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# 2SD1820

## Silicon NPN epitaxial planar type

For general amplification  
Complementary to 2SB1219

### ■ Features

- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- S-Mini type package, allowing downsizing 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)	$V_{CBO}$	30	V
Collector-emitter voltage (Base open)	$V_{CEO}$	25	V
Emitter-base voltage (Collector open)	$V_{EBO}$	5	V
Collector current	$I_C$	500	mA
Peak collector current	$I_{CP}$	1	A
Collector power dissipation	$P_C$	150	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

### ■ Package

- Code  
SMini3-G1
- Pin Name
  1. Base
  2. Emitter
  3. Collector

### ■ Marking Symbol: W

### ■ 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)	$V_{CBO}$	$I_C = 10 \mu\text{A}, I_E = 0$	30			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = 2 \text{ mA}, I_B = 0$	25			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)	$I_{CBO}$	$V_{CB} = 20 \text{ V}, I_E = 0$			0.1	$\mu\text{A}$
Forward current transfer ratio *1	$h_{FE1}$ *2	$V_{CE} = 10 \text{ V}, I_C = 150 \text{ mA}$	85		340	—
	$h_{FE2}$	$V_{CE} = 10 \text{ V}, I_C = 500 \text{ mA}$	40			
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_C = 300 \text{ mA}, I_B = 30 \text{ mA}$		0.35	0.60	V
Transition frequency	$f_T$	$V_{CB} = 10 \text{ V}, I_E = -50 \text{ mA}, f = 200 \text{ MHz}$		200		MHz
Collector output capacitance (Common base, input open circuited)	$C_{ob}$	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		6	15	pF

