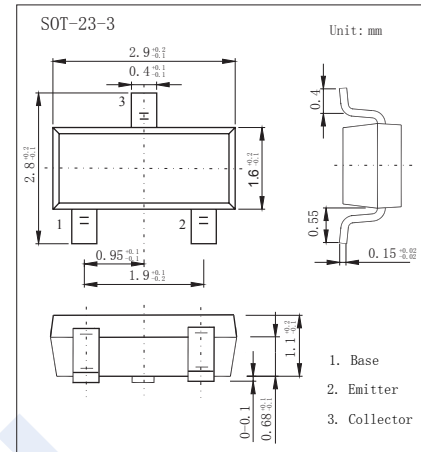
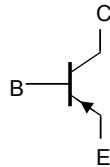


PNP Transistors

PBSS5160T (KBSS5160T)

■ Features

- Low collector-emitter saturation voltage V_{CEsat}
- High collector current capability: I_C and I_{CM}
- High efficiency, reduces heat generation
- Reduces printed-circuit board area required



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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	-80	V
Collector - Emitter Voltage	V_{CEO}	-60	
Emitter - Base Voltage	V_{EBO}	-5	
Collector Current - Continuous	I_C	-0.9	A
		-1	
Collector Current - Pulse	I_{CP}	-2	
Base Current	I_B	-0.3	
Base Current - Pulse	I_{BP}	-1	
Collector Power Dissipation	P_C	270	mW
		400	
		1.25	W
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$	465	$^\circ\text{C/W}$
		312	
		100	
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature range	T_{stg}	-65 to 150	

Note.1 : Device mounted on an FR4 printed-circuit board, single-sided copper, tin-plated and standard footprint.

Note.2 : Device mounted on an FR4 printed-circuit board, single-sided copper, tin-plated and 1 cm² collector mounting pad.

Note.3 : Operated under pulsed conditions: duty cycle $\delta \leq 20\%$, pulse width $t_p \leq 10\text{ ms}$.

PNP Transistors

PBSS5160T (KBSS5160T)

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CB0}	$I_C = -100\ \mu\text{A}$, $I_E = 0$	-80			V
Collector- emitter breakdown voltage	V_{CE0}	$I_C = -1\ \text{mA}$, $I_B = 0$	-60			
Emitter - base breakdown voltage	V_{EB0}	$I_E = -100\ \mu\text{A}$, $I_C = 0$	-5			
Collector-base cut-off current	I_{CB0}	$V_{CB} = -60\ \text{V}$, $I_E = 0$			-100	nA
		$V_{CB} = -60\ \text{V}$, $I_E = 0$, $T_J = 150^\circ\text{C}$			-50	μA
Collector- emitter cut-off current	I_{CES}	$V_{CE} = -60\ \text{V}$, $I_E = 0$			-100	nA
Emitter cut-off current	I_{EB0}	$V_{EB} = -5\ \text{V}$, $I_C = 0$			-100	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -100\ \text{mA}$, $I_B = -1\ \text{mA}$			-160	mV
		$I_C = -500\ \text{mA}$, $I_B = -50\ \text{mA}$			-175	
		$I_C = -1\ \text{A}$, $I_B = -100\ \text{mA}$ (Note.1)			-330	
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = -1\ \text{A}$, $I_B = -50\ \text{mA}$			-1.1	V
Base - emitter turn-on voltage	$V_{BE(on)}$	$V_{CE} = -5\ \text{V}$, $I_C = -1\ \text{A}$			-0.9	
Equivalent on-resistance	$R_{CE(sat)}$	$I_C = -1\ \text{A}$, $I_B = -100\ \text{mA}$ (Note.1)			330	$\text{m}\Omega$
DC current gain	h_{FE}	$V_{CE} = -5\ \text{V}$, $I_C = -1\ \text{mA}$	200	350		
		$V_{CE} = -5\ \text{V}$, $I_C = -500\ \text{mA}$	150	250		
		$V_{CE} = -5\ \text{V}$, $I_C = -1\ \text{A}$	100	160		
Collector output capacitance	C_{ob}	$V_{CB} = -10\ \text{V}$, $I_E = I_C = 0$, $f = 1\ \text{MHz}$			15	pF
Transition frequency	f_T	$V_{CE} = -10\ \text{V}$, $I_C = -50\ \text{mA}$, $f = 100\ \text{MHz}$	150	220		MHz

