

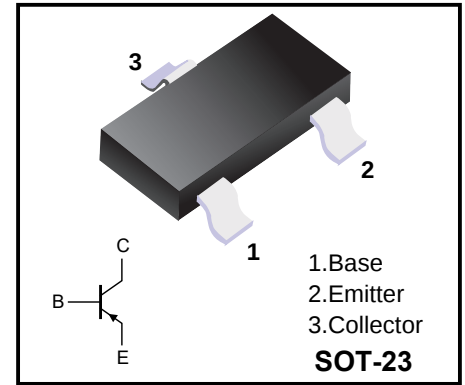
PNP Silicon Epitaxial Planar Transistor

FEATURES

- ◆ 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.
- ◆ Case: SOT-23

APPLICATIONS

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



Marking Code

PBSS5350T

ZD

Limiting Values

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

Parameters	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	-2	A
peak collector current	limited by $T_{j(max)}$	I_{CM}	-5	A
base current (DC)		I_B	-0.5	A
total power dissipation	$T_{amb} \leq 25\text{ °C}$	P_{tot}		
	note 1		300	mW
	note 2		480	mW
	note 3		540	mW
	note 4		600	mW
storage temperature		T_{STG}	-65+150	°C
junction temperature		T_J	150	°C
ambient temperature		T_{amb}	-65 +150	°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	Test Condition	Symbol	Min	Typ	Max	Unit
collector-base cut-off current	$V_{CB} = -50\text{ V}; I_E = 0\text{ A}$	I_{CBO}	–	–	–100	nA
	$V_{CB} = -50\text{ V}; I_E = 0\text{ A}; T_J = 150\text{ °C}$		–	–	–50	μA
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	$V_{CE} = -2\text{ V}$	h_{FE}				
	$I_C = -0.1\text{ A}$		200	–	–	
	$I_C = -0.5\text{ A}$		200	–	–	
	$I_C = -1\text{ A}; \text{note 1}$		200	–	–	
	$I_C = -2\text{ A}; \text{note 1}$		130	–	–	
	$I_C = -3\text{ A}; \text{note 1}$		80	–	–	
collector-emitter saturation voltage	$I_C = -0.5\text{ A}; I_B = -50\text{ mA}$	V_{CEsat}	–	–	–90	mV
	$I_C = -1\text{ A}; I_B = -50\text{ mA}$		–	–	–180	mV
	$I_C = -2\text{ A}; I_B = -100\text{ mA}$		–	–	–320	mV
	$I_C = -2\text{ A}; I_B = -200\text{ mA}; \text{note 1}$		–	–	–270	mV
	$I_C = -3\text{ A}; I_B = -300\text{ mA}; \text{note 1}$		–	–	–390	mV
equivalent on-resistance	$I_C = -2\text{ A}; I_B = -200\text{ mA}; \text{note 1}$	R_{CEsat}	–	–	135	mΩ
base-emitter saturation voltage	$I_C = -2\text{ A}; I_B = -100\text{ mA}$	V_{BEsat}	–	–	–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_{BEon}	–	–	–1.2	V
transition frequency	$I_C = -100\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$	f_T	100	–	–	MHz
collector capacitance	$V_{CB} = -10\text{ V}; I_E = I_C = 0\text{ A}; f = 1\text{ MHz}$	C_c	–	–	35	pF

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

Electrical Characteristic Curve

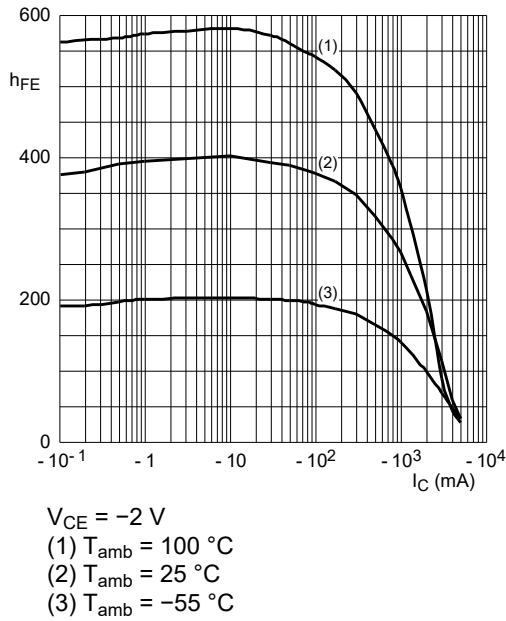


Fig.1 DC current gain as a function of collector current; typical values.

