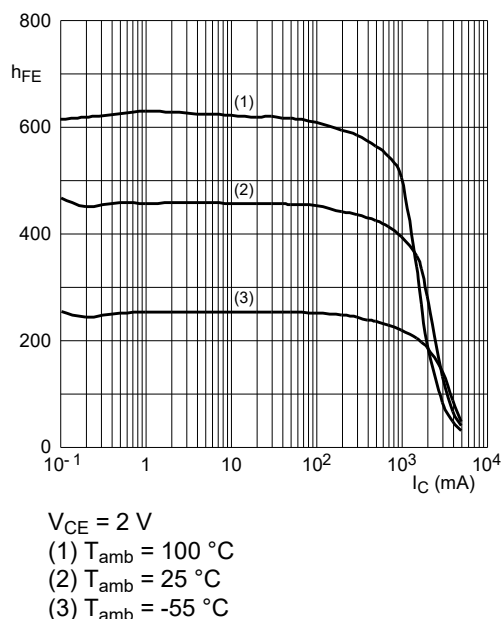


Fig.1 DC current gain as a function of collector current; typical values.

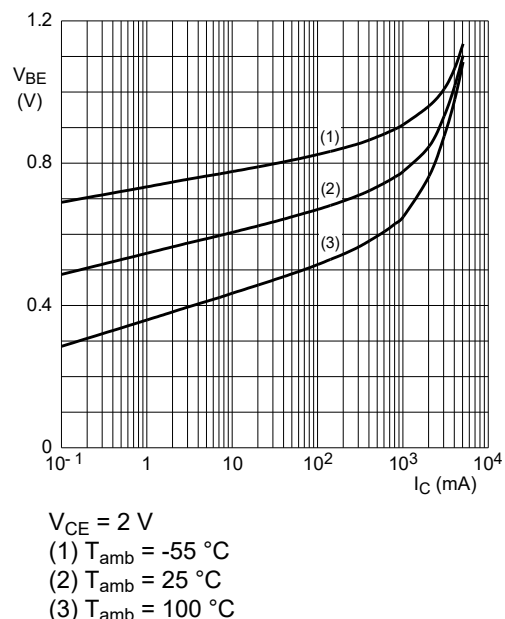


Fig.2 Base-emitter voltage as a function of collector current; typical values.

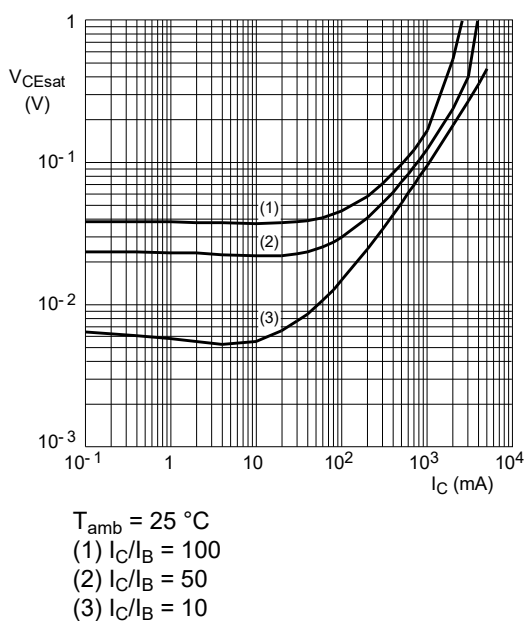


Fig.3 Collector-emitter saturation voltage as a function of collector current; typical values.

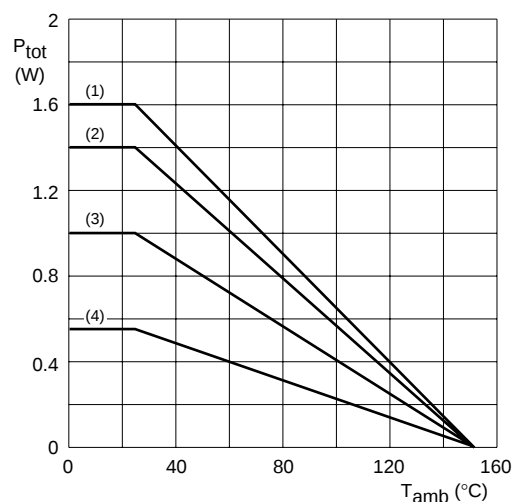


Fig.4 Power derating curves.

Ordering information

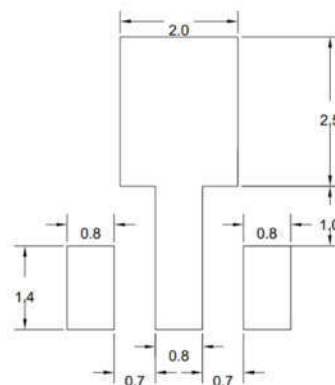
Package	Packing Description	Base Quantity	Packing Quantity
SOT-89	Tape/Reel, 7" reel	1000pcs/Reel	6000PCS/Box 30000PCS/Carton

Package Dimensions

SOT-89

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.40	1.60	0.055	0.063
b	0.32	0.52	0.013	0.020
b1	0.38	0.58	0.015	0.023
c	0.35	0.45	0.014	0.018
D	4.40	4.60	0.173	0.181
D1	1.45	1.65	0.057	0.065
D2	1.70	1.80	0.067	0.071
E	2.30	2.60	0.091	0.102
E1	3.95	4.25	0.156	0.167
E2	1.80	2.00	0.071	0.079
e	1.40	1.60	0.055	0.063
e1	2.80	3.20	0.110	0.126
L	0.90	1.20	0.035	0.047

The recommended mounting pad size



UNIT:MM

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