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

■ Marking

Marking	U6*
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■ Typical Characteristics

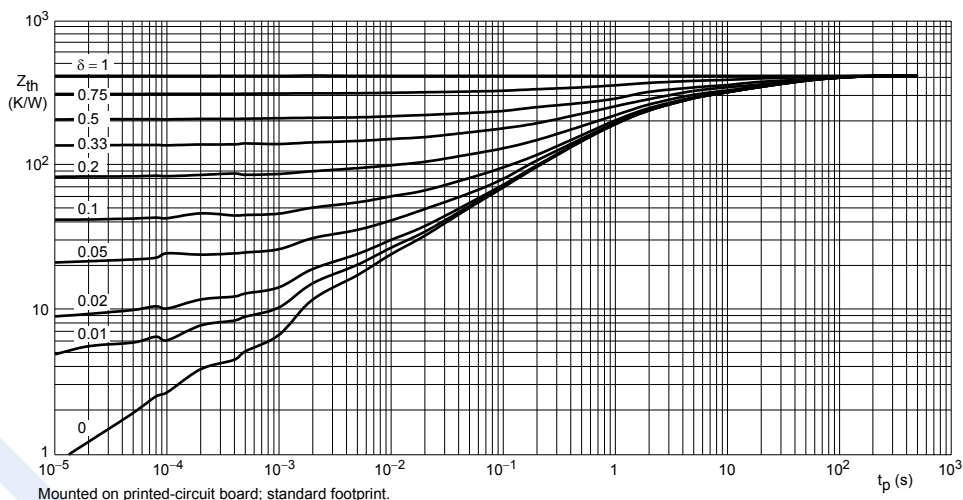


Fig.1 Transient thermal impedance as a function of pulse time; typical values.

PNP Transistors

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■ Typical Characteristics

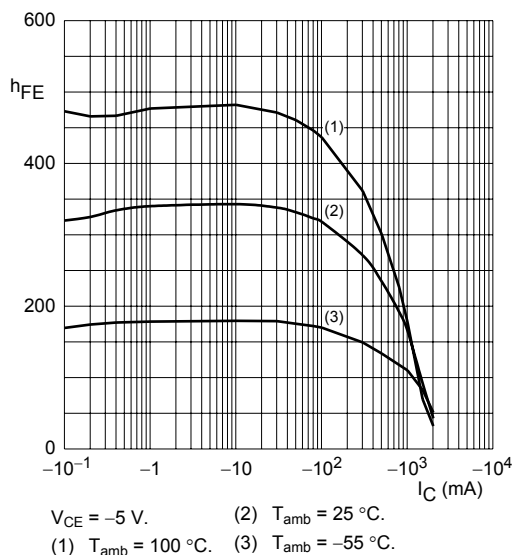


Fig.2 DC current gain as a function of collector current; typical values.

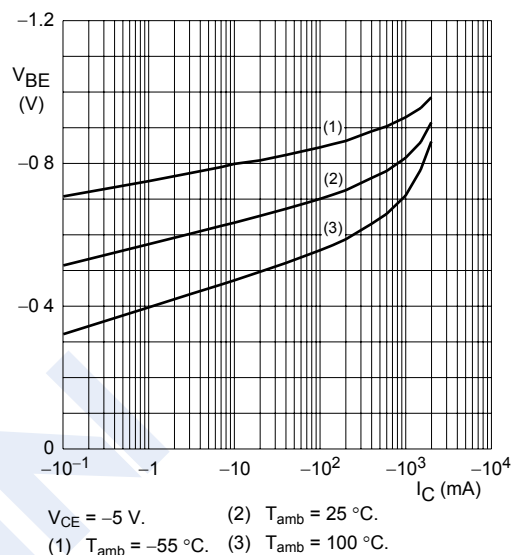


Fig.3 Base-emitter voltage as a function of collector current; typical values.

