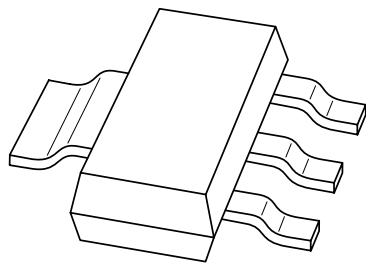


DATA SHEET



PBSS5540Z

40 V low V_{CEsat} PNP transistor

Product specification
Supersedes data of 2001 Jan 26

2001 Sep 21

40 V low V_{CEsat} PNP transistor

PBSS5540Z

FEATURES

- Low collector-emitter saturation voltage
- High current capability
- Improved device reliability due to reduced heat generation.

APPLICATIONS

- Supply line switching circuits
- Battery management applications
- DC/DC converter applications
- Strobe flash units
- Heavy duty battery powered equipment (motor and lamp drivers)
- MOSFET driver applications.

DESCRIPTION

PNP low V_{CEsat} transistor in a SOT223 plastic package.
NPN complement: PBSS4540Z.

MARKING

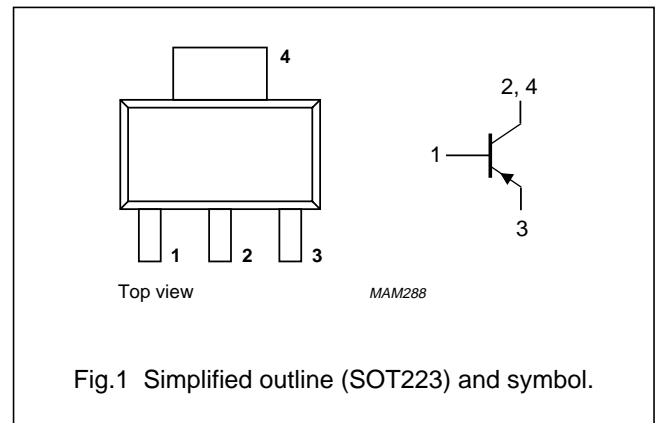
TYPE NUMBER	MARKING CODE
PBSS5540Z	PB5540

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX	UNIT
V_{CEO}	emitter-collector voltage	-40	V
I_C	collector current (DC)	-5	A
I_{CM}	peak collector current	-10	A
R_{CEsat}	equivalent on-resistance	<80	m Ω

PINNING

PIN	DESCRIPTION
1	base
2	collector
3	emitter
4	collector



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LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	–40	V
V_{CEO}	collector-emitter voltage	open base	–	–40	V
V_{EBO}	emitter-base voltage	open collector	–	–6	V
I_C	collector current (DC)		–	–5	A
I_{CM}	peak collector current		–	–10	A
I_{BM}	peak base current		–	–2	A
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	1.35	W
		$T_{amb} \leq 25\text{ °C}$; note 2	–	2	W
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Notes

1. Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm².
2. Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 6 cm². For other mounting conditions, see “*Thermal considerations for SOT223 in the General Part of associated Handbook*”.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	in free air; note 1	92	K/W

Note

1. Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm².

