

# 2SB1417A

## Silicon PNP epitaxial planar type

For power amplification

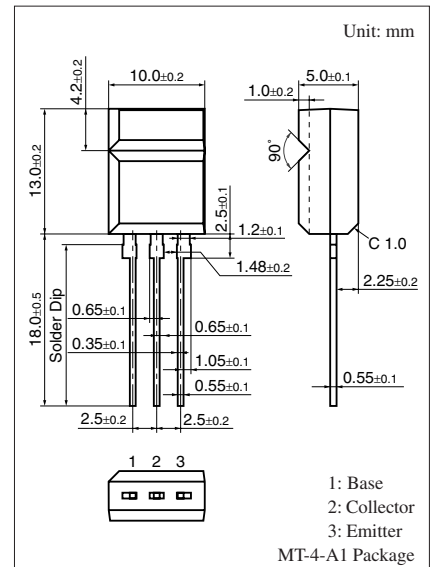
Complementary to 2SD2137A

### ■ Features

- High forward current transfer ratio  $h_{FE}$  which has satisfactory linearity
- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- Allowing automatic insertion with radial tapping

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	-80	V
Collector-emitter voltage (Base open)	$V_{CEO}$	-80	V
Emitter-base voltage (Collector open)	$V_{EBO}$	-6	V
Collector current	$I_C$	-3	A
Peak collector current	$I_{CP}$	-5	A
Collector power dissipation	$T_C = 25^\circ\text{C}$ $P_C$	15 2.0	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$



