

# 2SC2209

## Silicon NPN epitaxial planar type

For low-frequency power amplification  
Complementary to 2SA0963

### ■ Features

- Large collector power dissipation  $P_C$
- Output of 5 W can be obtained by a complementary pair with 2SA0963

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	50	V
Collector-emitter voltage (Base open)	$V_{CEO}$	40	V
Emitter-base voltage (Collector open)	$V_{EBO}$	5	V
Collector current	$I_C$	1.5	A
Peak collector current	$I_{CP}$	3	A
Collector power dissipation *	$P_C$	10	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

Note) \*:  $T_C = 25^\circ\text{C}$

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

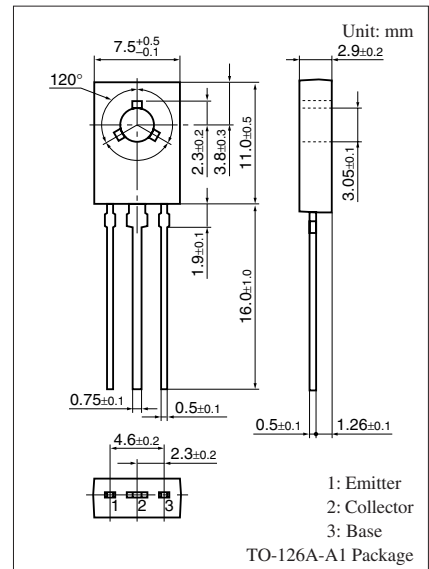
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = 1 \text{ mA}, I_E = 0$	50			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = 2 \text{ mA}, I_B = 0$	40			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = 20 \text{ V}, I_E = 0$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

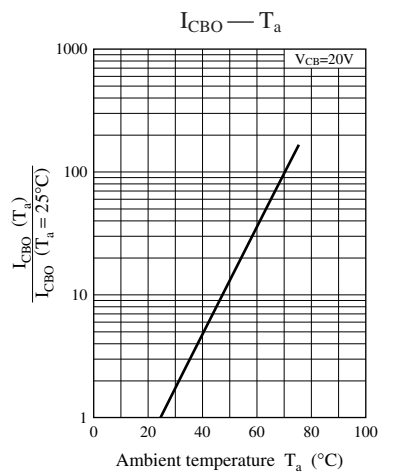
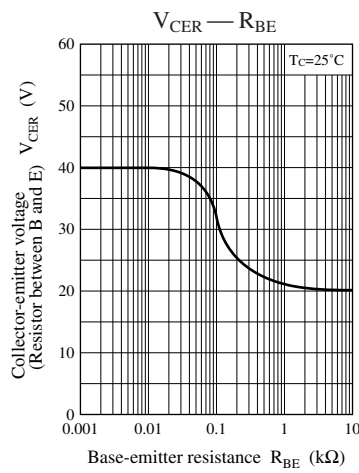
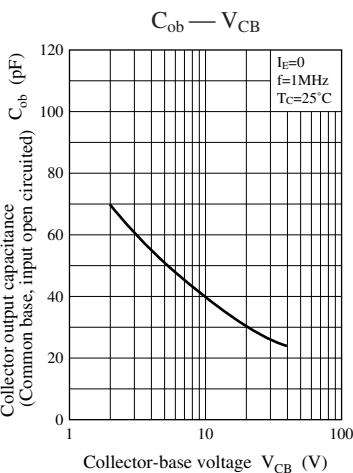
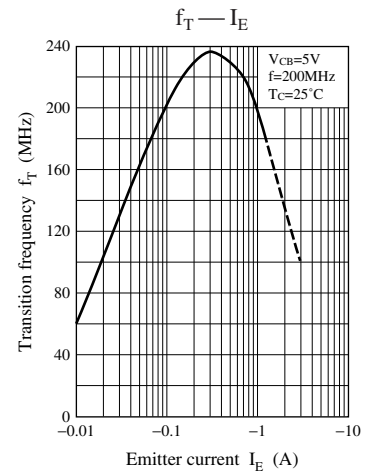
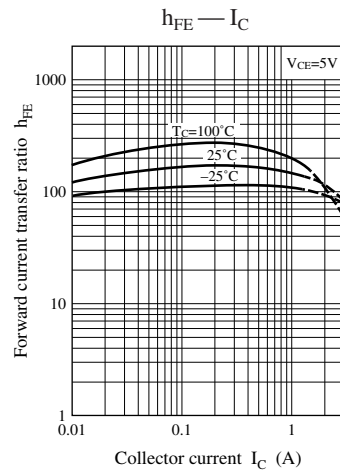
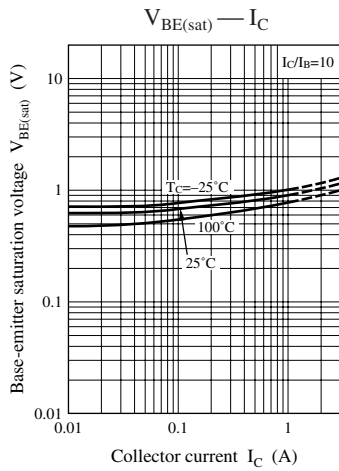
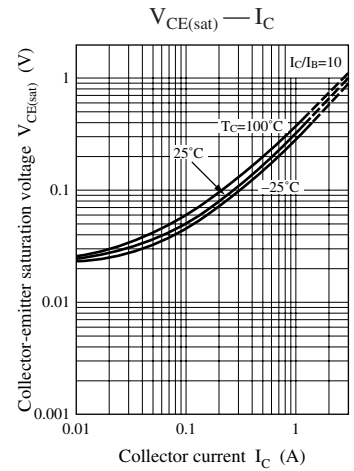
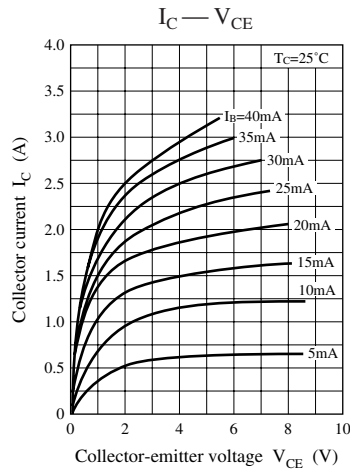
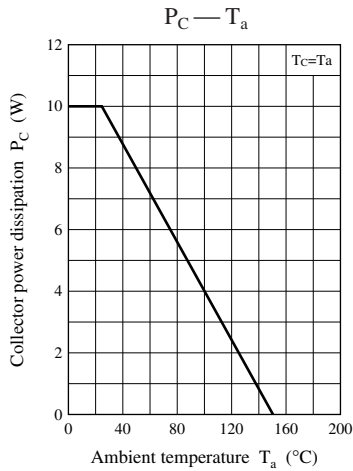
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

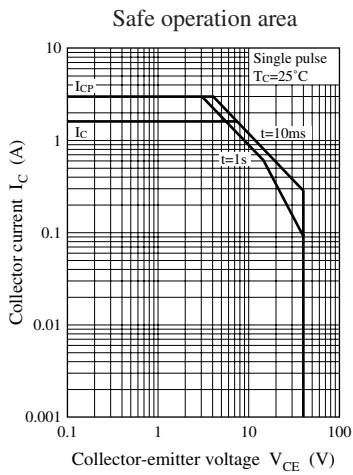
2. \*1: Pulse measurement

\*2: Rank classification

Rank	Q	R
$h_{FE}$	80 to 160	120 to 220







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