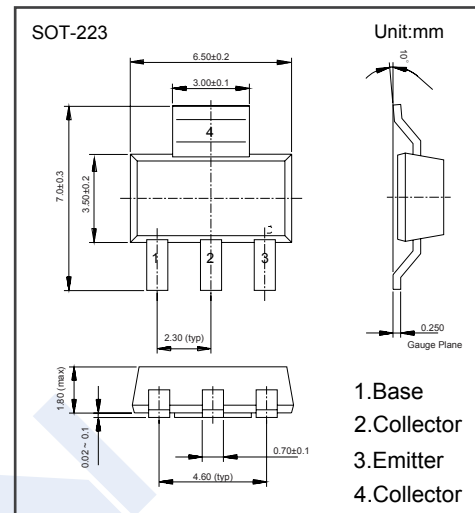
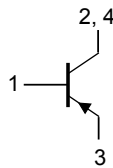


PNP Transistors

PBSS5540Z (KBSS5540Z)

■ Features

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

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	-40	V
Collector - Emitter Voltage	V_{CE0}	-40	
Emitter - Base Voltage	V_{EB0}	-6	
Collector Current - Continuous	I_C	-5	A
Peak Collector Current	I_{CM}	-10	
Peak Base Current	I_{BM}	-2	
Collector Power Dissipation (Note.1) (Note.2)	P_C	1.35	W
		2	
thermal resistance from junction to ambient (Note.3)	$R_{th\ j-a}$	92	K/W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature range	T_{stg}	-65 to 150	

Note.1: Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm^2 .

Note.2: Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 6 cm^2 .

For other mounting conditions, see "Thermal considerations for SOT223 in the General Part of associated HandBook"

Note.3: Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm^2 .

PNP Transistors

PBSS5540Z (KBSS5540Z)

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C = -100\ \mu\text{A}$, $I_E = 0$	-40			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C = -1\ \text{mA}$, $I_B = 0$	-40			
Emitter - base breakdown voltage	V_{EBO}	$I_E = -100\ \mu\text{A}$, $I_C = 0$	-6			
Collector-base cut-off current	I_{CBO}	$V_{CB} = -30\ \text{V}$, $I_E = 0$			-100	nA
		$V_{CB} = -30\ \text{V}$, $I_E = 0$; $T_j = 150^\circ\text{C}$			-50	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -5\ \text{V}$, $I_C = 0$			-100	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -500\ \text{mA}$, $I_B = -5\ \text{mA}$		-80	-120	mV
		$I_C = -1\ \text{A}$, $I_B = -10\ \text{mA}$		-120	-170	
		$I_C = -2\ \text{A}$, $I_B = -200\ \text{mA}$		-110	-160	
		$I_C = -5\ \text{A}$, $I_B = -500\ \text{mA}$		-250	-375	
Equivalent on-resistance	$R_{CE(sat)}$	$I_C = -2\ \text{A}$, $I_B = -500\ \text{mA}$ (Note.1)		<55	<80	m Ω
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = -5\ \text{A}$, $I_B = -500\ \text{mA}$			-1.3	V
Base - emitter turn-on voltage	$V_{BE(on)}$	$V_{CE} = -2\ \text{V}$, $I_C = -2\ \text{A}$		-0.8	-1.25	
DC current gain	$h_{FE(1)}$	$V_{CE} = -2\ \text{V}$, $I_C = -500\ \text{mA}$	250	350		
	$h_{FE(2)}$	$V_{CE} = -2\ \text{V}$, $I_C = -1\ \text{A}$ (Note.1)	200	300		
	$h_{FE(3)}$	$V_{CE} = -2\ \text{V}$, $I_C = -2\ \text{A}$ (Note.1)	150	250		
	$h_{FE(4)}$	$V_{CE} = -2\ \text{V}$, $I_C = -5\ \text{A}$ (Note.1)	50	150		
Collector capacitance	C_C	$V_{CB} = -10\ \text{V}$, $I_E = I_C = 0$, $f = 1\ \text{MHz}$		90	105	pF
Transition frequency	f_T	$V_{CE} = -10\ \text{V}$, $I_C = -100\ \text{mA}$, $f = 100\ \text{MHz}$	60	120		MHz