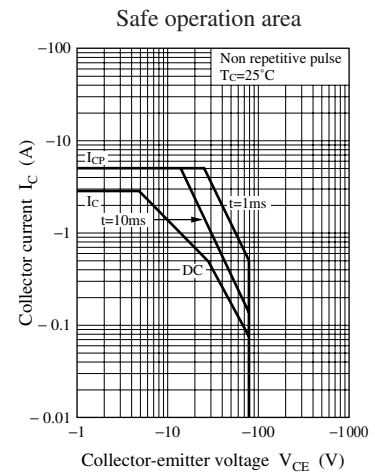
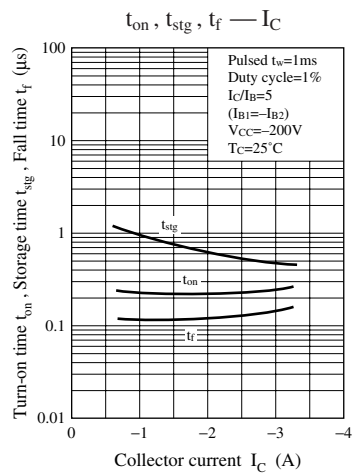
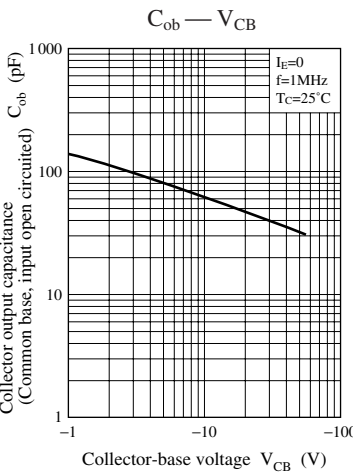
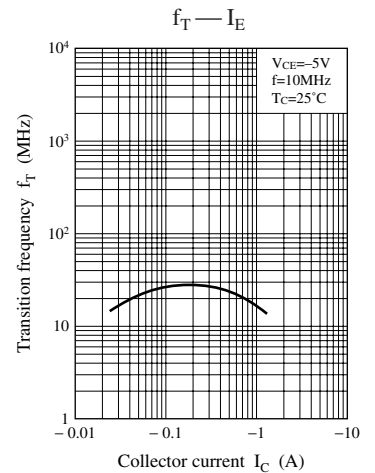
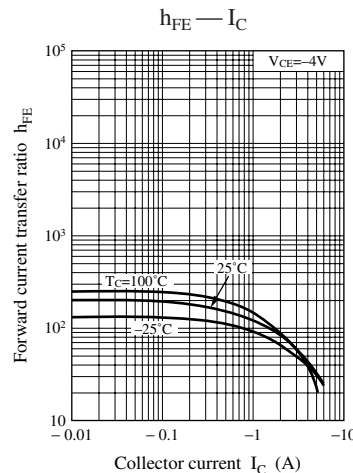
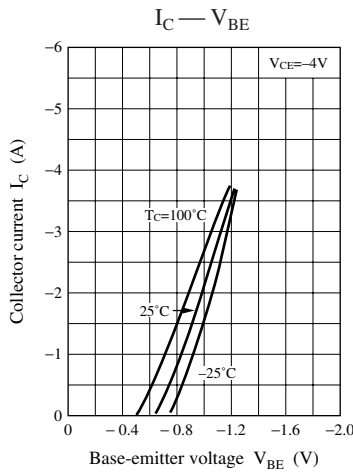
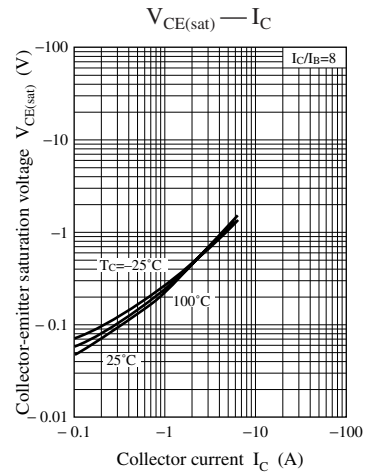
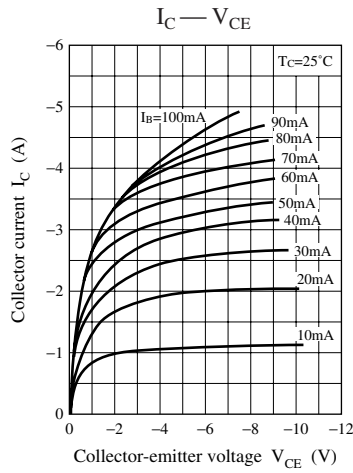
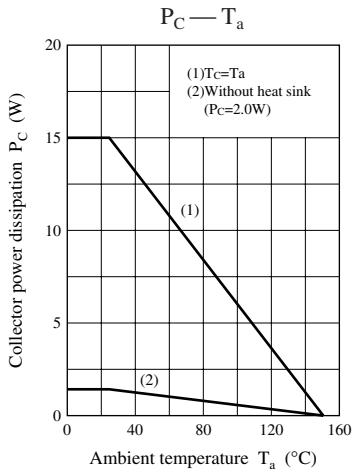
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = -30 \text{ mA}, I_B = 0$	-80			V
Base-emitter voltage	$V_{BE}$	$V_{CE} = -4 \text{ V}, I_C = -3 \text{ A}$			-1.8	V
Collector-emitter cutoff current (E-B short)	$I_{CES}$	$V_{CE} = -80 \text{ V}, V_{BE} = 0$			-100	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = -60 \text{ V}, I_B = 0$			-100	$\mu\text{A}$
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = -6 \text{ V}, I_C = 0$			-100	$\mu\text{A}$
Forward current transfer ratio	$h_{FE1}^*$	$V_{CE} = -4 \text{ V}, I_C = -1 \text{ A}$	70		250	—
	$h_{FE2}$	$V_{CE} = -4 \text{ V}, I_C = -3 \text{ A}$	10			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -3 \text{ A}, I_B = -0.375 \text{ A}$			-1.2	V
Transition frequency	$f_T$	$V_{CE} = -5 \text{ V}, I_C = -0.2 \text{ A}, f = 10 \text{ MHz}$		30		MHz
Turn-on time	$t_{on}$	$I_C = -1 \text{ A}, I_{B1} = -0.1 \text{ A}, I_{B2} = 0.1 \text{ A}$		0.3		$\mu\text{s}$
Storage time	$t_{stg}$	$V_{CC} = -50 \text{ V}$		1.0		$\mu\text{s}$
Fall time	$t_f$			0.2		$\mu\text{s}$

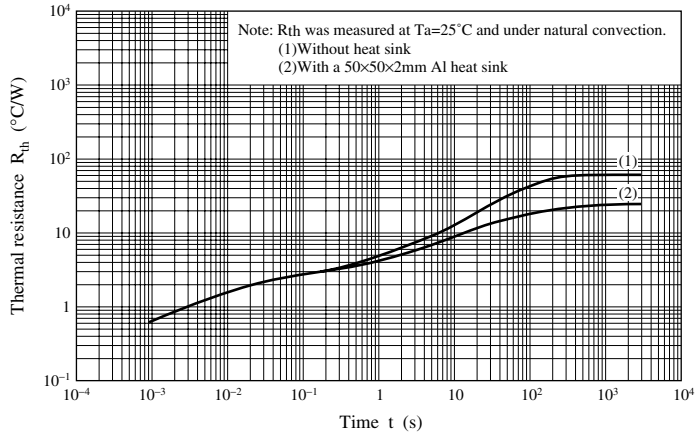
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*: Rank classification

Rank	Q	P
$h_{FE1}$	70 to 150	120 to 250



$R_{th} - t$



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