# DSC2P01

## Silicon NPN epitaxial planar type

For low frequency amplification
Darlington connection

### ■ Features

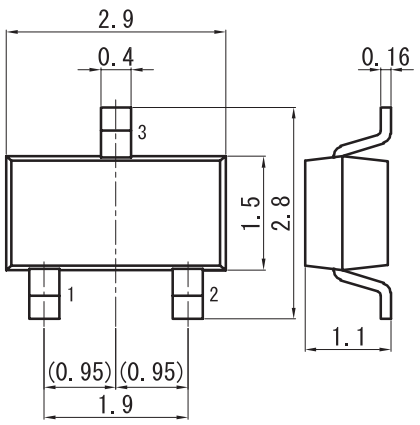
- High forward current transfer ratio $h_{FE}$ with excellent linearity
- Halogen-free / RoHS compliant
  (EU RoHS / UL-94 V-0 / MSL: Level 1 compliant)

### ■ Marking Symbol: E5

### ■ Packaging

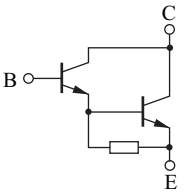
DSC2P01×0L Embossed type (Thermo-compression sealing): 3 000 pcs / reel (standard)

Unit: mm




1: Base
2: Emitter
3: Collector

| | |
|---|---|
| Panasonic | Mini3-G3-B-B |
| JEITA | SC-59A |
| Code | TO-236AA/SOT-23 |




### ■ Absolute Maximum Ratings $T_a = 25°C$

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | 60 | V |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | 50 | V |
| Emitter-base voltage (Collector open) | $V_{EBO}$ | 5 | V |
| Collector current | $I_C$ | 500 | mA |
| Peak collector current | $I_{CP}$ | 750 | mA |
| Total power dissipation | $P_T$ | 200 | mW |
| Junction temperature | $T_j$ | 150 | °C |
| Operating ambient temperature | $T_{opr}$ | –40 to +85 | °C |
| Storage temperature | $T_{stg}$ | –55 to +150 | °C |

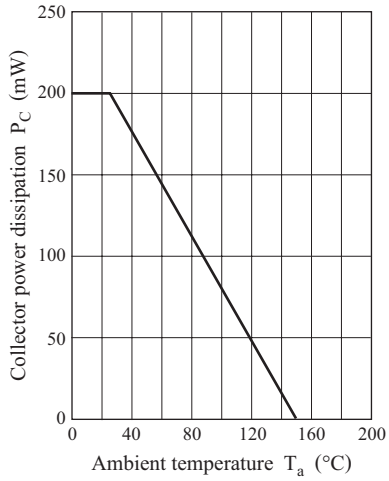
### ■ Electrical Characteristics $T_a = 25°C \pm 3°C$

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | $I_C$ = 100 μA, $I_E$ = 0 | 60 | | | V |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | $I_C$ = 1 mA, $I_B$ = 0 | 50 | | | V |
| Emitter-base voltage (Collector open) | $V_{EBO}$ | $I_E$ = 100 μA, $I_C$ = 0 | 5 | | | V |
| Collector-base cutoff current (Emitter open) | $I_{CBO}$ | $V_{CB}$ = 25 V, $I_E$ = 0 | | | 100 | nA |
| Emitter-base cutoff current (Collector open) | $I_{EBO}$ | $V_{EB}$ = 4 V, $I_C$ = 0 | | | 100 | nA |
| Forward current transfer ratio *1, 2 | $h_{FE}$ | $V_{CE}$ = 10 V, $I_C$ = 500 mA | 4 000 | | 20 000 | — |
| Collector-emitter saturation voltage *1 | $V_{CE(sat)}$ | $I_C$ = 500 mA, $I_B$ = 0.5 mA | | | 2.5 | V |
| Base-emitter saturation voltage *1 | $V_{BE(sat)}$ | $I_C$ = 500 mA, $I_B$ = 0.5 mA | | | 3.0 | V |

