

# 2SB1418, 2SB1418A

## Silicon PNP epitaxial planar type darlington

For power amplification

Complementary to 2SD2138 and 2SD2138A

### ■ Features

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

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	2SB1418	-60	V
	2SB1418A	-80	
Collector-emitter voltage (Base open)	2SB1418	-60	V
	2SB1418A	-80	
Emitter-base voltage (Collector open)	$V_{EBO}$	-5	V
Collector current	$I_C$	-2	A
Peak collector current	$I_{CP}$	-4	A
Collector power dissipation	$P_C$	15	W
		$T_a = 25^\circ\text{C}$	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

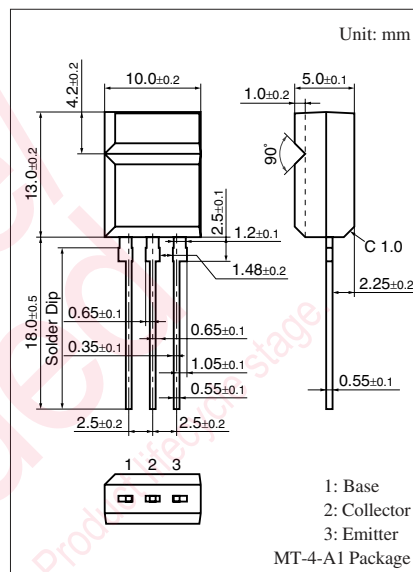
### ■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	2SB1418	$I_C = -30\text{ mA}, I_B = 0$	-60			V
	2SB1418A					
Base-emitter voltage	$V_{BE}$	$V_{CE} = -4\text{ V}, I_C = -2\text{ A}$			-2.8	V
Collector-base cutoff current (Emitter open)	2SB1418	$V_{CB} = -60\text{ V}, I_E = 0$			-100	$\mu\text{A}$
	2SB1418A					
Collector-emitter cutoff current (Base open)	2SB1418	$V_{CE} = -30\text{ V}, I_B = 0$			-100	$\mu\text{A}$
	2SB1418A					
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = -5\text{ V}, I_C = 0$			-100	$\mu\text{A}$
Forward current transfer ratio	$h_{FE1}$	$V_{CE} = -4\text{ V}, I_C = -1\text{ A}$	1000			—
	$h_{FE2}^*$	$V_{CE} = -4\text{ V}, I_C = -2\text{ A}$	1000		10000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -2\text{ A}, I_B = -8\text{ mA}$			-2.5	V
Transition frequency	$f_T$	$V_{CE} = -10\text{ V}, I_C = -0.5\text{ A}, f = 1\text{ MHz}$		20		MHz
Turn-on time	$t_{on}$	$I_C = -2\text{ A}, I_{B1} = -8\text{ mA}, I_{B2} = 8\text{ mA}$		0.2		$\mu\text{s}$
Turn-off time	$t_{off}$	$V_{CC} = -50\text{ V}$		2		$\mu\text{s}$

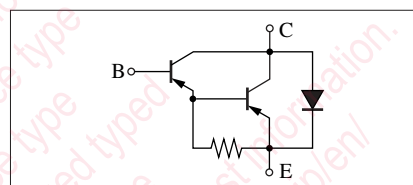
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