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

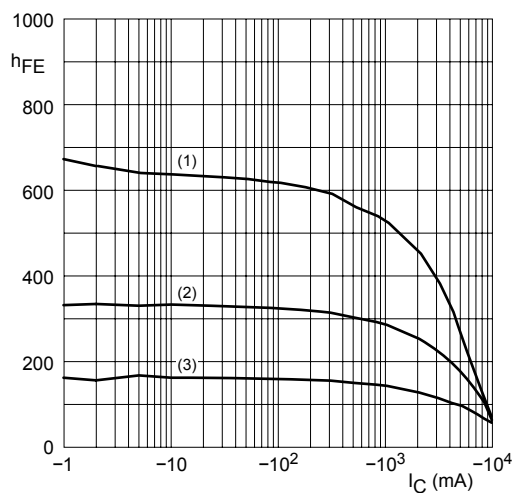
■ Marking

Marking	PB5540
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PNP Transistors

PBSS5540Z (KBSS5540Z)

■ Typical Characteristics



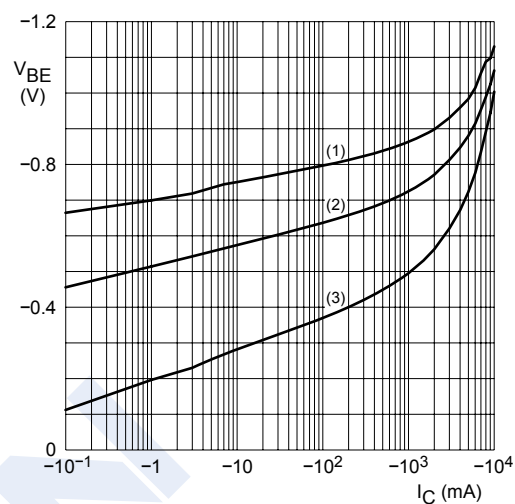
$V_{CE} = -2\text{ V}$.

(1) $T_{amb} = 150^\circ\text{C}$.

(2) $T_{amb} = 25^\circ\text{C}$.

(3) $T_{amb} = -55^\circ\text{C}$.

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



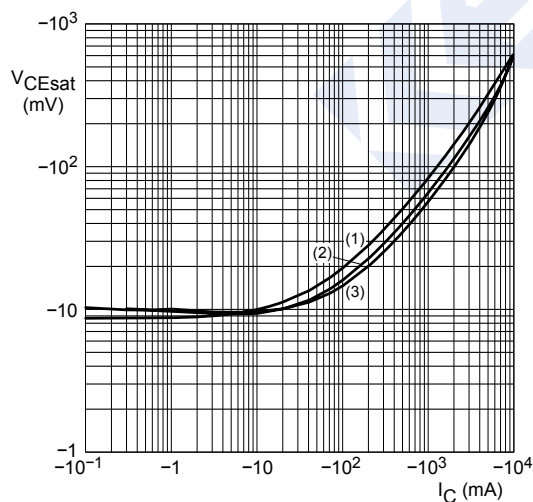
$V_{CE} = -2\text{ V}$.

(1) $T_{amb} = 150^\circ\text{C}$.

(2) $T_{amb} = 25^\circ\text{C}$.

(3) $T_{amb} = -55^\circ\text{C}$.

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



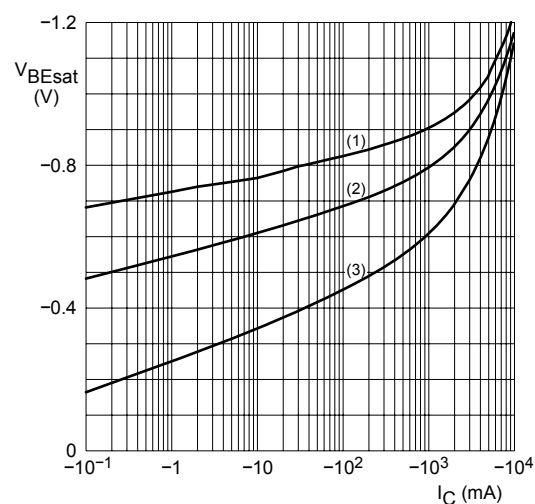
$I_C/I_B = 20$.

