

# 2SD2413

## Silicon NPN triple diffusion planar type

For low-frequency output amplification

### ■ Features

- High collector-base voltage (Emitter open)  $V_{CBO}$
- High collector-emitter voltage (Base open)  $V_{CEO}$
- Large collector power dissipation  $P_C$
- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- Mini Power type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

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

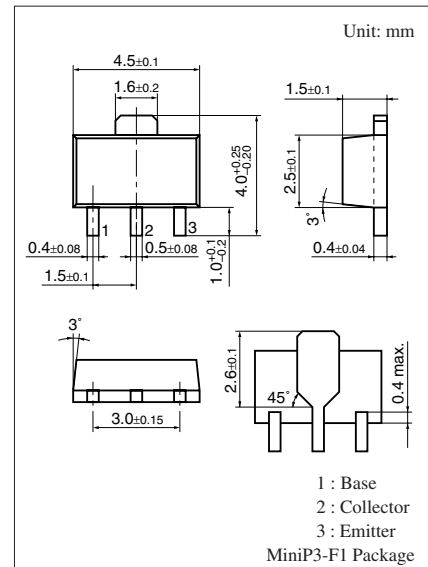
Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	400	V
Collector-emitter voltage (Base open)	$V_{CEO}$	400	V
Emitter-base voltage (Collector open)	$V_{EBO}$	5	V
Collector current	$I_C$	100	mA
Peak collector current	$I_{CP}$	200	mA
Collector power dissipation *	$P_C$	1	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

Note) \*: Printed circuit board: Copper foil area of 1 cm<sup>2</sup> or more, and the board thickness of 1.7 mm for the collector portion

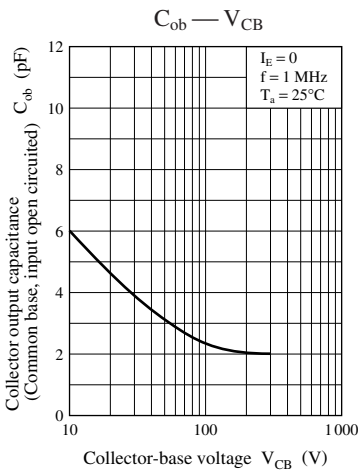
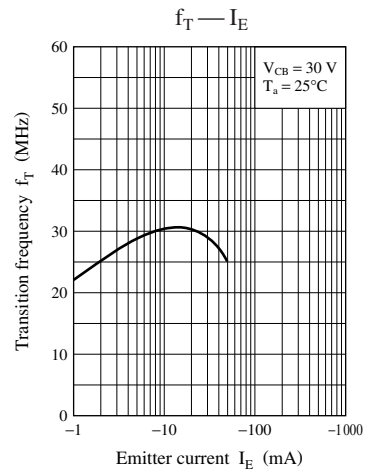
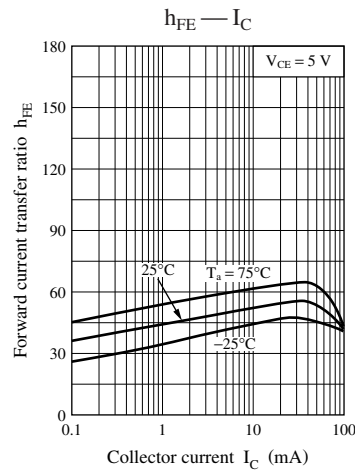
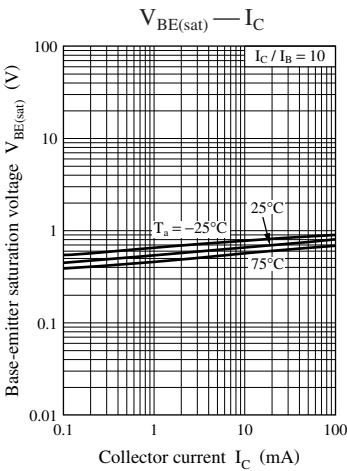
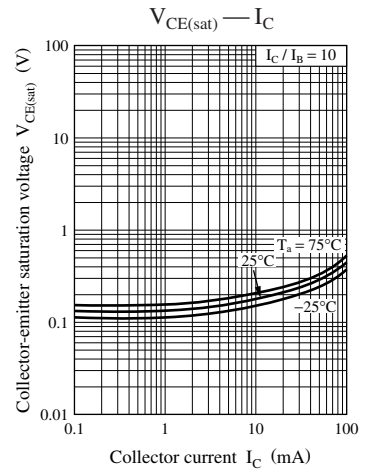
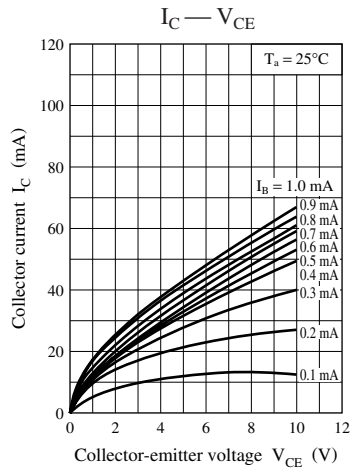
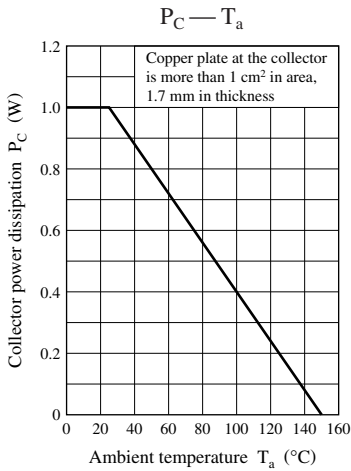
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = 100 \mu\text{A}$ , $I_E = 0$	400			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = 500 \mu\text{A}$ , $I_B = 0$	400			V
Emitter-base voltage (Collector open)	$V_{EBO}$	$I_E = 100 \mu\text{A}$ , $I_C = 0$	5			V
Forward current transfer ratio	$h_{FE}$	$V_{CE} = 5 \text{ V}$ , $I_C = 30 \text{ mA}$	30			—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 50 \text{ mA}$ , $I_B = 5 \text{ mA}$			1.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 50 \text{ mA}$ , $I_B = 5 \text{ mA}$			1.5	V
Transition frequency *	$f_T$	$V_{CB} = 30 \text{ V}$ , $I_E = -20 \text{ mA}$ , $f = 200 \text{ MHz}$		40		MHz
Collector output capacitance (Common base, input open circuited)	$C_{ob}$	$V_{CB} = 30 \text{ V}$ , $I_E = 0$ , $f = 1 \text{ MHz}$			7	pF

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.  
2. \*: Pulse measurement



Marking Symbol: 1S



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