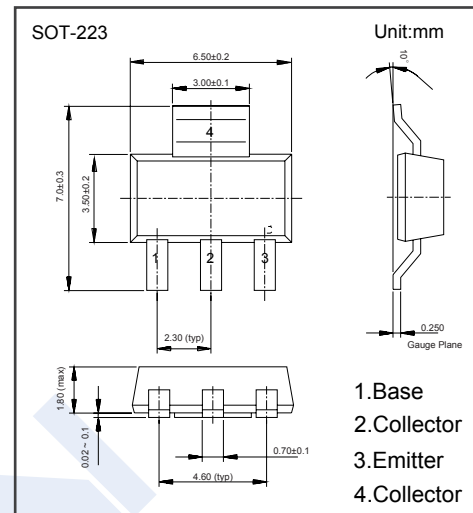
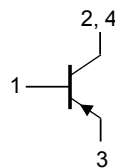


PNP Transistors

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)	P_C	1.35	W
(Note.2)		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 cm².

Note.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"

Note.3: Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm².

PNP Transistors

PBSS5540Z (KBSS5540Z)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V _{CB0}	I _C = -100 μA, I _E =0	-40			V
Collector- emitter breakdown voltage	V _{CEO}	I _C = -1 mA, I _B =0	-40			
Emitter - base breakdown voltage	V _{EB0}	I _E = -100 μA, I _C =0	-6			
Collector-base cut-off current	I _{CB0}	V _{CB} = -30 V, I _E =0			-100	nA
		V _{CB} = -30 V, I _E =0; T _j =150°C			-50	uA
Emitter cut-off current	I _{EB0}	V _{EB} = -5V, I _C =0			-100	nA
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =-500 mA, I _B =-5 mA		-80	-120	mV
		I _C =-1A, I _B =-10mA		-120	-170	
		I _C =-2A, I _B =-200mA		-110	-160	
		I _C =-5A, I _B =-500mA		-250	-375	
Equivalent on-resistance	R _{CE(sat)}	I _C =-2A, I _B =-500mA (Note.1)		<55	<80	mΩ
Base - emitter saturation voltage	V _{BE(sat)}	I _C = -5A, I _B =- 500mA			-1.3	V
Base - emitter turn-on voltage	V _{BE(on)}	V _{CE} = -2V, I _C = -2A		-0.8	-1.25	
DC current gain	h _{FE(1)}	V _{CE} = -2V, I _C = -500mA	250	350		
	h _{FE(2)}	V _{CE} =- 2V, I _C = -1A (Note.1)	200	300		
	h _{FE(3)}	V _{CE} =- 2V, I _C = -2A (Note.1)	150	250		
	h _{FE(4)}	V _{CE} =- 2V, I _C = -5A (Note.1)	50	150		
Collector capacitance	C _C	V _{CB} = -10V, I _E =I _E =0, f=1MHz		90	105	pF
Transition frequency	f _T	V _{CE} = -10V, I _C = -100mA, f=100MHz	60	120		MHz

Note.1:Pulse test: t_p ≤ 300 μs; δ ≤ 0.02.

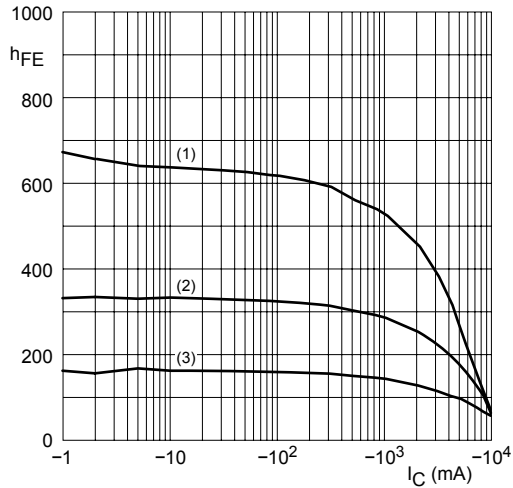
■ Marking

Marking	PB5540
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PNP Transistors

PBSS5540Z (KBSS5540Z)