(1) $T_{amb} = 150^\circ\text{C}$.

(2) $T_{amb} = 25^\circ\text{C}$.

(3) $T_{amb} = -55^\circ\text{C}$.

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



$I_C/I_B = 20$.

(1) $T_{amb} = 150^\circ\text{C}$.

(2) $T_{amb} = 25^\circ\text{C}$.

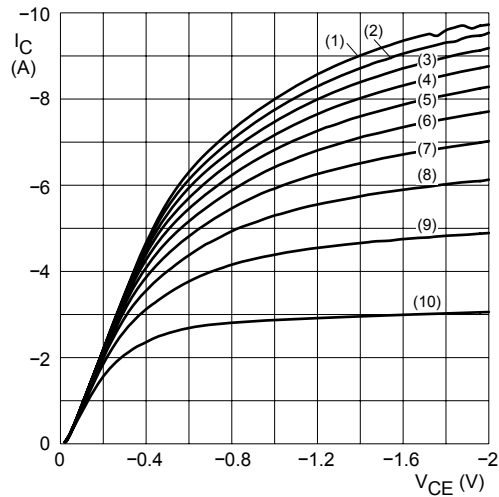
(3) $T_{amb} = -55^\circ\text{C}$.

Fig.4 Base-emitter saturation voltage as a function of collector current; typical values.

PNP Transistors

PBSS5540Z (KBSS5540Z)

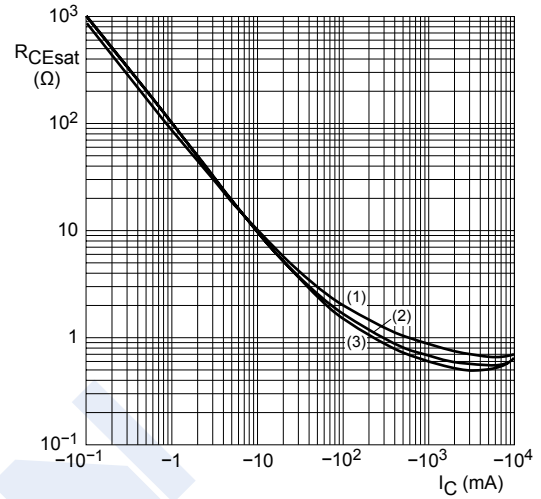
■ Typical Characteristics



$T_{amb} = 25\text{ }^{\circ}\text{C}.$

- | | | |
|-----------------------------|----------------------------|-----------------------------|
| (1) $I_B = -150\text{ mA}.$ | (5) $I_B = -90\text{ mA}.$ | (9) $I_B = -30\text{ mA}.$ |
| (2) $I_B = -135\text{ mA}.$ | (6) $I_B = -75\text{ mA}.$ | (10) $I_B = -15\text{ mA}.$ |
| (3) $I_B = -120\text{ mA}.$ | (7) $I_B = -60\text{ mA}.$ | |
| (4) $I_B = -105\text{ mA}.$ | (8) $I_B = -45\text{ mA}.$ | |

Fig.5 Collector current as a function of collector-emitter voltage; typical values.



$I_C/I_B = 20.$

- | |
|--|
| (1) $T_{amb} = 150\text{ }^{\circ}\text{C}.$ |
| (2) $T_{amb} = 25\text{ }^{\circ}\text{C}.$ |
| (3) $T_{amb} = -55\text{ }^{\circ}\text{C}.$ |

Fig.6 Collector-emitter equivalent on-resistance as a function of collector current; typical values.