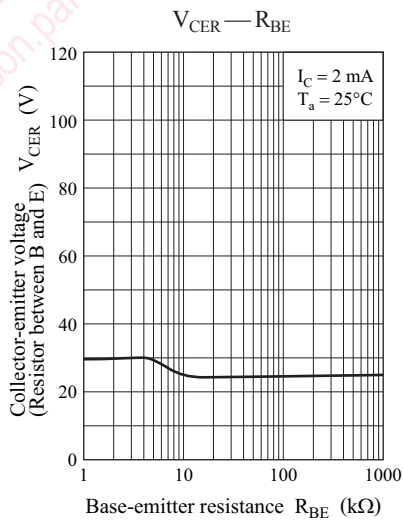
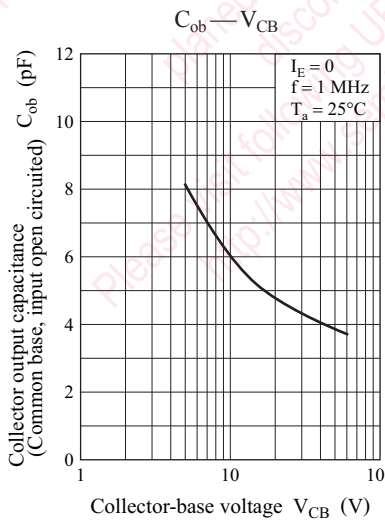
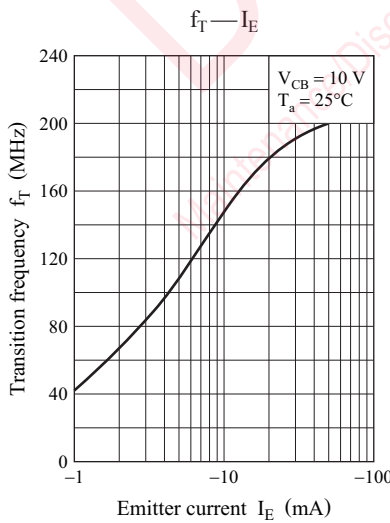
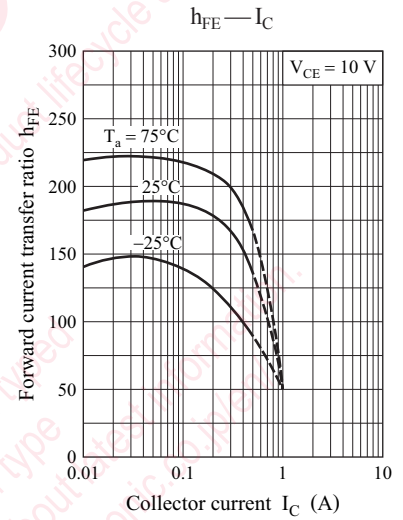
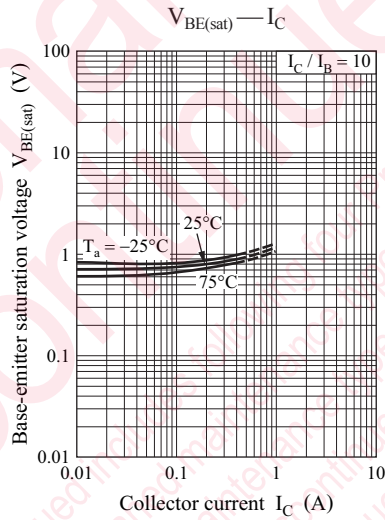
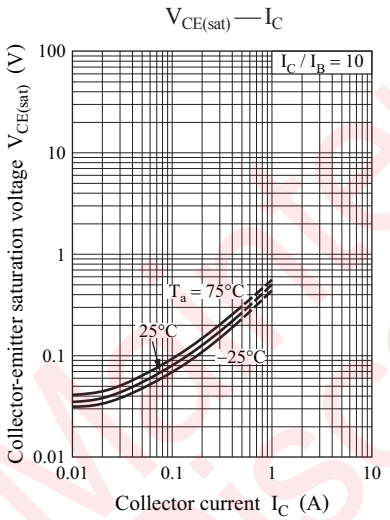
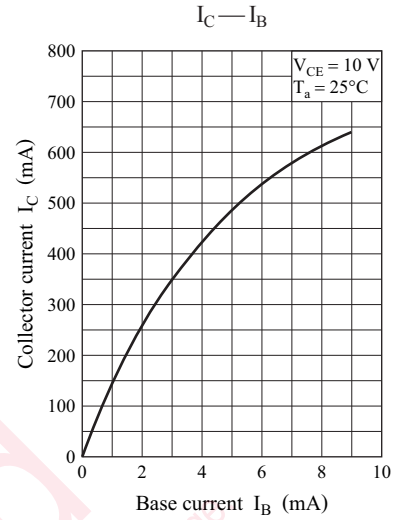
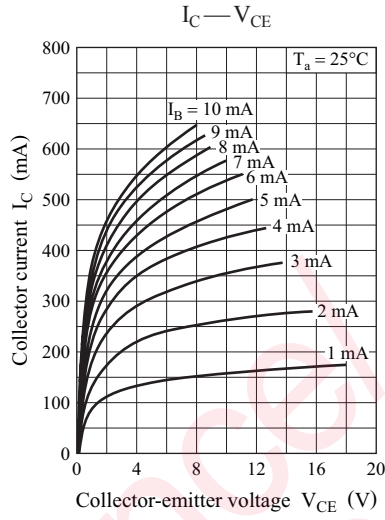
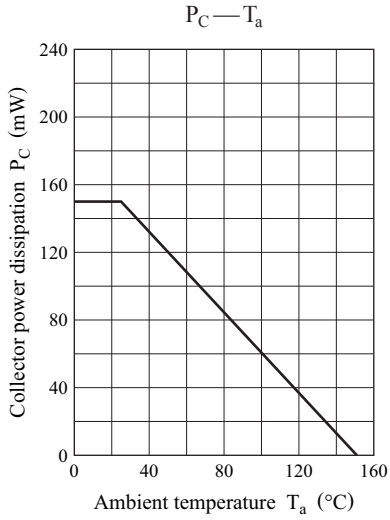
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*1: Pulse measurement