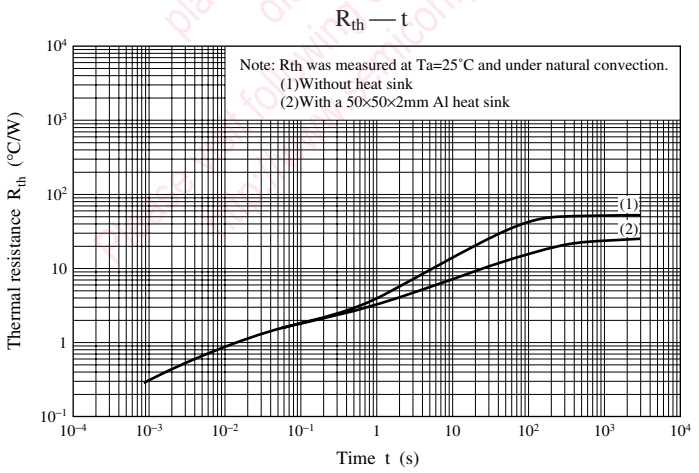
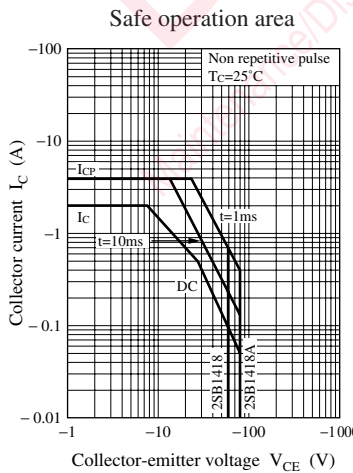
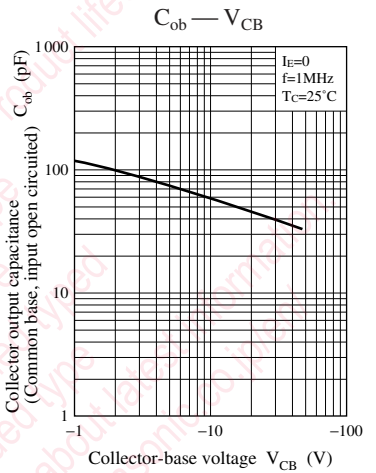
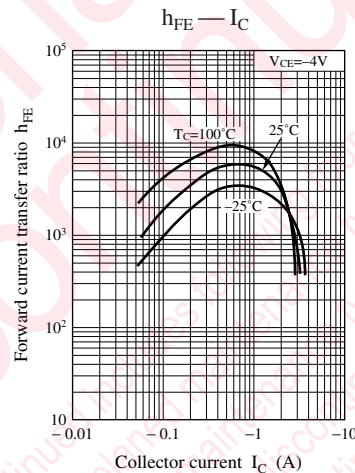
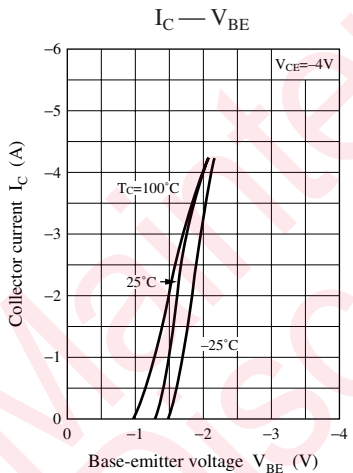
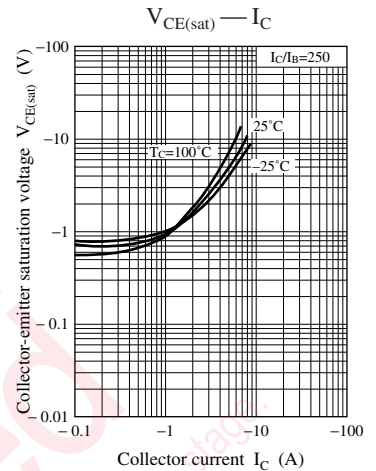
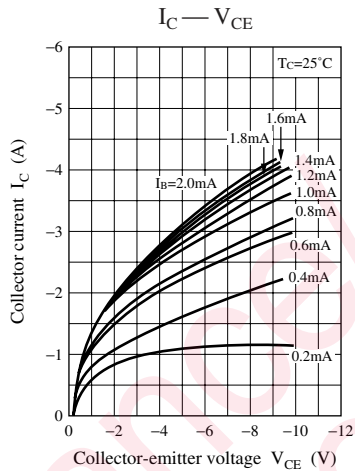
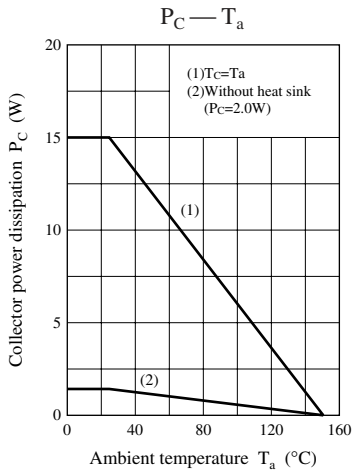
2. \*: Rank classification

Rank	R	Q	P
$h_{FE2}$	1000 to 2500	2000 to 5000	4000 to 10000



### Internal Connection





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