

# 2SD1271A

## Silicon NPN epitaxial planar type

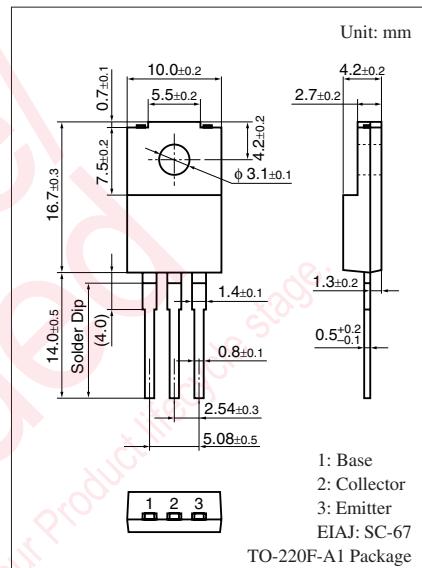
For power switching

## ■ Features

- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- Satisfactory linearity of forward current transfer ratio  $h_{FE}$
- Large collector current  $I_C$
- Full-pack package which can be installed to the heat sink with one screw

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	150	V
Collector-emitter voltage (Base open)	$V_{CEO}$	100	V
Emitter-base voltage (Collector open)	$V_{EBO}$	7	V
Collector current	$I_C$	7	A
Peak collector current	$I_{CP}$	15	A
Collector power dissipation	$P_C$	40	W
	$T_a = 25^\circ\text{C}$	2.0	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$



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

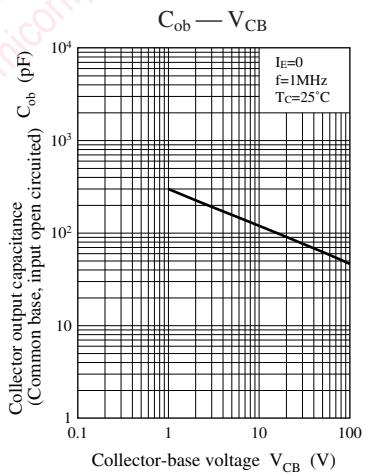
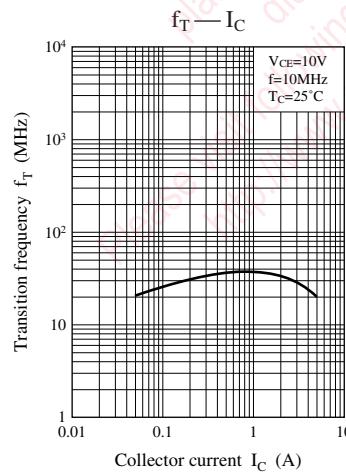
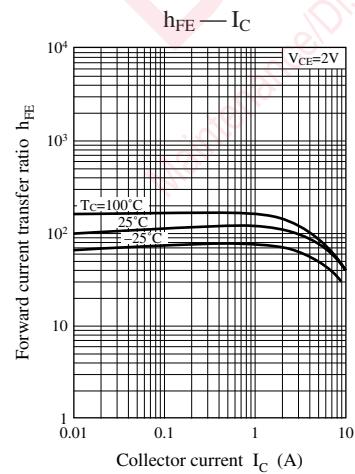
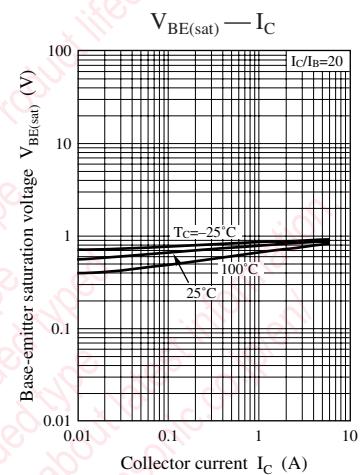
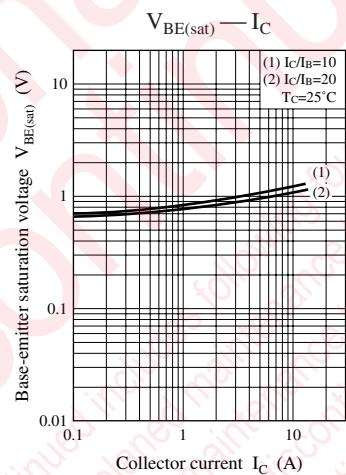
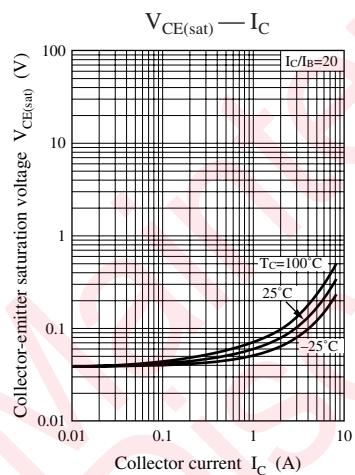
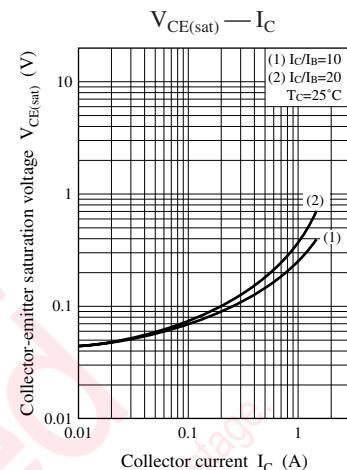
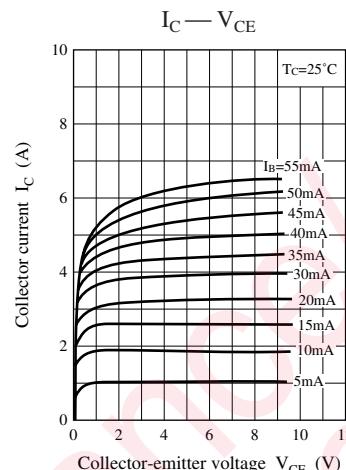
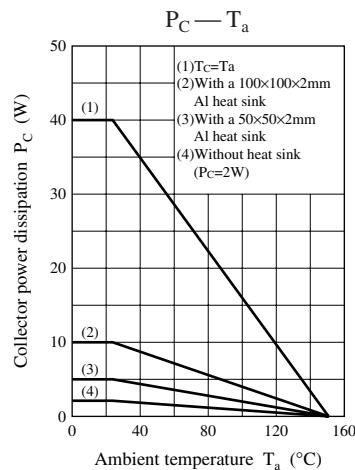
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = 10 \text{ mA}, I_B = 0$	100			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = 100 \text{ V}, I_E = 0$			10	$\mu\text{A}$
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = 5 \text{ V}, I_C = 0$			50	$\mu\text{A}$
Forward current transfer ratio	$h_{FE1}$	$V_{CE} = 2 \text{ V}, I_C = 0.1 \text{ A}$	45			—
	$h_{FE2}^*$	$V_{CE} = 2 \text{ V}, I_C = 3 \text{ A}$	60		260	
Collector-emitter saturation voltage	$V_{CE(\text{sat})}$	$I_C = 5 \text{ A}, I_B = 0.25 \text{ A}$			0.5	V
Base-emitter saturation voltage	$V_{BE(\text{sat})}$	$I_C = 5 \text{ A}, I_B = 0.25 \text{ A}$			1.5	V
Transition frequency	$f_T$	$V_{CE} = 10 \text{ V}, I_C = 0.5 \text{ A}, f = 10 \text{ MHz}$		30		MHz
Turn-on time	$t_{\text{on}}$	$I_C = 1 \text{ A}, I_{B1} = 0.1 \text{ A}, I_{B2} = -0.1 \text{ A}$ $V_{CC} = 50 \text{ V}$		0.5		$\mu\text{s}$
Storage time	$t_{\text{stg}}$			2.5		$\mu\text{s}$
Fall time	$t_f$			0.4		$\mu\text{s}$

