

2SA2009

Silicon PNP epitaxial planar type

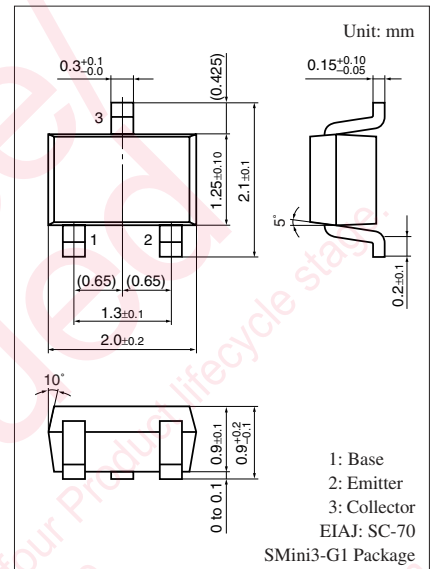
For low-frequency high breakdown voltage amplification

■ Features

- High collector-emitter voltage (Base open) V_{CEO}
- Low noise voltage NV
- S-Mini type package, allowing downsizing and thinning of the equipment and automatic insertion through the tape packing.

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	-120	V
Collector-emitter voltage (Base open)	V_{CEO}	-120	V
Emitter-base voltage (Collector open)	V_{EBO}	-5	V
Collector current	I_C	-20	mA
Peak collector current	I_{CP}	-50	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$



Marking Symbol: AR

■ 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}	$I_C = -10 \mu\text{A}$, $I_E = 0$	-120			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = -1 \text{ mA}$, $I_B = 0$	-120			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = -10 \mu\text{A}$, $I_C = 0$	-5			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = -50 \text{ V}$, $I_E = 0$			-100	nA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = -50 \text{ V}$, $I_B = 0$			-1	μA
Forward current transfer ratio *	h_{FE}	$V_{CE} = -5 \text{ V}$, $I_C = -2 \text{ mA}$	180		700	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -20 \text{ mA}$, $I_B = -2 \text{ mA}$			-0.6	V
Transition frequency	f_T	$V_{CB} = -5 \text{ V}$, $I_E = 2 \text{ mA}$, $f = 200 \text{ MHz}$		200		MHz
Noise voltage	NV	$V_{CE} = -40 \text{ V}$, $I_C = -1 \text{ mA}$, $G_V = 80 \text{ dB}$ $R_g = 100 \text{ k}\Omega$, Function = FLAT			130	mV

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

2. *: Rank classification

Rank	R	S	T
h_{FE}	180 to 360	260 to 520	360 to 700

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