\*2: Rank classification

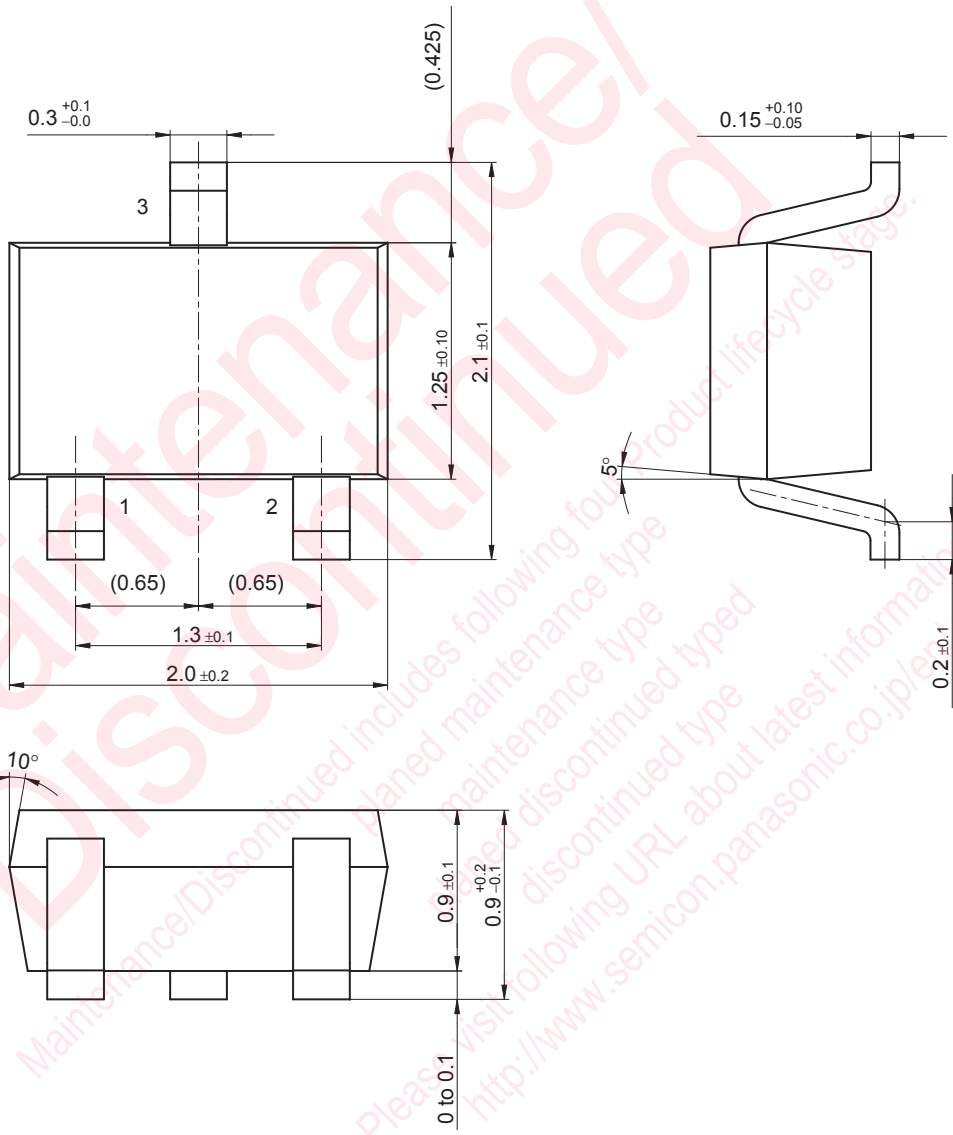
Rank	Q	R	S	No-rank
$h_{FE1}$	85 to 170	120 to 240	170 to 340	85 to 340
Marking symbol	WQ	WR	WS	—

Product of no-rank is not classified and have no marking symbol for rank.



SMini3-G1

Unit: mm



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