

# 2SB1504

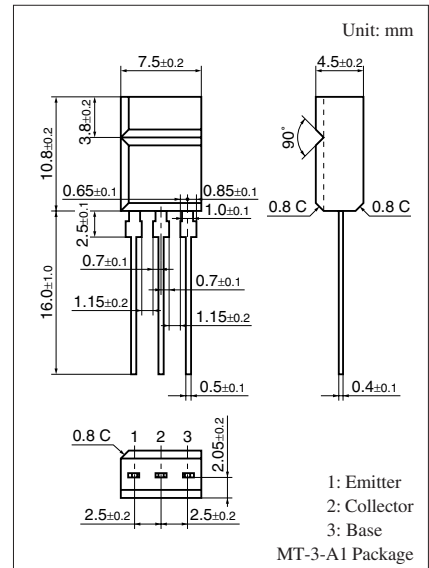
## Silicon PNP epitaxial planar type darlington

For power switching

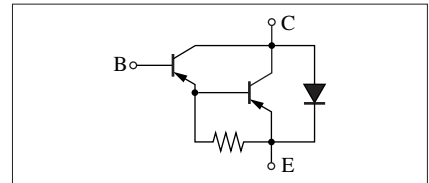
- High forward current transfer ratio  $h_{FE}$
- High-speed switching
- Allowing automatic insertion with radial tapping

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	-50	V
Collector-emitter voltage (Base open)	$V_{CEO}$	-50	V
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	$P_C$	1.5	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$



### Internal Connection



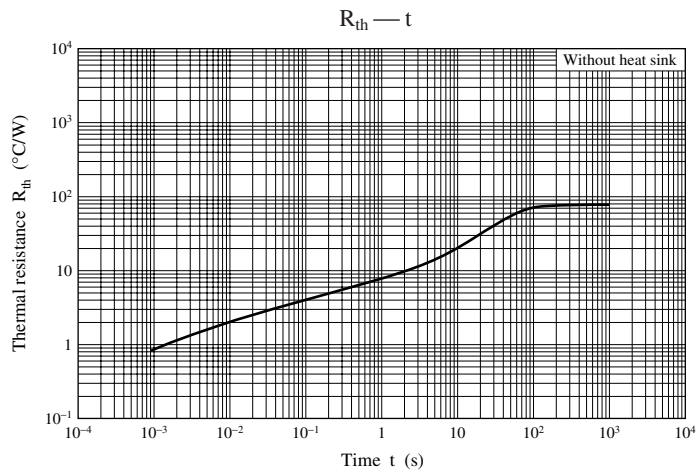
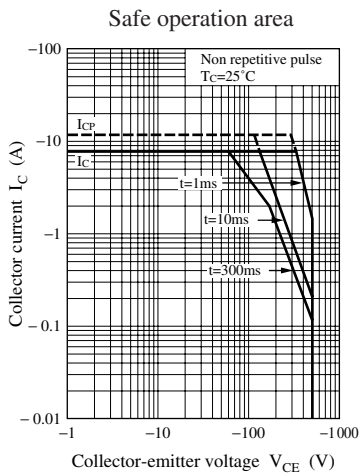
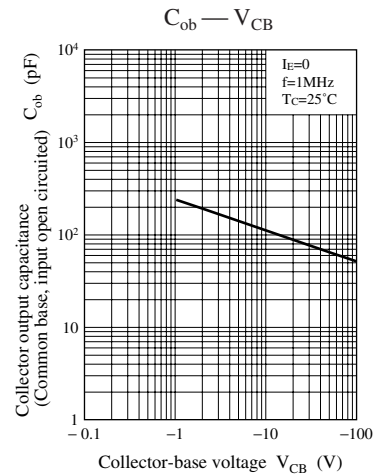
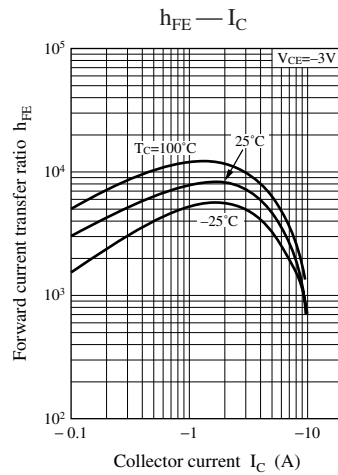
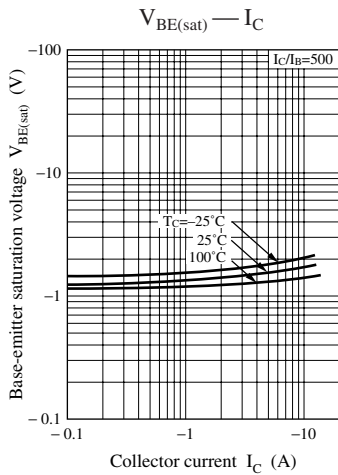
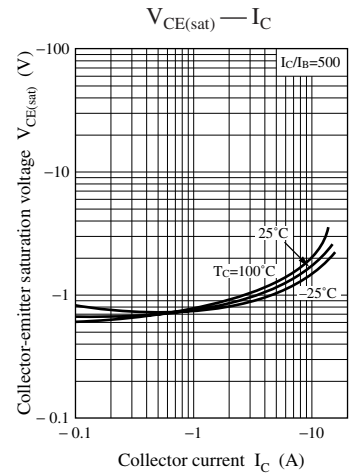
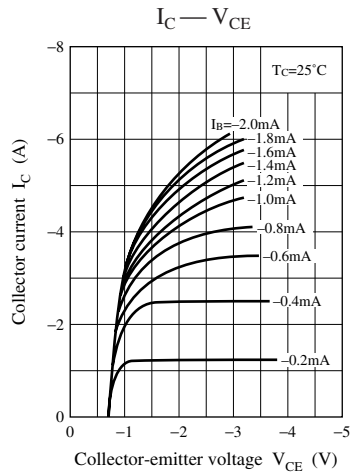
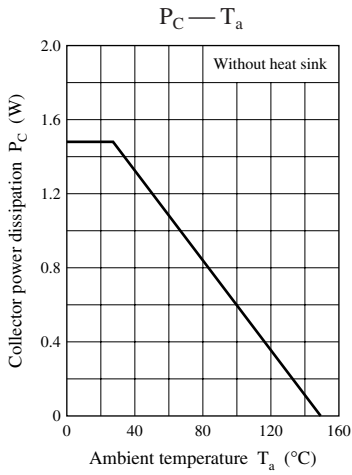
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = -30 \text{ mA}, I_B = 0$	-50			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = -50 \text{ V}, I_E = 0$			-100	$\mu\text{A}$
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = -7 \text{ V}, I_C = 0$			-2	mA
Forward current transfer ratio	$h_{FE1}^*$	$V_{CE} = -3 \text{ V}, I_C = -4 \text{ A}$	1000		10000	—
	$h_{FE2}$	$V_{CE} = -3 \text{ V}, I_C = -8 \text{ A}$	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	$V_{BE(sat)}$	$I_C = -4 \text{ A}, I_B = -8 \text{ mA}$			-2.0	V
Transition frequency	$f_T$	$V_{CB} = -10 \text{ V}, I_E = 0.5 \text{ A}, f = 200 \text{ MHz}$		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.

2. \*: Rank classification

Rank	P	Q	R
$h_{FE1}$	1 000 to 2 500	2 000 to 5 000	4 000 to 10 000



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