40 V low V_{CEsat} PNP transistor

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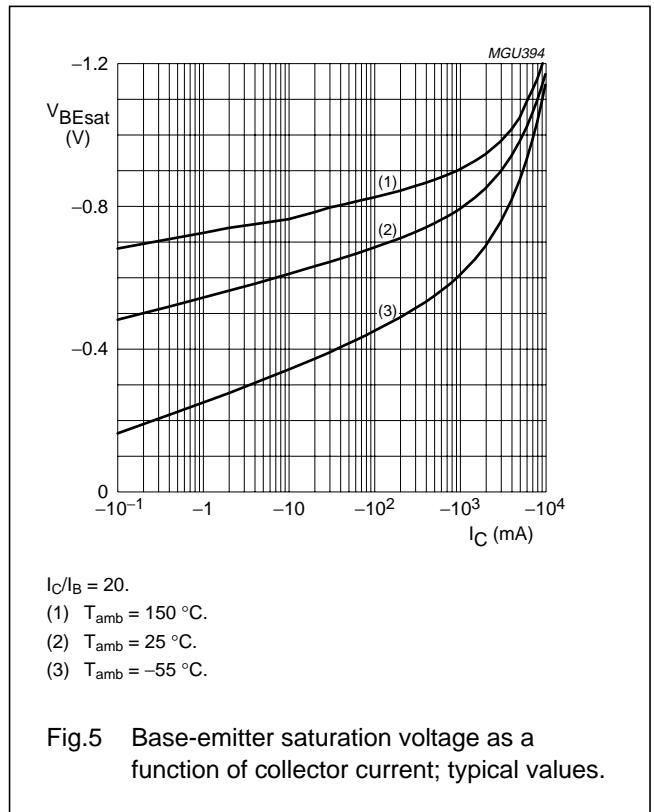
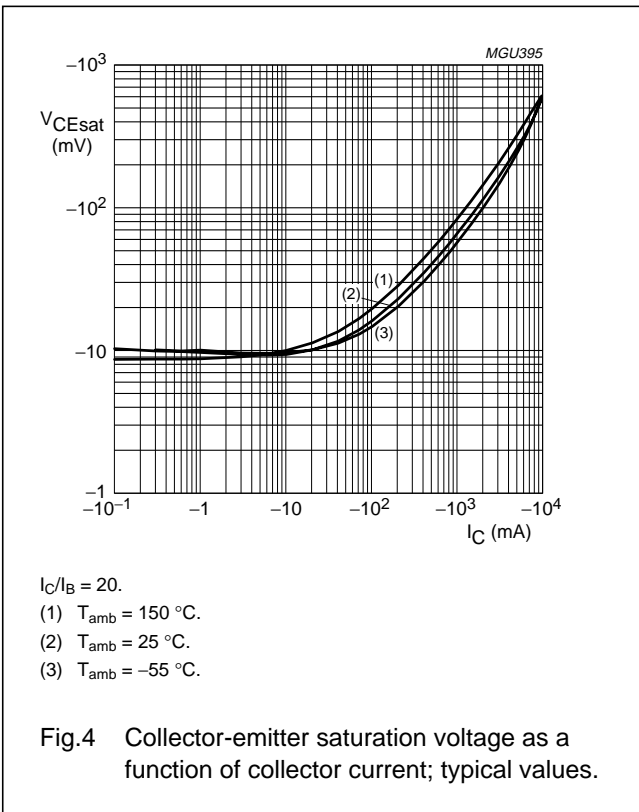
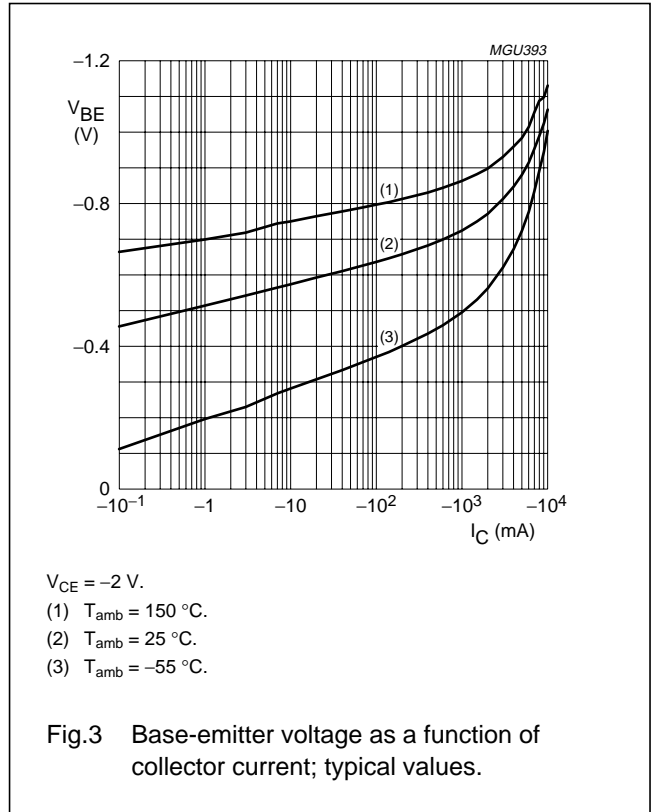
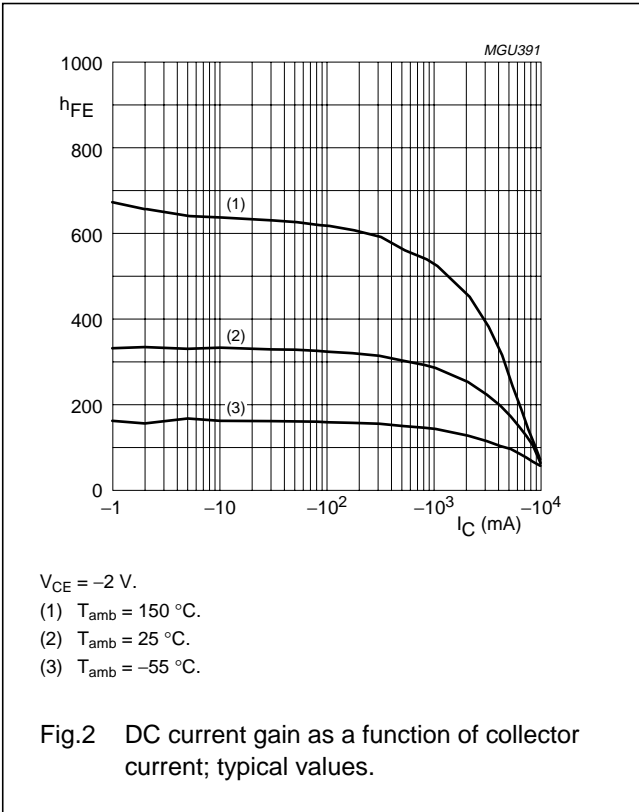
CHARACTERISTICS $T_{amb} = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$V_{CB} = -30\text{ V}; I_E = 0$	–	–	–100	nA
		$V_{CB} = -30\text{ V}; I_E = 0; T_j = 150\text{ °C}$	–	–	–50	μA
I_{EBO}	emitter-base cut-off current	$V_{EB} = -5\text{ V}; I_C = 0$	–	–	–100	nA
h_{FE}	DC current gain	$V_{CE} = -2\text{ V}; I_C = -500\text{ mA}$	250	350	–	
		$V_{CE} = -2\text{ V}; I_C = -1\text{ A}; \text{note 1}$	200	300	–	
		$V_{CE} = -2\text{ V}; I_C = -2\text{ A}; \text{note 1}$	150	250	–	