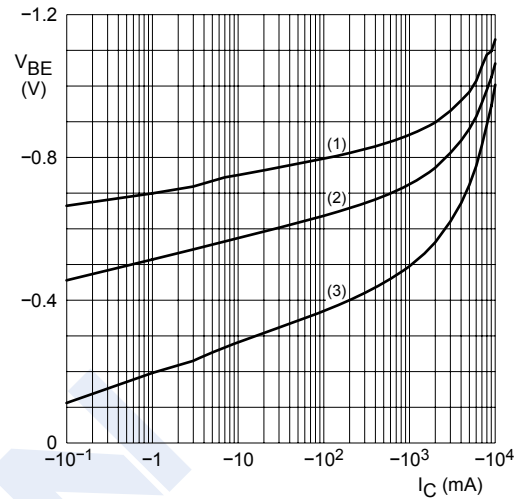
■ Typical Characteristics



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

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

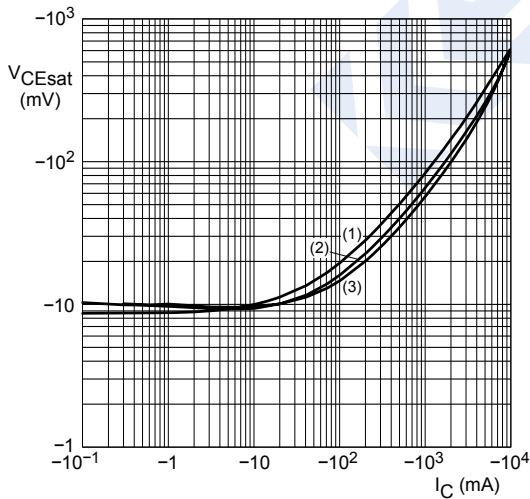
Fig.1 DC current gain as a function of collector current; typical values.



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

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

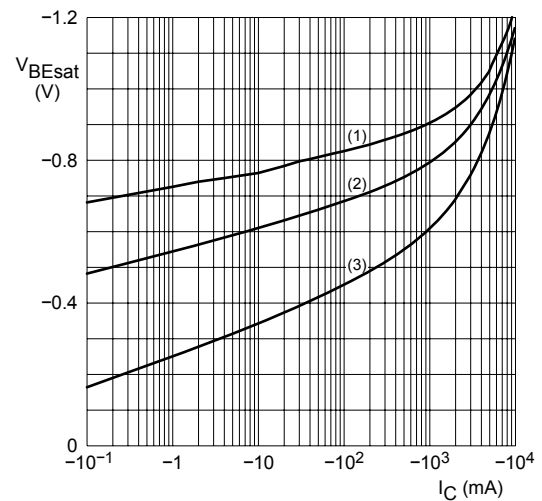
Fig.2 Base-emitter voltage as a function of collector current; typical values.



$I_C/I_B = 20$.

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



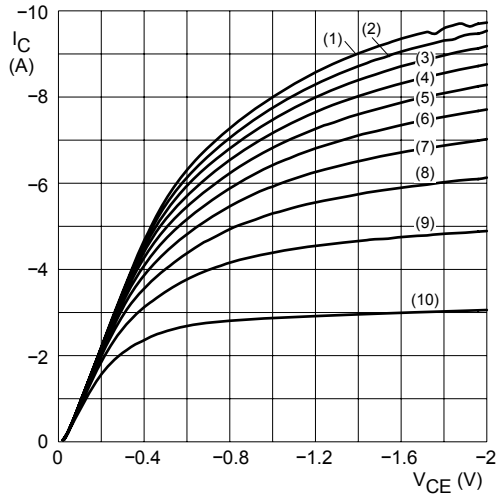
$I_C/I_B = 20$.

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

PNP Transistors PBSS5540Z (KBSS5540Z)

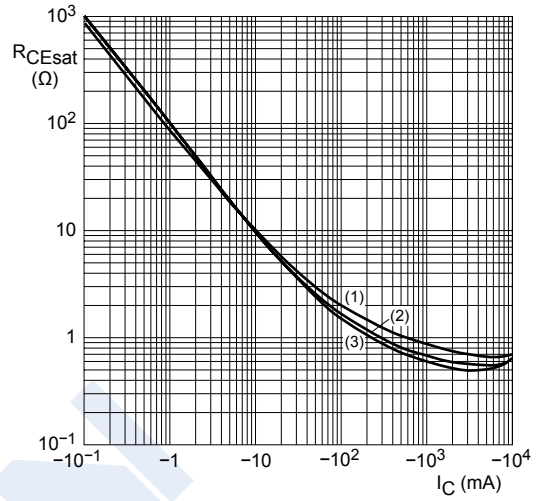
■ Typical Characteristics



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

- | | | |
|------------------------------|-----------------------------|------------------------------|
| (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.