

SOT-89-3L Plastic-Encapsulate Transistors

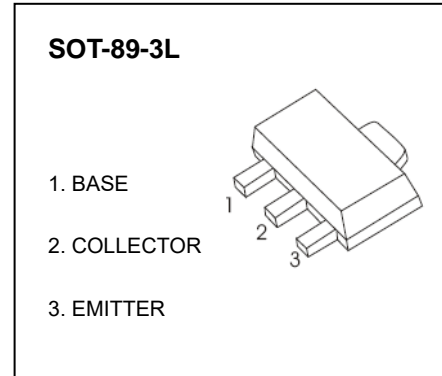
PBSS4540X TRANSISTOR (NPN)

FEATURES

- High h_{FE} and low V_{CEsat} at high current operation
- High collector current capability: I_C maximum 4 A
- High efficiency leading to less heat generation.

APPLICATIONS

- Medium power peripheral drivers (e.g. fan and motor)
- Strobe flash units for DSC and mobile phones
- Inverter applications (e.g. TFT displays)
- Power switch for LAN and ADSL systems
- Medium power DC-to-DC conversion
- Battery chargers.



MARKING: W1B

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

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)		–	4	A
I_{CM}	peak collector current	$t_p \leq 1 \text{ ms}$	–	10	A
I_B	base current (DC)		–	1	A
I_{BM}	peak base current	$t_p \leq 1 \text{ ms}$	–	2	A
P_{tot}	total power dissipation	$T_{amb} \leq 25^\circ\text{C}$	–	0.55	W
T_{stg}	storage temperature		–55	+150	$^\circ\text{C}$
T_j	junction temperature		–	150	$^\circ\text{C}$
T_{amb}	operating ambient temperature		–55	+150	$^\circ\text{C}$