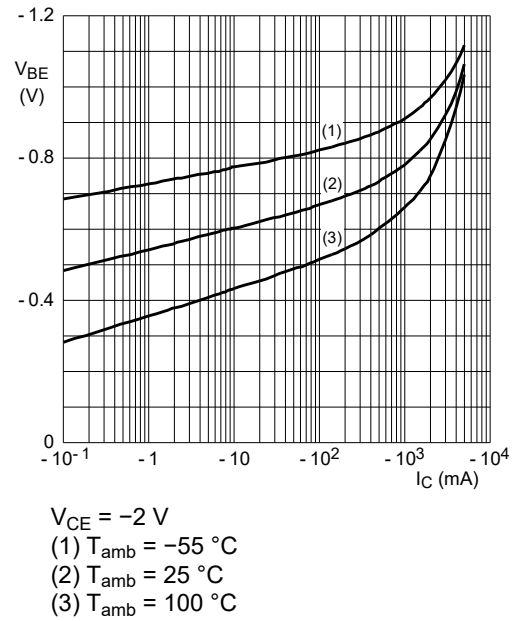


Fig.2 Base-emitter voltage as a function of collector current; typical values.

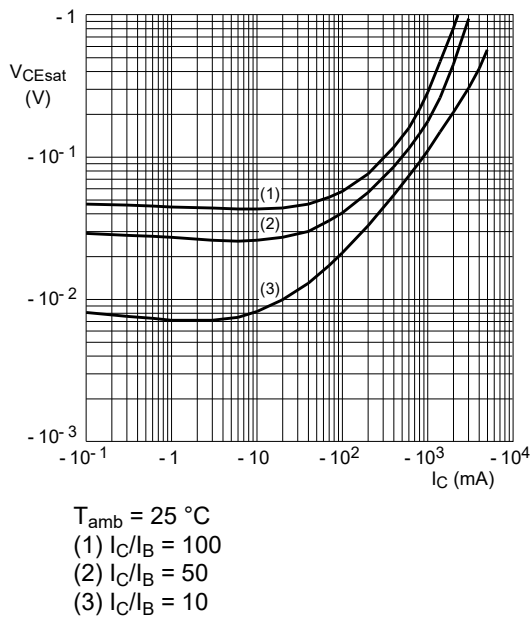


Fig.3 Collector-emitter saturation voltage as a function of collector current; typical values.

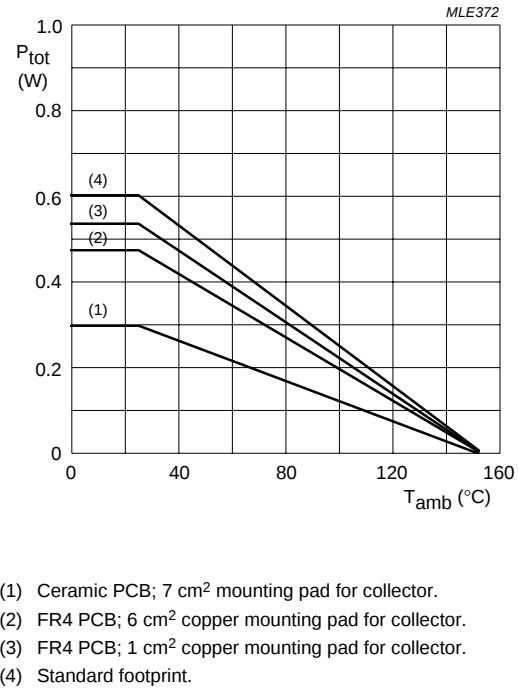


Fig.4 Power derating curves.

Ordering information

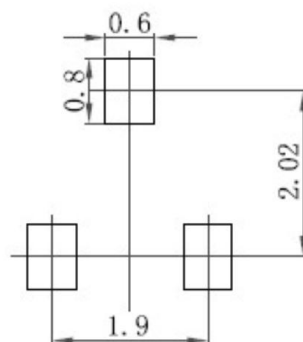
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-23

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
e	1.9		75	
e1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



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