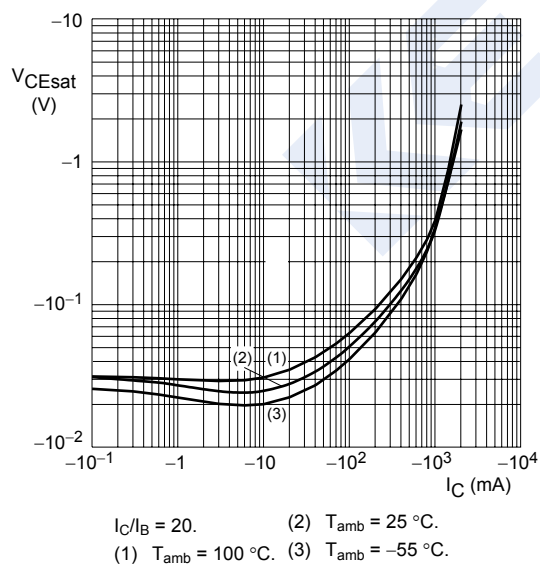


Fig.4 Collector-emitter saturation voltage as a function of collector current; typical values.

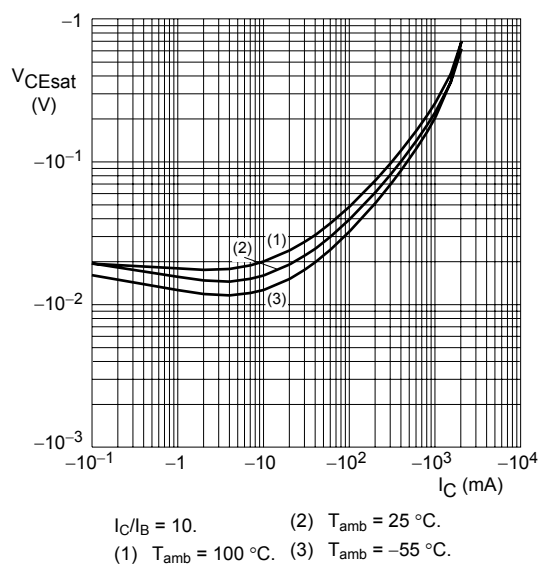
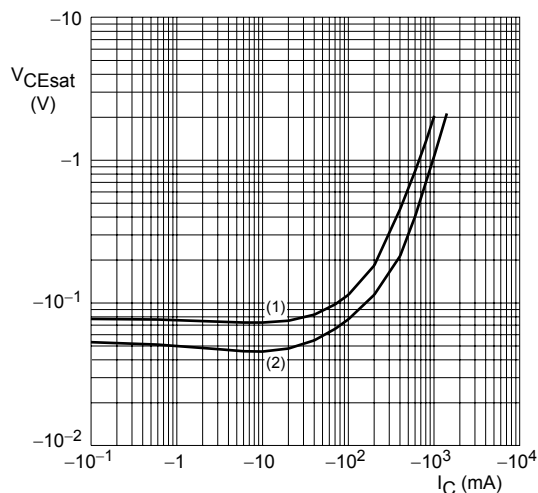


Fig.5 Collector-emitter saturation voltage as a function of collector current; typical values.

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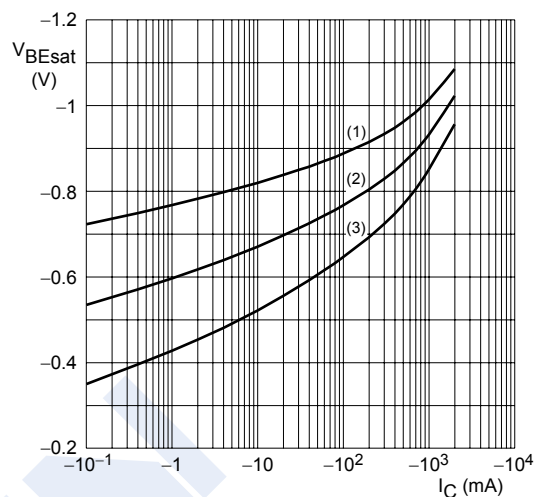
■ Typical Characteristics



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

(1) $I_C/I_B = 100$. (2) $I_C/I_B = 50$.