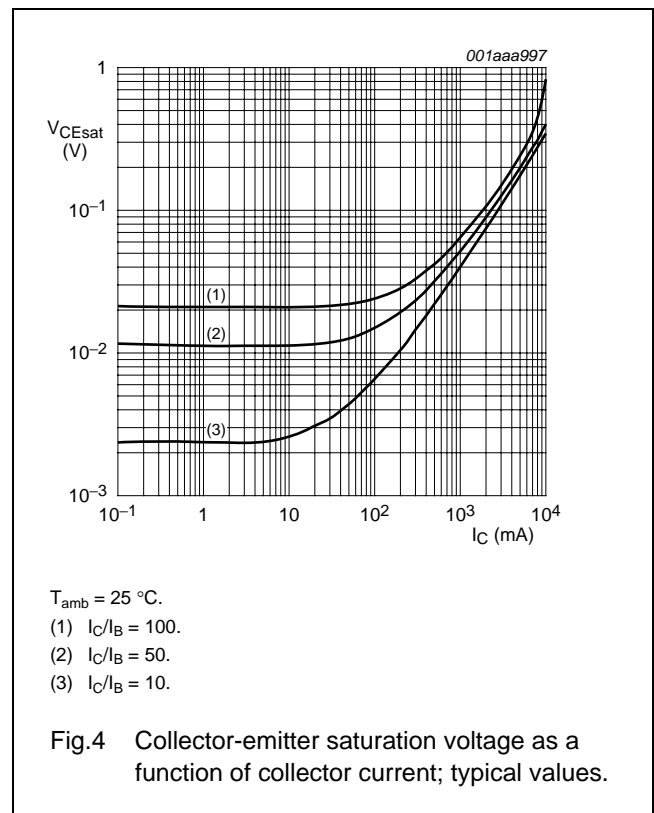
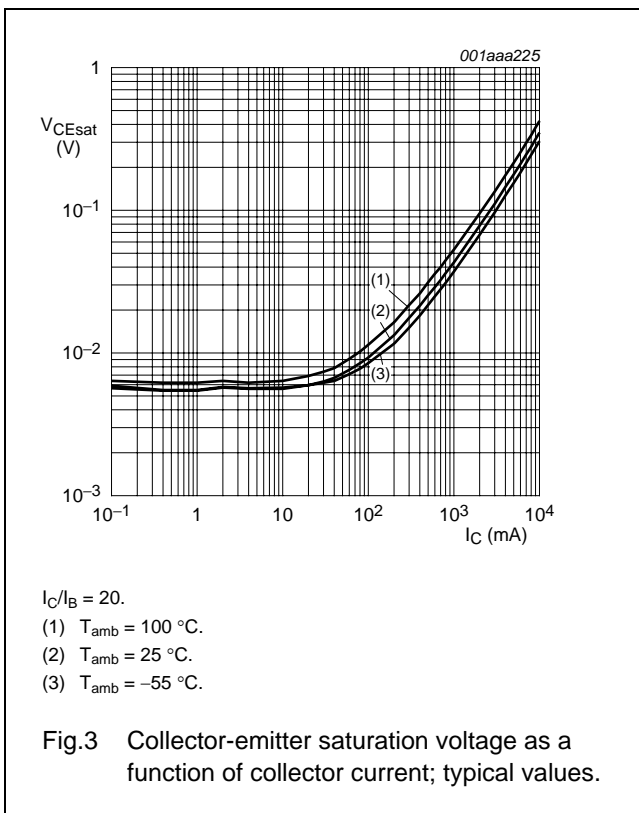
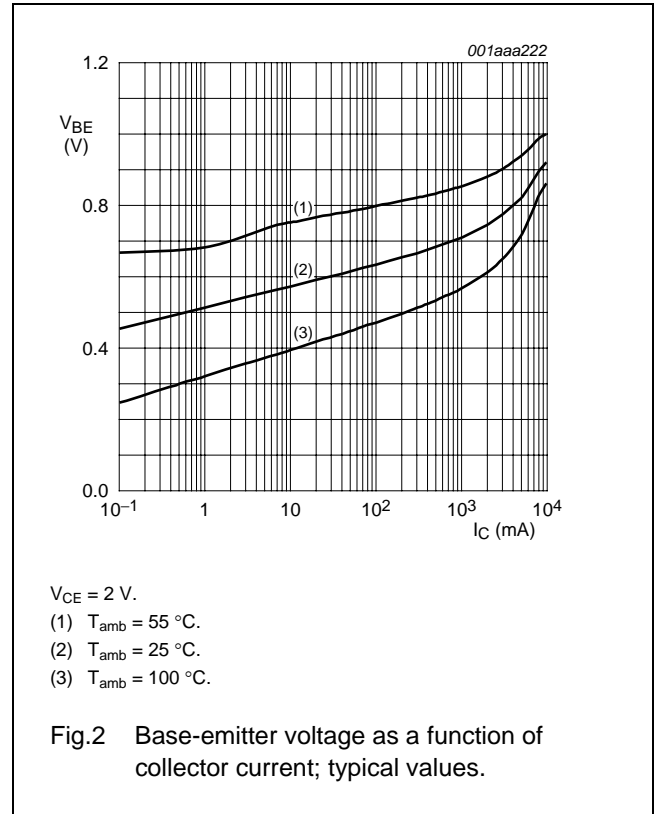
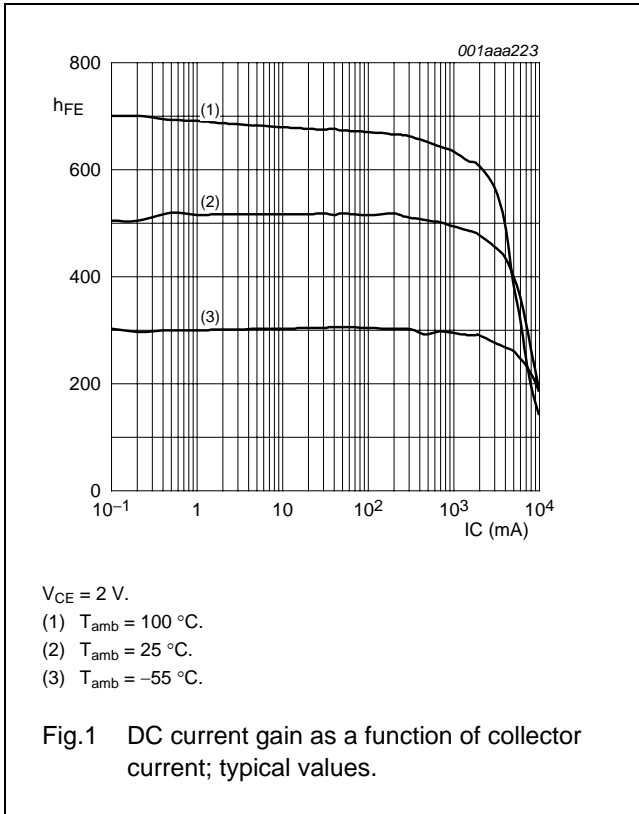
ELECTRICAL CHARACTERISTICS($T_a=25^\circ\text{C}$ unless otherwise specified)