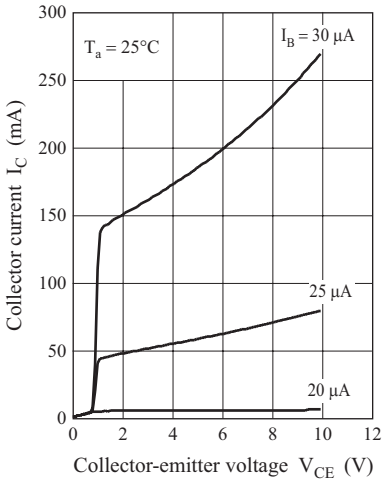
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. *1: Pulse measurement
*2: Rank classification

| Code | Q | R |
|---|---|---|
| Rank | Q | R |
| $h_{FE}$ | 4 000 to 10 000 | 8 000 to 20 000 |
| Marking Symbol | E5Q | E5R |

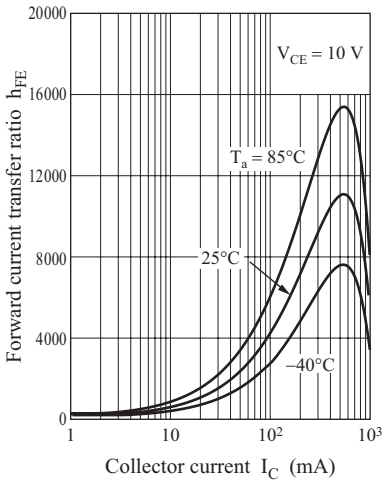
$P_C$ — $T_a$



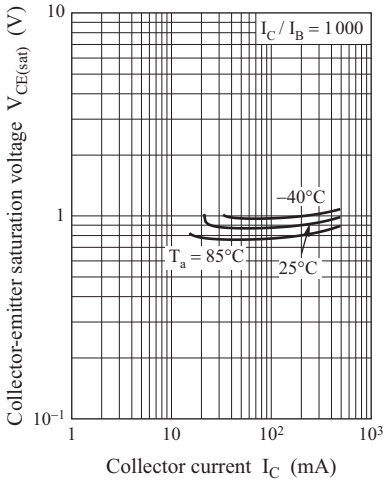

$I_C$ — $V_{CE}$



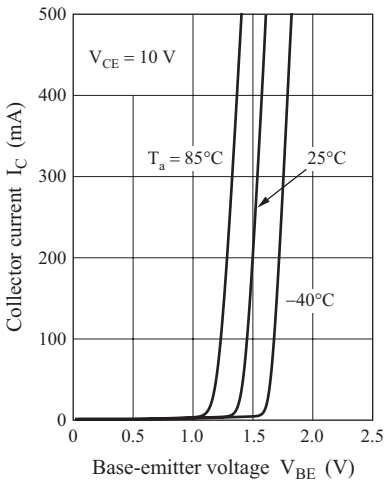