Fig.6 Collector-emitter saturation voltage as a function of collector current; typical values.

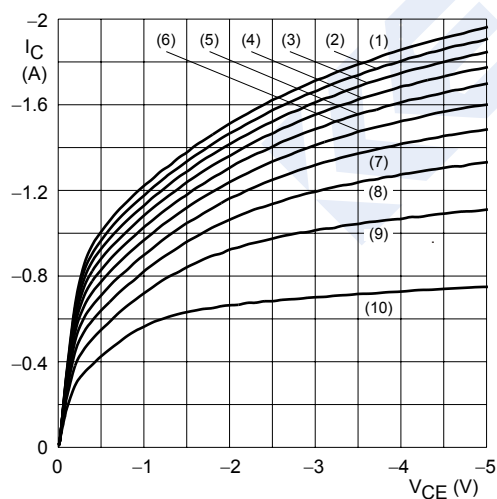


$I_C/I_B = 20$.

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

(1) $T_{amb} = -55^\circ\text{C}$. (3) $T_{amb} = 100^\circ\text{C}$.

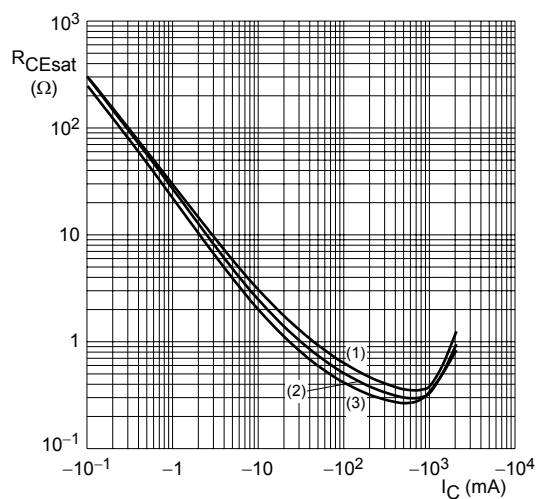
Fig.7 Base-emitter saturation voltage as a function of collector current; typical values.



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

(1) $I_B = -40$ mA. (5) $I_B = -24$ mA. (9) $I_B = -8$ mA.
 (2) $I_B = -36$ mA. (6) $I_B = -20$ mA. (10) $I_B = -4$ mA.
 (3) $I_B = -32$ mA. (7) $I_B = -16$ mA.
 (4) $I_B = -28$ mA. (8) $I_B = -12$ mA.

Fig.8 Collector current as a function of collector-emitter voltage; typical values.



$I_C/I_B = 20$.

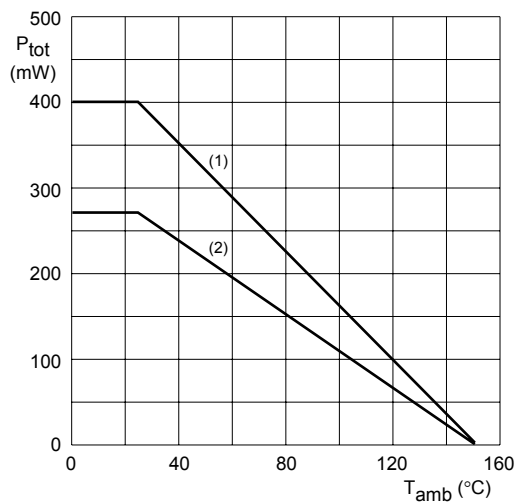
(1) $T_{amb} = 100^\circ\text{C}$. (2) $T_{amb} = 25^\circ\text{C}$. (3) $T_{amb} = -55^\circ\text{C}$.

Fig.9 Equivalent on-resistance as a function of collector current; typical values.

PNP Transistors

PBSS5160T (KBSS5160T)

■ Typical Characteristics



- (1) Device mounted with 1 cm² collector tab.
(2) Device mounted on standard footprint.

Fig.10 Power derating curves.