		$V_{CE} = -2\text{ V}; I_C = -5\text{ A}; \text{note 1}$	50	150	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -500\text{ mA}; I_B = -5\text{ mA}$	–	–80	–120	mV
		$I_C = -1\text{ A}; I_B = -10\text{ mA}$	–	–120	–170	mV
		$I_C = -2\text{ A}; I_B = -200\text{ mA}$	–	–110	–160	mV
R_{CEsat}	equivalent on-resistance	$I_C = -2\text{ A}; I_B = -200\text{ mA}; \text{note 1}$	–	<55	<80	$\text{m}\Omega$
V_{CEsat}	collector-emitter saturation voltage	$I_C = -5\text{ A}; I_B = -500\text{ mA}$	–	–250	–375	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = -5\text{ A}; I_B = -500\text{ mA}$	–	–	–1.3	V
V_{BEon}	base-emitter turn-on voltage	$V_{CE} = -2\text{ V}; I_C = -2\text{ A}$	–	–0.8	–1.25	V
f_T	transition frequency	$I_C = -100\text{ mA}; V_{CE} = -10\text{ V}; f = 100\text{ MHz}$	60	120	–	MHz
C_c	collector capacitance	$V_{CB} = -10\text{ V}; I_E = I_e = 0; f = 1\text{ MHz}$	–	90	105	pF

