# DSC5002

### Silicon NPN epitaxial planar type

For general amplification Complementary to DSA5002 DSC2002 in SMini3 type package

#### Features

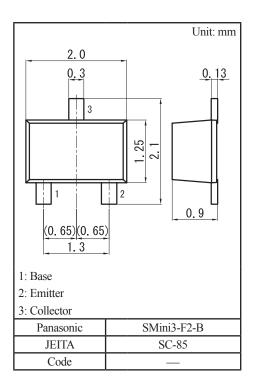
- $\bullet$  High forward current transfer ratio  $h_{\text{FE}}$  with excellent linearity
- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- Halogen-free / RoHS compliant (EU RoHS / UL-94 V-0 / MSL: Level 1 compliant)
- Marking Symbol: C2

#### Packaging

DSC5002×0L Embossed type (Thermo-compression sealing): 3 000 pcs / reel (standard)

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V <sub>CBO</sub>	60	V
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	50	V
Emitter-base voltage (Collector open)	V <sub>EBO</sub>	5	V
Collector current	I <sub>C</sub>	500	mA
Peak collector current	I <sub>CP</sub>	1	А
Collector power dissipation	P <sub>C</sub>	150	mW
Junction temperature	Tj	150	°C
Operating ambient temperature	T <sub>opr</sub>	-40 to +85	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

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



#### 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>	$I_{\rm C} = 10 \ \mu {\rm A}, I_{\rm E} = 0$	60			V
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	$I_{\rm C} = 2  {\rm mA},  I_{\rm B} = 0$	50			V
Emitter-base voltage (Collector open)	V <sub>EBO</sub>	$I_{\rm E} = 10 \ \mu {\rm A}, \ I_{\rm C} = 0$	5			V
Collector-base cutoff current (Emitter open)	I <sub>CBO</sub>	$V_{CB} = 20 \text{ V}, I_E = 0$			0.1	μΑ
Forward current transfer ratio *1	h <sub>FE1</sub> *2	$V_{CE} = 10 \text{ V}, I_C = 150 \text{ mA}$	120		340	
Forward current transfer ratio	h <sub>FE2</sub>	$V_{CE} = 10 \text{ V}, I_C = 500 \text{ mA}$	40			
Collector-emitter saturation voltage *1	V <sub>CE(sat)</sub>	$I_{\rm C} = 300 \text{ mA}, I_{\rm B} = 30 \text{ mA}$		0.1	0.6	V
Transition frequency	$f_{T}$	$V_{CE} = 10 \text{ V}, I_C = 50 \text{ mA}$		160		MHz
Collector output capacitance (Common base, input open circuited)	C <sub>ob</sub>	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		4.8	15	pF

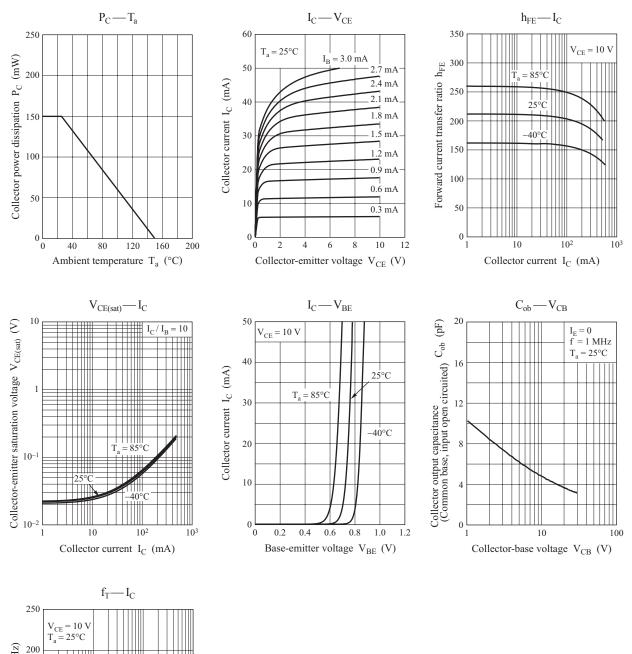
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

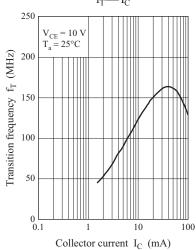
2. \*1: Pulse measurement

*2: Rank classificati	on
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Code	R	S	0 No-rank	
Rank	R	S		
$h_{FE1}$	120 to 240	170 to 340	120 to 340	
Marking Symbol	C2R	C2S	C2	

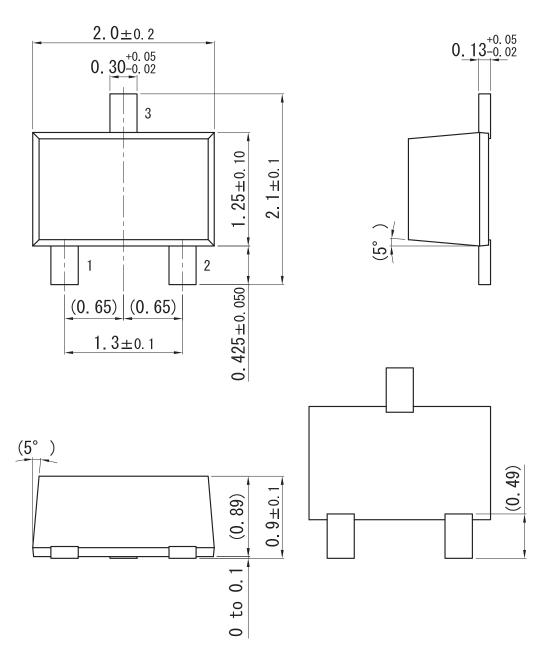
Product of no-rank is not classified and have no marking symbol for rank.



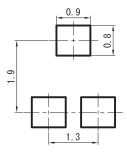


Unit: mm

SMini3-F2-B



Land Pattern (Reference) (Unit: mm)



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