

2SD1051

Silicon NPN epitaxial planer type

For low-frequency power amplification
Complementary to 2SB819

Features

- High collector to emitter voltage V_{CEO} .
- Large 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.

Absolute Maximum Ratings ($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	50	V
Collector to emitter voltage	V_{CEO}	40	V
Emitter to base voltage	V_{EBO}	5	V
Peak collector current	I_{CP}	3	A
Collector current	I_C	1.5	A
Collector power dissipation	P_C^*	1	W
Junction temperature	T_j	150	$^{\circ}\text{C}$
Storage temperature	T_{stg}	$-55 \sim +150$	$^{\circ}\text{C}$

* Printed circuit board: Copper foil area of 1cm^2 or more, and the board thickness of 1.7mm for the collector portion

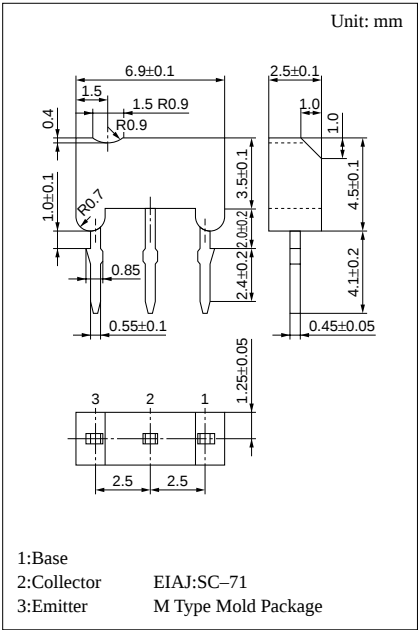
Electrical Characteristics ($T_a=25^{\circ}\text{C}$)

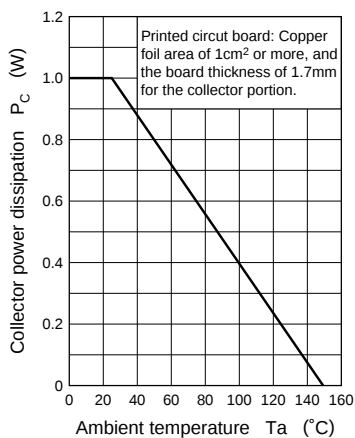
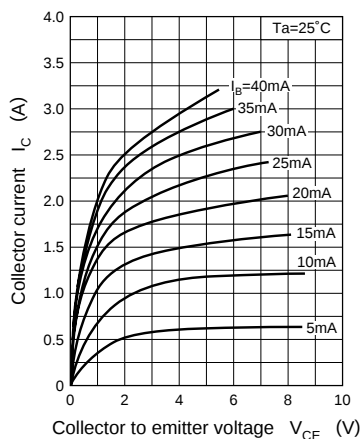
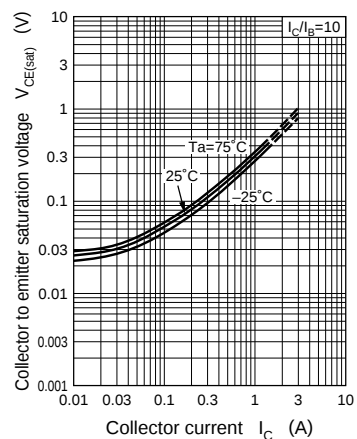
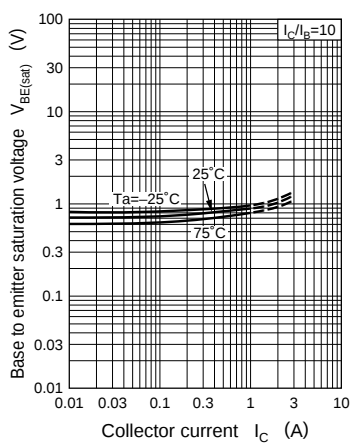
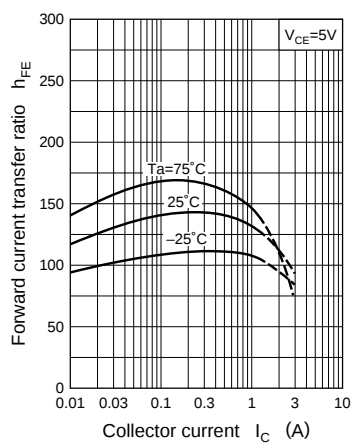
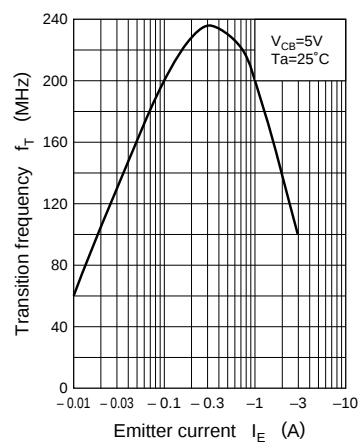
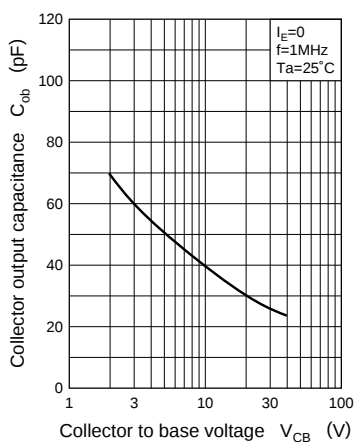
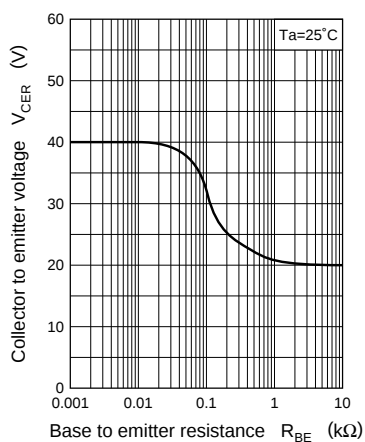
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 20\text{V}, I_E = 0$			1	μA
	I_{CEO}	$V_{CE} = 10\text{V}, I_B = 0$			100	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 5\text{V}, I_E = 0$			10	μA
Collector to base voltage	V_{CBO}	$I_C = 1\text{mA}, I_E = 0$	50			V
Collector to emitter voltage	V_{CEO}	$I_C = 2\text{mA}, I_B = 0$	40			V
Forward current transfer ratio	h_{FE}^{*1}	$V_{CE} = 5\text{V}, I_C = 1\text{A}^{*2}$	80	120	220	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1.5\text{A}, I_B = 0.15\text{A}^{*2}$			1	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2\text{A}, I_B = 0.2\text{A}^{*2}$			1.5	V
Transition frequency	f_T	$V_{CB} = 5\text{V}, I_E = -0.5\text{A}^{*2}, f = 200\text{MHz}$		150		MHz
Collector output capacitance	C_{ob}	$V_{CB} = 20\text{V}, I_E = 0, f = 1\text{MHz}$		45		pF

^{*2} Pulse measurement

^{*1} h_{FE} Rank classification

Rank	Q	R
h_{FE}	80 ~ 160	120 ~ 220



$P_C - T_a$  $I_C - V_{CE}$  $V_{CE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_E$  $C_{ob} - V_{CB}$  $V_{CER} - R_{BE}$  $I_{CBO} - T_a$ 