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$V_{CB} = 30\text{ V}; I_E = 0\text{ A}$	–	–	100	nA
		$V_{CB} = 30\text{ V}; I_E = 0\text{ A}; T_j = 150\text{ }^\circ\text{C}$	–	–	50	μA
I_{CES}	collector-emitter cut-off current	$V_{CE} = 30\text{ V}; V_{BE} = 0\text{ V}$	–	–	0.1	μA
I_{EBO}	emitter-base cut-off current	$V_{EB} = 5\text{ V}; I_C = 0\text{ A}$	–	–	100	nA
h_{FE}	DC current gain	$V_{CE} = 2\text{ V}; I_C = 0.5\text{ A}$	300	–	–	
		$V_{CE} = 2\text{ V}; I_C = 1\text{ A}; \text{note } 1$	300	–	–	
		$V_{CE} = 2\text{ V}; I_C = 2\text{ A}; \text{note } 1$	250	–	–	
		$V_{CE} = 2\text{ V}; I_C = 5\text{ A}; \text{note } 1$	100	–	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 0.5\text{ A}; I_B = 5\text{ mA}$	–	–	90	mV
		$I_C = 1\text{ A}; I_B = 10\text{ mA}$	–	–	120	mV
		$I_C = 2\text{ A}; I_B = 200\text{ mA}; \text{note } 1$	–	–	150	mV
		$I_C = 4\text{ A}; I_B = 200\text{ mA}; \text{note } 1$	–	–	290	mV
		$I_C = 5\text{ A}; I_B = 500\text{ mA}; \text{note } 1$	–	–	355	mV
R_{CEsat}	equivalent on-resistance	$I_C = 5\text{ A}; I_B = 500\text{ mA}; \text{note } 1$	–	40	71	$\text{m}\Omega$
V_{BEsat}	base-emitter saturation voltage	$I_C = 4\text{ A}; I_B = 200\text{ mA}; \text{note } 1$	–	–	1.1	V
		$I_C = 5\text{ A}; I_B = 500\text{ mA}; \text{note } 1$	–	–	1.2	V
V_{BEon}	base-emitter turn-on voltage	$V_{CE} = 2\text{ V}; I_C = 2\text{ A}$	–	–	1.1	V
f_T	transition frequency	$V_{CE} = 10\text{ V}; I_C = 0.1\text{ A}; f = 100\text{ MHz}$	70	–	–	MHz
C_c	collector capacitance	$V_{CB} = 10\text{ V}; I_E = I_C = 0\text{ A}; f = 1\text{ MHz}$	–	–	75	pF

