

# 2SB1180, 2SB1180A

Silicon PNP epitaxial planar type darlington

For medium-speed voltage switching  
Complementary to 2SD1750, 2SD1750A

## ■ Features

- High forward current transfer ratio  $h_{FE}$
- I type package enabling direct soldering of the radiating fin to the printed circuit board, etc. of small electronic equipment

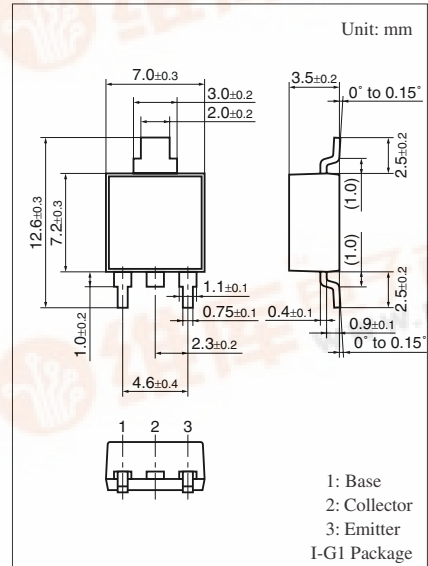
## ■ Absolute Maximum Ratings $T_C = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	2SB1180	$V_{CBO} -60$	V
	2SB1180A	$-80$	
Collector-emitter voltage (Base open)	2SB1180	$V_{CEO} -60$	V
	2SB1180A	$-80$	
Emitter-base voltage (Collector open)	$V_{EBO}$	$-7$	V
Collector current	$I_C$	$-8$	A
Peak collector current	$I_{CP}$	$-12$	A
Collector power dissipation	$P_C$	$15$	W
		$T_a = 25^\circ\text{C}$	$1.3$
Junction temperature	$T_j$	$150$	$^\circ\text{C}$
Storage temperature	$T_{stg}$	$-55$ to $+150$	$^\circ\text{C}$

## ■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

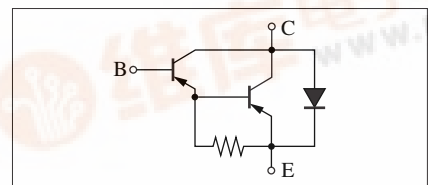
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	2SB1180	$I_C = -30 \text{ mA}, I_B = 0$	$-60$			V
	2SB1180A		$-80$			
Collector-base cutoff current (Emitter open)	2SB1180	$V_{CB} = -60 \text{ V}, I_E = 0$			$-100$	$\mu\text{A}$
	2SB1180A		$V_{CB} = -80 \text{ V}, I_E = 0$		$-100$	
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = -7 \text{ V}, I_C = 0$			$-2$	mA
Forward current transfer ratio	$h_{FE1}^*$	$V_{CE} = -3 \text{ V}, I_C = -4 \text{ A}$	2000		10000	—
		$V_{CE} = -3 \text{ V}, I_C = -8 \text{ A}$	500			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -4 \text{ A}, I_B = -8 \text{ mA}$			$-1.5$	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -4 \text{ A}, I_B = -8 \text{ mA}$			$-2$	V
Transition frequency	$f_T$	$V_{CE} = -3 \text{ V}, I_C = -1 \text{ A}, f = 1 \text{ MHz}$		20		MHz
Turn-on time	$t_{on}$	$I_C = -4 \text{ A}, I_{B1} = -8 \text{ mA}, I_{B2} = 8 \text{ mA}$		0.5		$\mu\text{s}$
Storage time	$t_{stg}$	$V_{CC} = -50 \text{ V}$		2.0		$\mu\text{s}$
Fall time	$t_f$			1.0		$\mu\text{s}$

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.



Note) Self-supported type package is also prepared.

