

# Power Transistor (−60V, −3A)

## 2SB1184 / 2SB1243

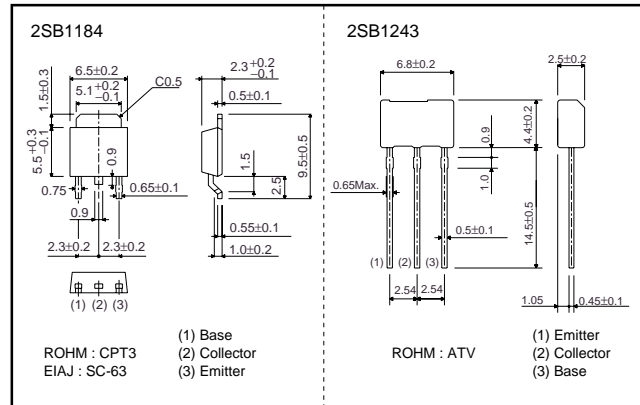
**●Features**

- 1) Low  $V_{CE(sat)}$ .  
 $V_{CE(sat)} = -0.5V$  (Typ.)  
 $(I_C/I_B = -2A / -0.2A)$
- 2) Complements the 2SD1760 / 2SD1864.

**●Structure**

Epitaxial planar type  
 PNP silicon transistor

**●External dimensions (Units : mm)**



**●Absolute maximum ratings (Ta=25°C)**

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	−60	V
Collector-emitter voltage	$V_{CEO}$	−50	V
Emitter-base voltage	$V_{EBO}$	−5	V
Collector current	$I_C$	−3	A (DC)
	$I_{CP}$	−4.5	A (Pulse) *1
Collector power dissipation	2SB1184	1	W
		15	W (Tc=25°C)
	2SB1243	1	W *2
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	−55~+150	°C

\*1 Single pulse, Pw=100ms

\*2 Printed circuit board, 1.7mm thick, collector copper plating 100mm<sup>2</sup> or larger.

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	-60	-	-	V	I <sub>c</sub> =-50μA
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	-50	-	-	V	I <sub>c</sub> =-1mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	-5	-	-	V	I <sub>E</sub> =-50μA
Collector cutoff current	I <sub>cBO</sub>	-	-	-1	μA	V <sub>CB</sub> =-40V
Emitter cutoff current	I <sub>EBO</sub>	-	-	-1	μA	V <sub>EB</sub> =-4V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	-	-	-1	V	I <sub>c</sub> /I <sub>B</sub> =-2A/-0.2A
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	-	-	-1.2	V	I <sub>c</sub> /I <sub>B</sub> =-1.5A/-0.15A
DC current transfer ratio	h <sub>FE</sub>	82	-	390	-	V <sub>CE</sub> =-3V, I <sub>c</sub> =-0.5A
Transition frequency	f <sub>T</sub>	-	70	-	MHz	V <sub>CE</sub> =-5V, I <sub>E</sub> =0.5A, f=30MHz
Output capacitance	C <sub>ob</sub>	-	50	-	pF	V <sub>CB</sub> =-10V, I <sub>E</sub> =0A, f=1MHz

\* Measured using pulse current.

●Packaging specifications and h<sub>FE</sub>

Type	h <sub>FE</sub>	Package	Taping	
		Code	TL	TV2
		Basic ordering unit (pieces)		
2SB1184	PQR		○	-
2SB1243	PQR		-	○

h<sub>FE</sub> values are classified as follows :

Item	P	Q	R
h <sub>FE</sub>	82~180	120~270	180~390

●Electrical characteristic curves

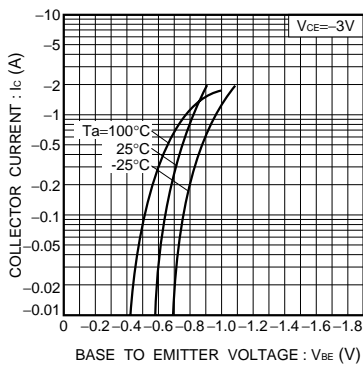


Fig.1 Grounded emitter propagation characteristics

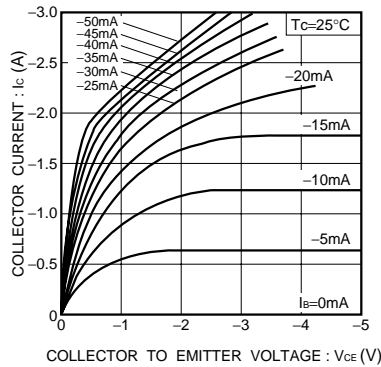


Fig.2 Grounded emitter output characteristics ( I )