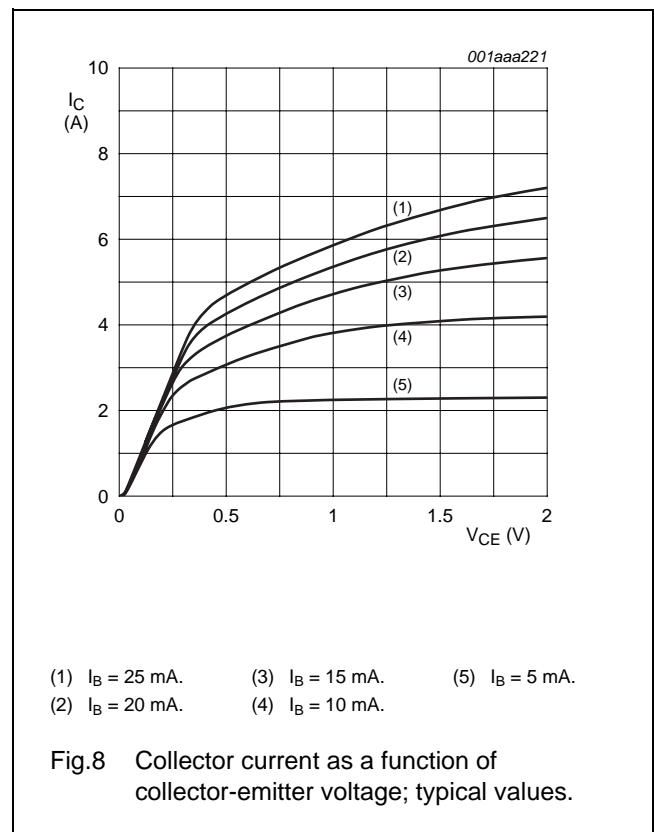
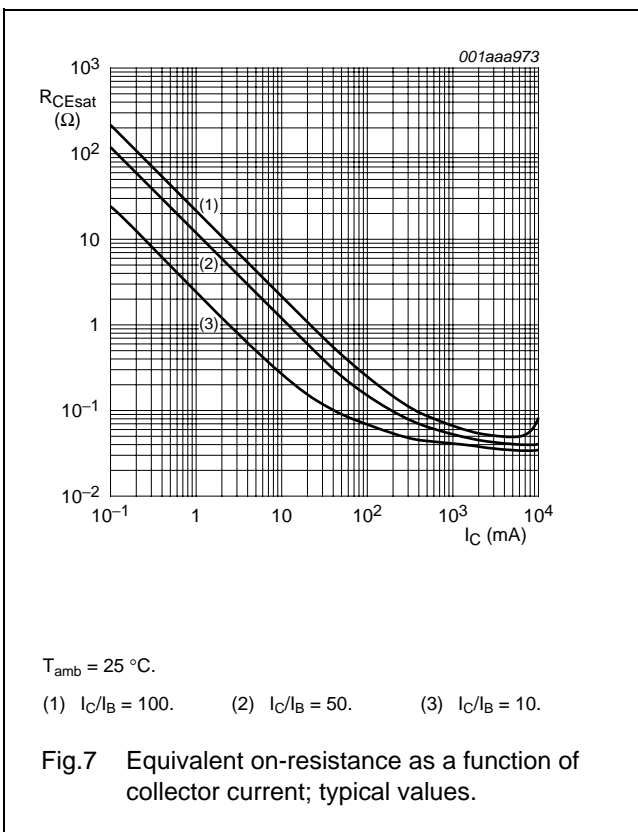
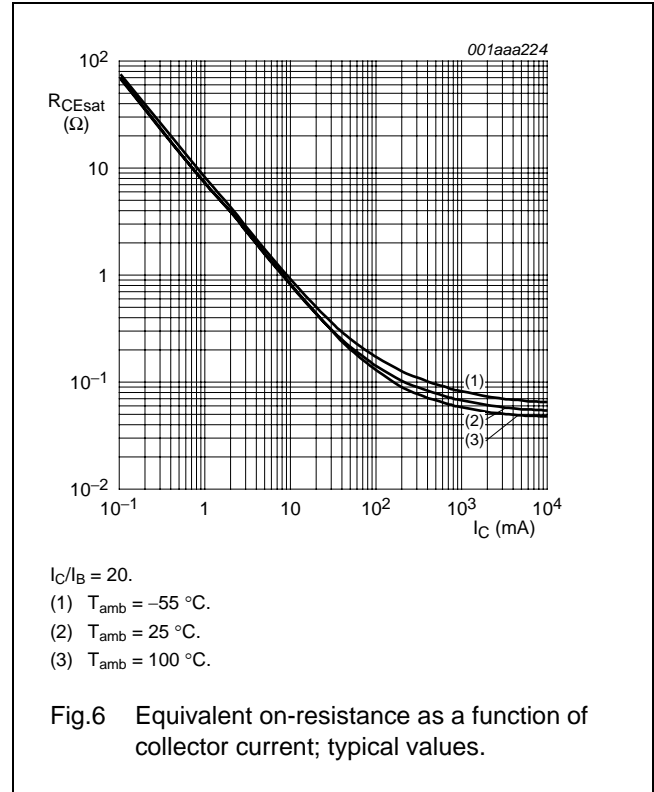
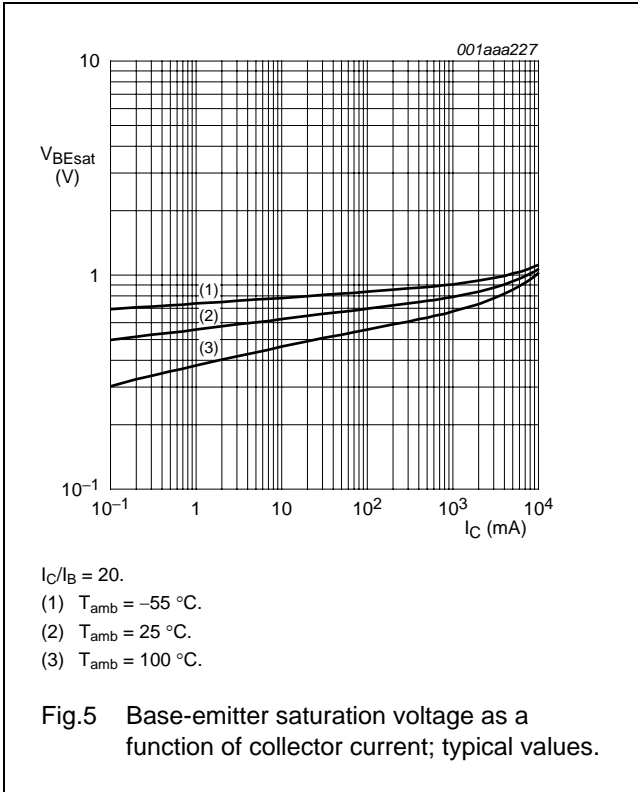
Note

