# 2SD1051

# Silicon NPN epitaxial planar type

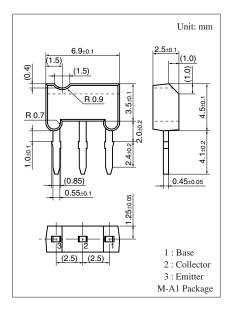
For low-frequency power amplification Complementary to 2SB0819 (2SB819)

#### Features

- High collector-emitter voltage (Base open)  $V_{CEO}$
- $\bullet$  Low collector power dissipation  $P_{C}$
- M type package allowing easy automatic and manual insertion as well as stand-alone fixing to the printed circuit board.

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Parameter	Symbol	Rating	Unit			
Collector-base voltage (Emitter open)	V <sub>CBO</sub>	50	V			
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	40	V			
Emitter-base voltage (Collector open)	V <sub>EBO</sub>	5	V			
Collector current	I <sub>C</sub>	1.5	А			
Peak collector current	I <sub>CP</sub>	3	А			
Collector power dissipation *	P <sub>C</sub>	1	W			
Junction temperature	Tj	150	°C			
Storage temperature	T <sub>stg</sub>	-55 to +150	°C			

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



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 $T_a = 25^{\circ}C \pm 3^{\circ}C$

Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Collector-base voltage (Emitter open)	V <sub>CBO</sub>	$I_{C} = 1 \text{ mA}, I_{E} = 0$	50			V
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	$I_{\rm C} = 2  {\rm mA},  I_{\rm B} = 0$	40			V
Collector-base cutoff current (Emitter open)	I <sub>CBO</sub>	$V_{CB} = 20 V, I_E = 0$			1	μΑ
Collector-emitter cutoff current (Base open)	I <sub>CEO</sub>	$V_{CE} = 10 \text{ V}, I_B = 0$			100	μΑ
Emitter-base cutoff current (Collector open)	I <sub>EBO</sub>	$V_{EB} = 5 V, I_C = 0$			10	μΑ
Forward current transfer ratio *1, 2	h <sub>FE</sub>	$V_{CE} = 5 V, I_C = 1 A$	80	120	220	
Collector-emitter saturation voltage *1	V <sub>CE(sat)</sub>	$I_{\rm C} = 1.5 \text{ A}, I_{\rm B} = 0.15 \text{ A}$			1	V
Base-emitter saturation voltage *1	V <sub>BE(sat)</sub>	$I_{\rm C} = 2 \text{ A}, I_{\rm B} = 0.2 \text{ A}$			1.5	V
Transition frequency *1	f <sub>T</sub>	$V_{CB} = 5 \text{ V}, I_E = -0.5 \text{ A}, f = 200 \text{ MHz}$		150		MHz
Collector output capacitance (Common base, input open circuited)	C <sub>ob</sub>	$V_{CB} = 20 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		45		pF

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

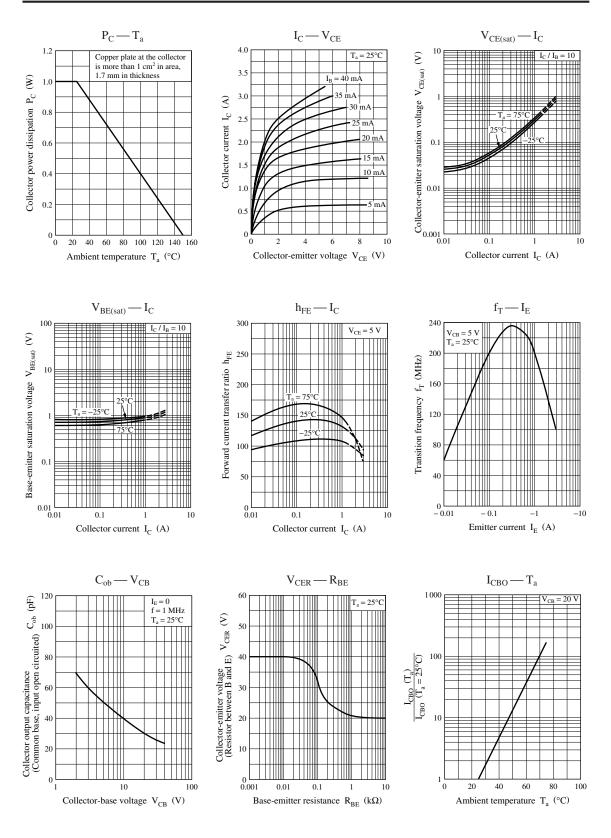
2. \*1: Pulse measurement

\*2: Rank classification

Rank	Q	R
h <sub>FE</sub>	80 to 160	120 to 220

Note) The part number in the parenthesis shows conventional part number.

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