Note1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$.

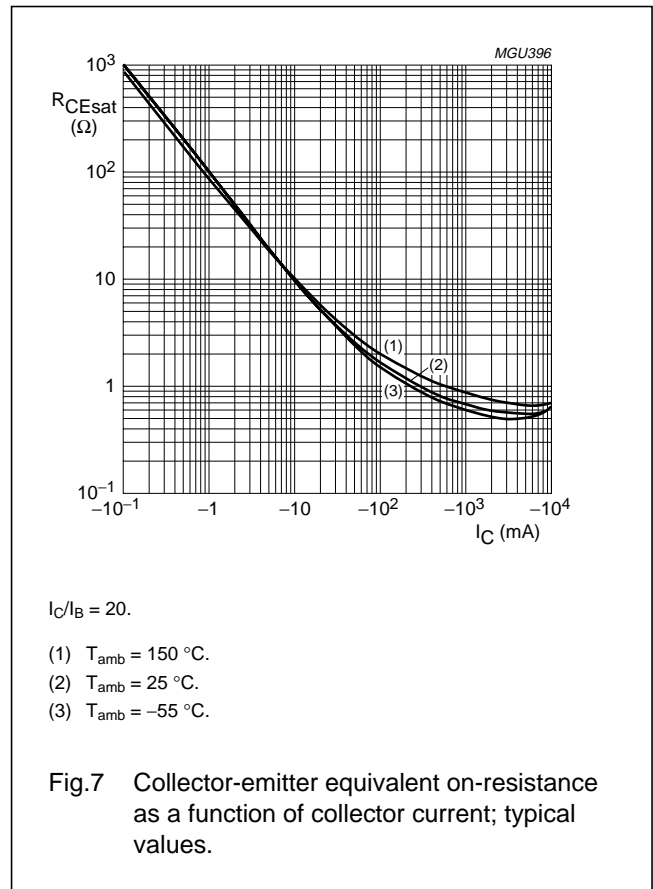
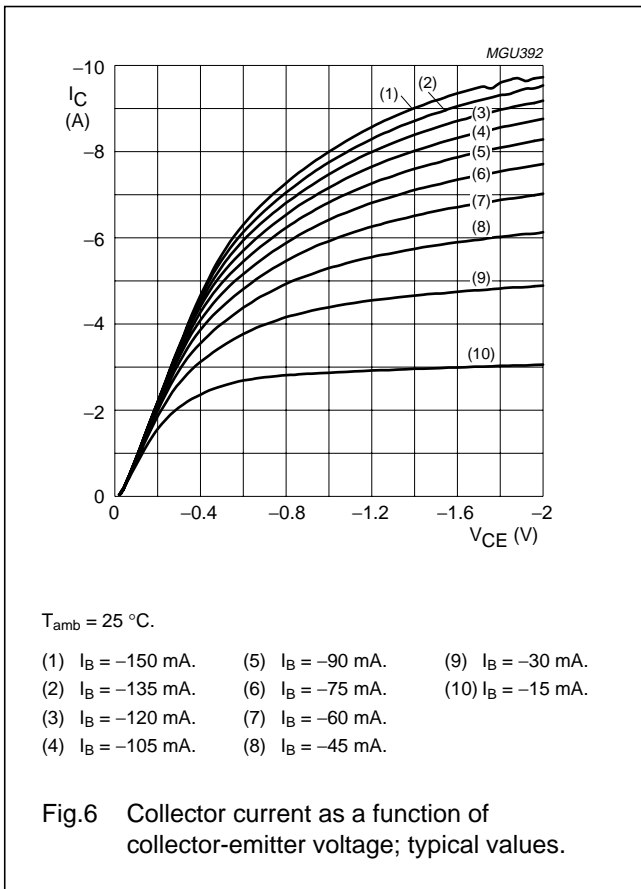
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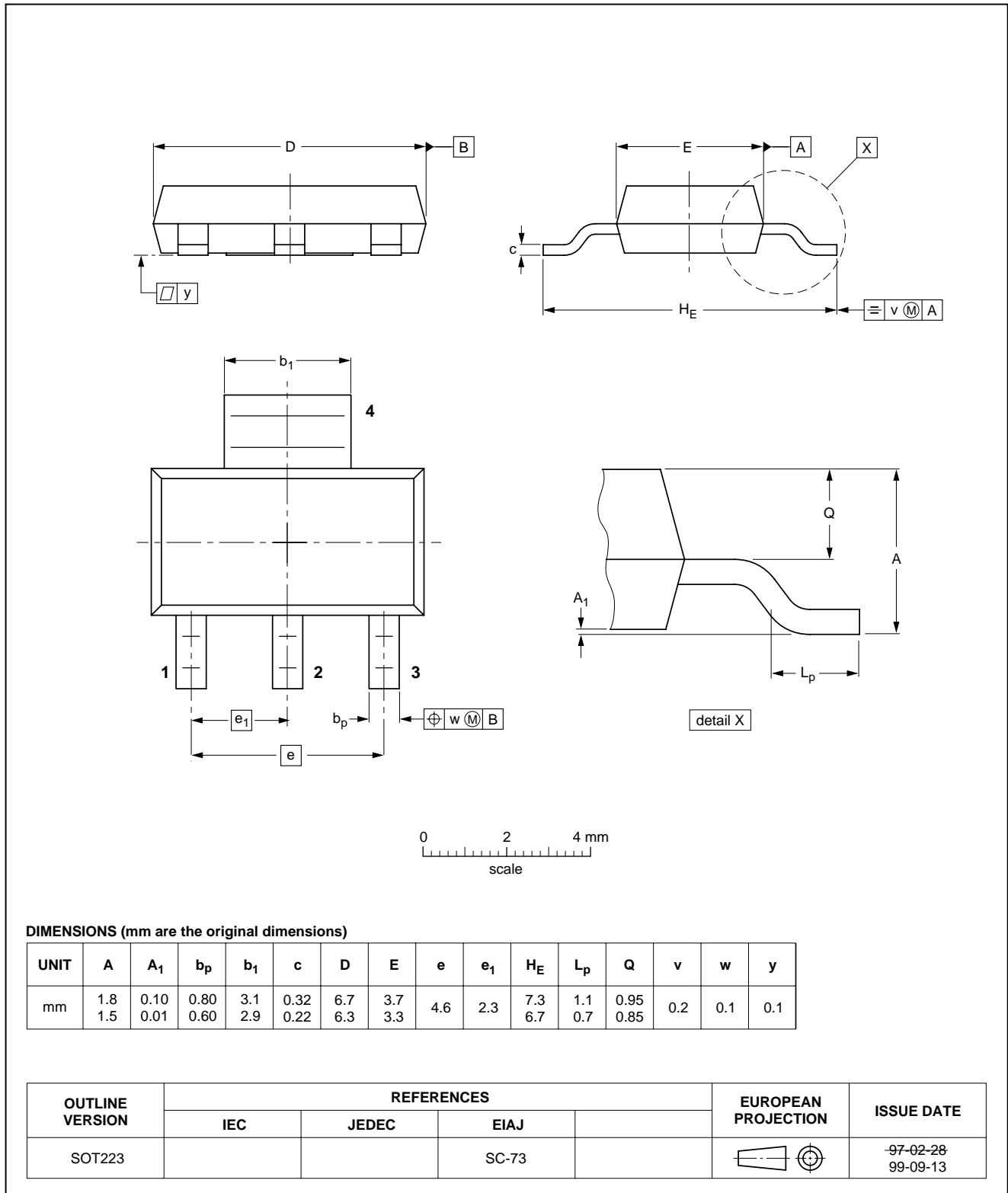
40 V low V_{CEsat} PNP transistor

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PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 4 leads

SOT223



40 V low V_{CEsat} PNP transistor

PBSS5540Z

DATA SHEET STATUS

DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITIONS
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NOTES

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NOTES

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