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

Typical Characteristics

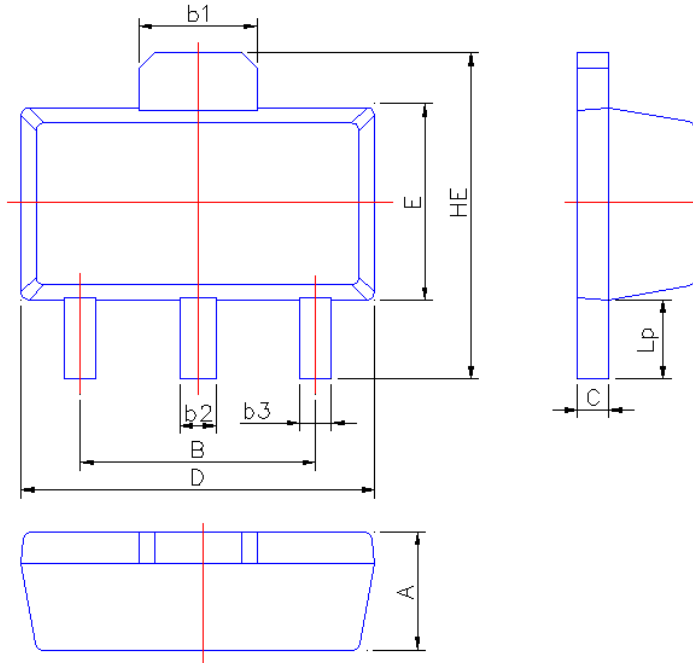


Typical Characteristics





SOT-89 PACKAGE OUTLINE



Symbol	Dimension in Millimeters	
	Min	Max
A	1.40	1.60
B	2.95	3.05
b1	1.45	1.70
b2	0.45	0.56
b3	0.35	0.50
C	0.35	0.50
D	4.40	4.60
E	2.35	2.55
HE	3.90	4.40
Lp	0.90	1.10