$h_{FE}$ — $I_C$



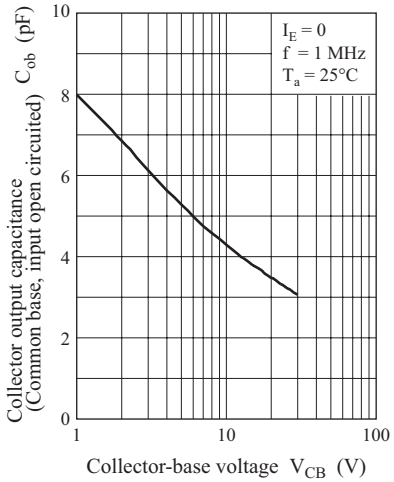

$V_{CE(sat)}$ — $I_C$



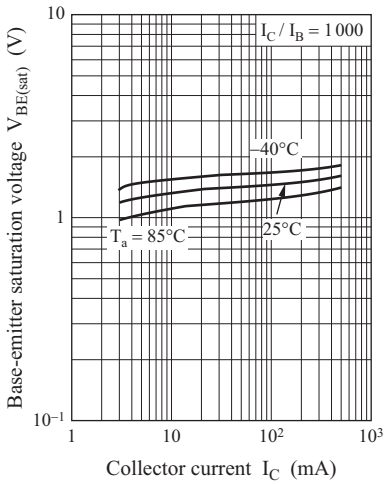

$I_C$ — $V_{BE}$




$C_{ob}$ — $V_{CB}$

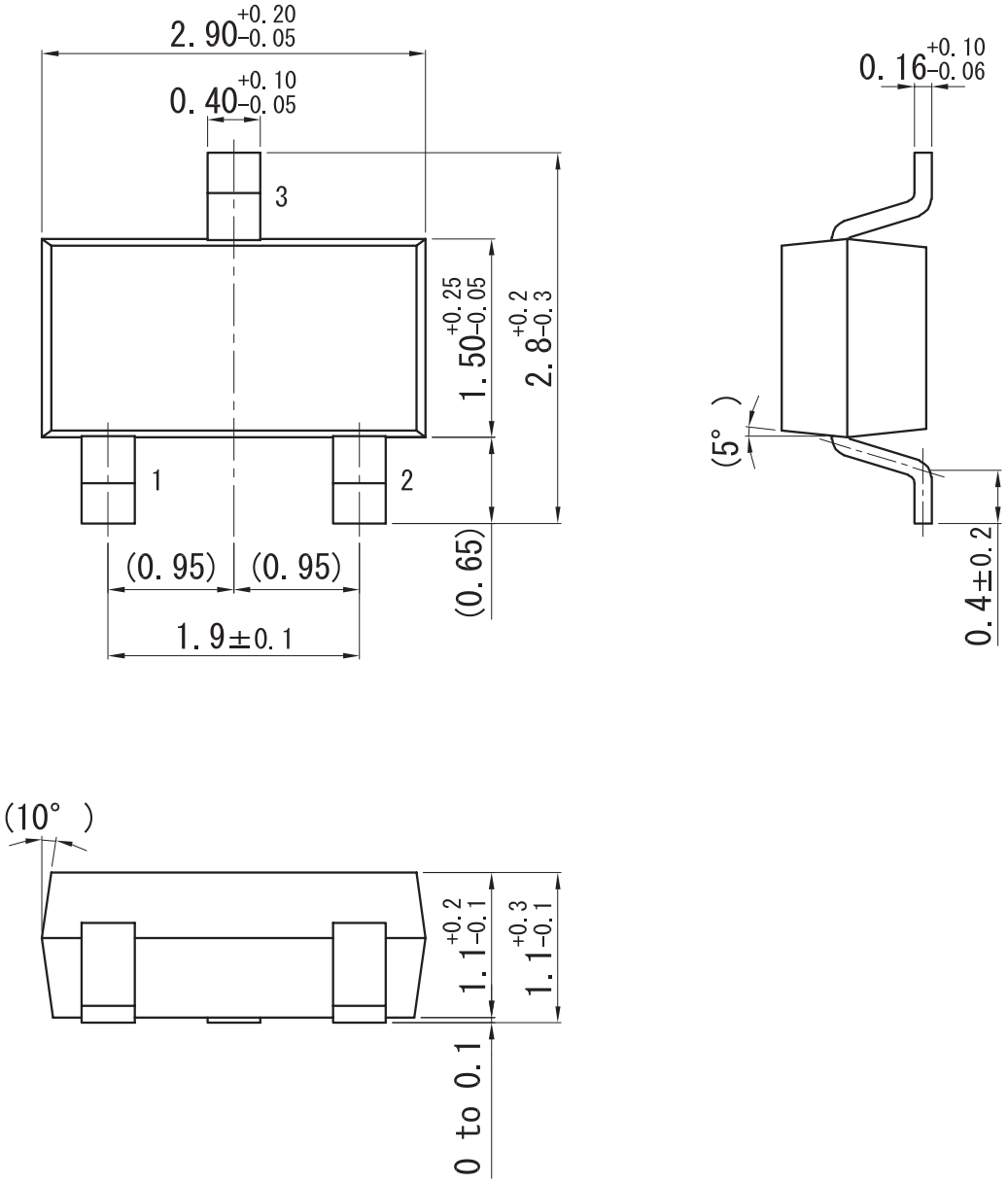



$V_{BE(sat)}$ — $I_C$

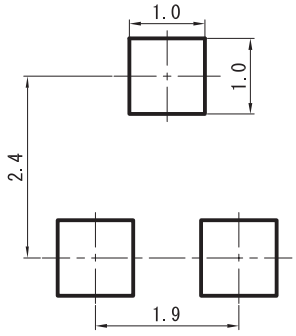


## Mini3-G3-B-B

Unit: mm




■ Land Pattern (Reference) (Unit: mm)



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