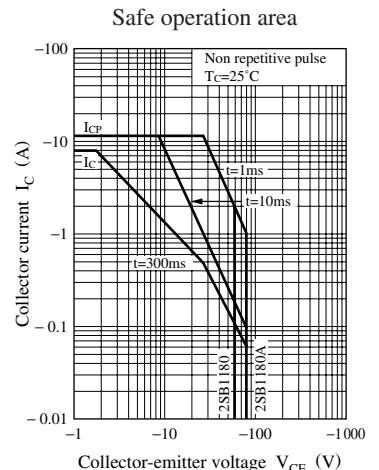
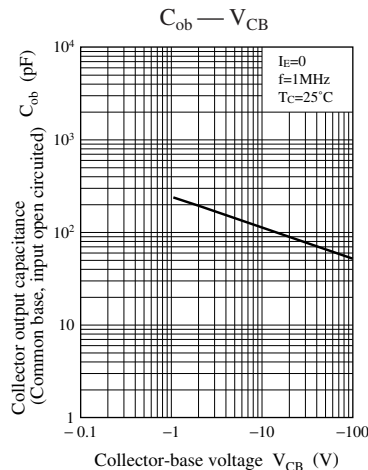
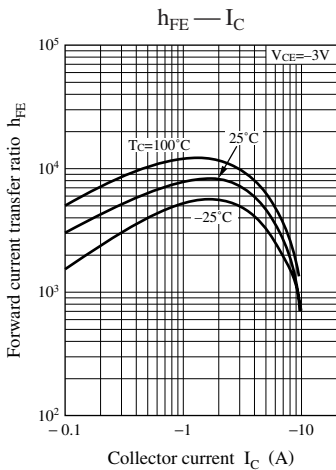
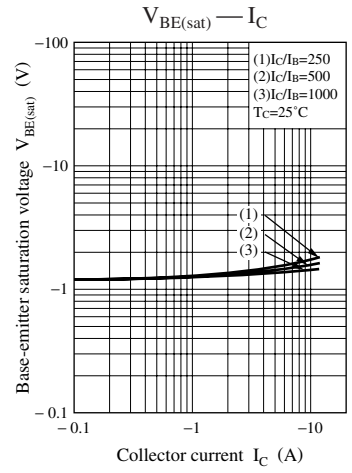
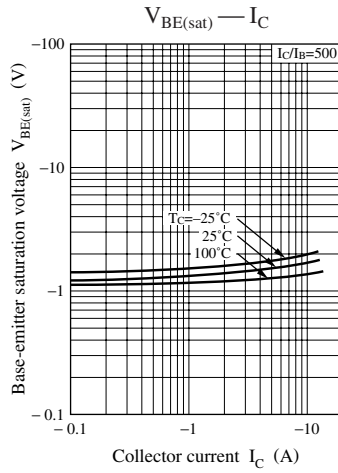
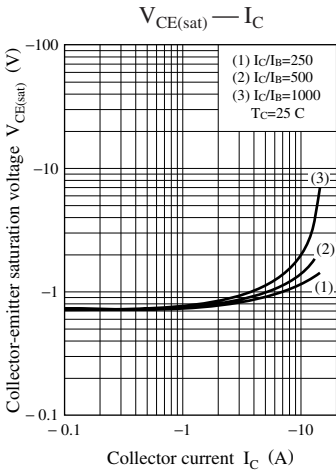
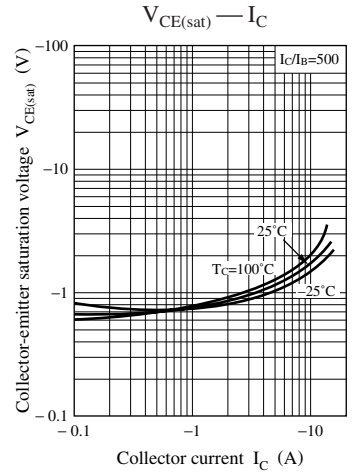
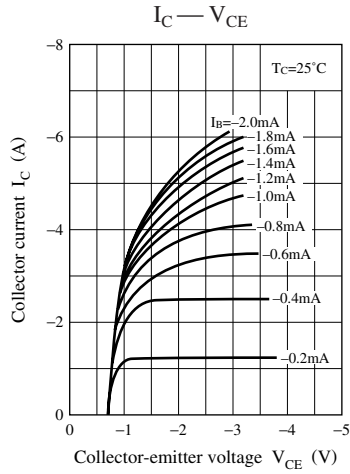
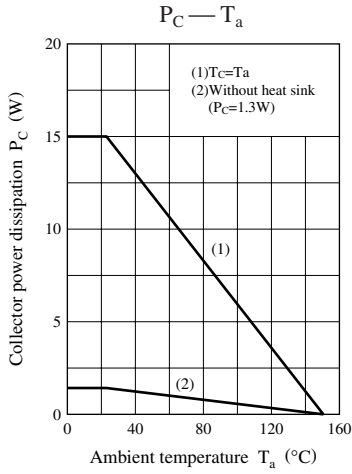
## Internal Connection

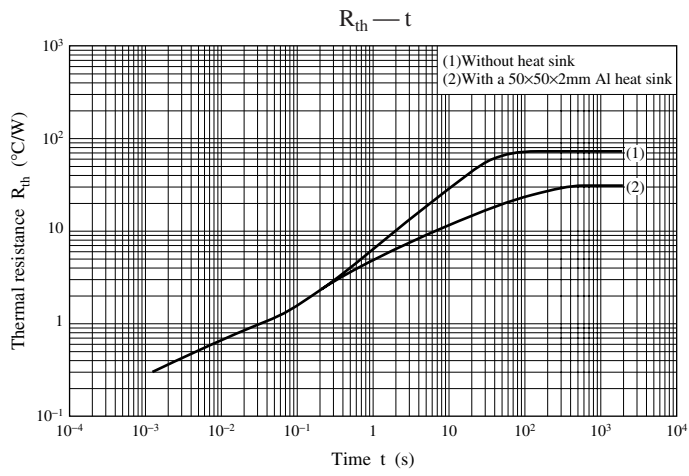


Note) 1. Rank classification

Rank	Q	P
$h_{FE1}$	2000 to 5000	4000 to 10000







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