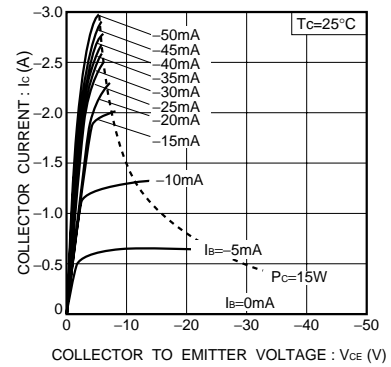


Fig.3 Grounded emitter output characteristics ( II )

Transistors

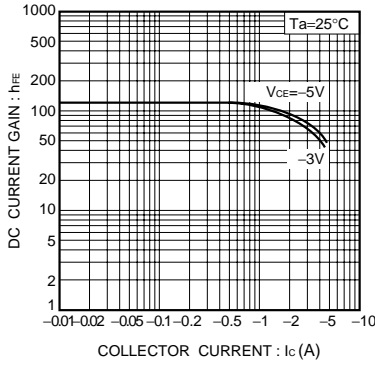


Fig.4 DC current gain vs. collector current ( I )

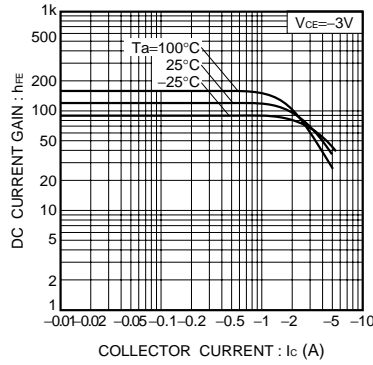


Fig.5 DC current gain vs. collector current ( II )

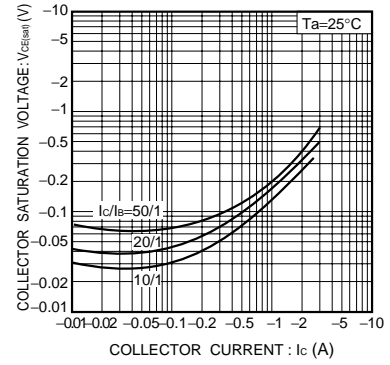


Fig.6 Collector-emitter saturation voltage vs. collector current

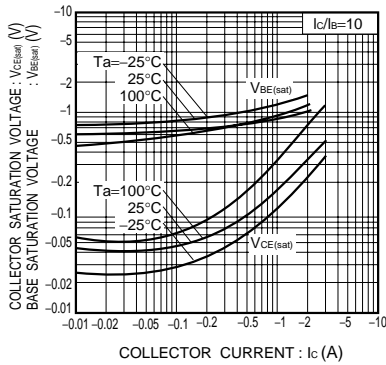


Fig.7 Collector-emitter saturation voltage vs. collector current  
Base-emitter saturation voltage vs. collector current

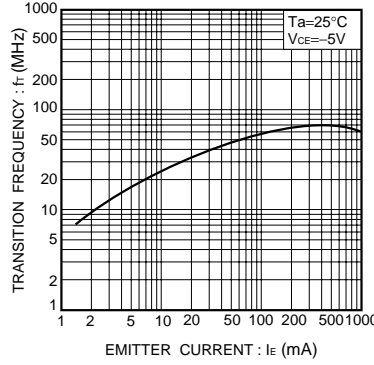


Fig.8 Gain bandwidth product vs. emitter current

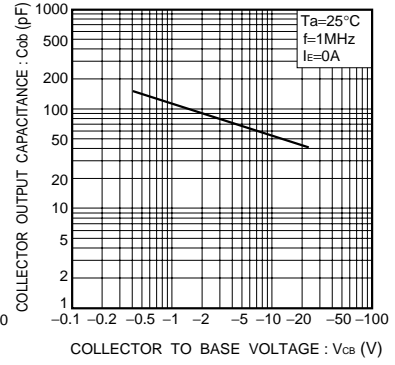


Fig.9 Collector output capacitance vs. collector base voltage

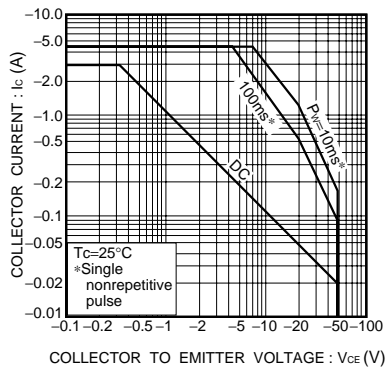


Fig.10 Safe operation area (2SB1184)

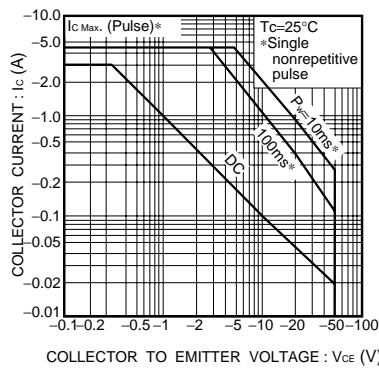


Fig.11 Safe operation area (2SB1243)