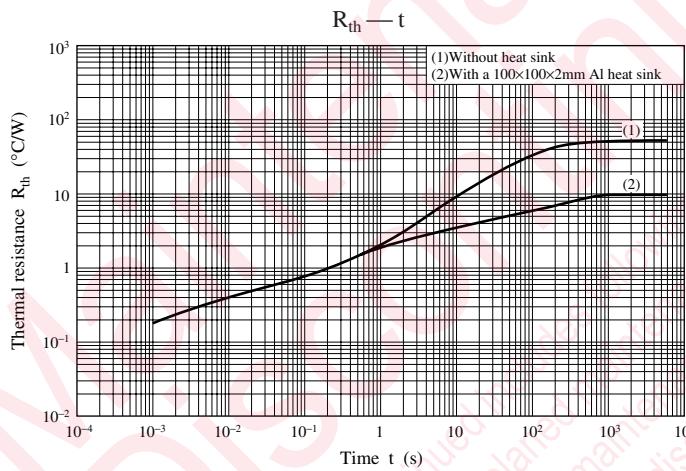
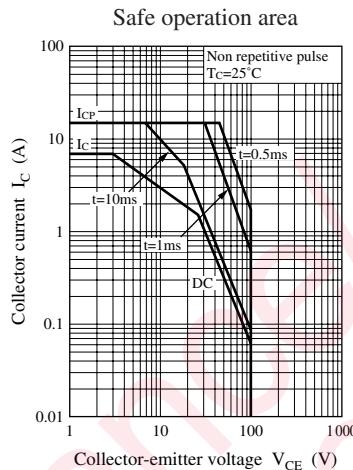
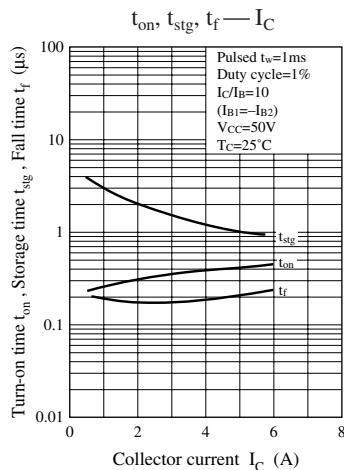
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

## 2. \*: Rank classification

Rank	R	Q	P
h <sub>FE2</sub>	60 to 120	90 to 180	130 to 260

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