

# DME50B01

Silicon PNP epitaxial planar type (Tr1)  
Silicon NPN epitaxial planar type (Tr2)

For general amplification

DME20B01 in SMini5 type package

## ■ Features

- High forward current transfer ratio  $h_{FE}$  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: A3

## ■ Basic Part Number

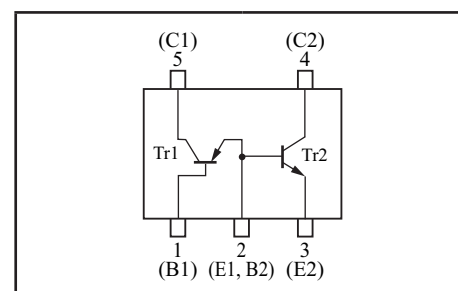
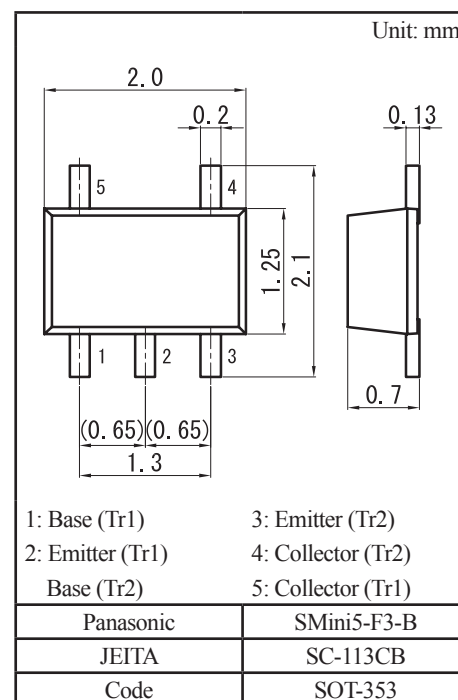
DSA2001 + DSC2001 (Emitterr-base connection)

## ■ Packaging

DME50B010R Embossed type (Thermo-compression sealing): 3 000 pcs / reel (standard)

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

|         | Parameter                             | Symbol    | Rating      | Unit             |
|---------|---------------------------------------|-----------|-------------|------------------|
| Tr1     | Collector-base voltage (Emitter open) | $V_{CBO}$ | -60         | V                |
|         | Collector-emitter voltage (Base open) | $V_{CEO}$ | -50         | V                |
|         | Emitter-base voltage (Collector open) | $V_{EBO}$ | -7          | V                |
|         | Collector current                     | $I_C$     | -100        | mA               |
|         | Peak collector current                | $I_{CP}$  | -200        | mA               |
| Tr2     | Collector-base voltage (Emitter open) | $V_{CBO}$ | 60          | V                |
|         | Collector-emitter voltage (Base open) | $V_{CEO}$ | 50          | V                |
|         | Emitter-base voltage (Collector open) | $V_{EBO}$ | 7           | V                |
|         | Collector current                     | $I_C$     | 100         | mA               |
|         | Peak collector current                | $I_{CP}$  | 200         | mA               |
| Overall | Total power dissipation               | $P_T$     | 150         | mW               |
|         | Junction temperature                  | $T_j$     | 150         | $^\circ\text{C}$ |
|         | Operating ambient temperature         | $T_{opr}$ | -40 to +85  | $^\circ\text{C}$ |
|         | Storage temperature                   | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |



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

• Tr1

| Parameter   | Symbol               | Conditions   | Min | Typ  | Max  | Unit          |
|---|----------------------|--|-----|------|------|---------------|
| Collector-base voltage (Emitter open)                               | $V_{\text{CBO}}$     | $I_{\text{C}} = -10\ \mu\text{A}, I_{\text{E}} = 0$                  | -60 |      |      | V             |
| Collector-emitter voltage (Base open)                               | $V_{\text{CEO}}$     | $I_{\text{C}} = -2\ \text{mA}, I_{\text{B}} = 0$                     | -50 |      |      | V             |
| Emitter-base voltage (Collector open)                               | $V_{\text{EBO}}$     | $I_{\text{E}} = -10\ \mu\text{A}, I_{\text{C}} = 0$                  | -7  |      |      | V             |
| Collector-base cutoff current (Emitter open)                        | $I_{\text{CBO}}$     | $V_{\text{CB}} = -20\ \text{V}, I_{\text{E}} = 0$                    |     |      | -0.1 | $\mu\text{A}$ |
| Collector-emitter cutoff current (Base open)                        | $I_{\text{CEO}}$     | $V_{\text{CE}} = -10\ \text{V}, I_{\text{B}} = 0$                    |     |      | -100 | $\mu\text{A}$ |
| Forward current transfer ratio                                      | $h_{\text{FE}}$      | $V_{\text{CE}} = -10\ \text{V}, I_{\text{C}} = -2\ \text{mA}$        | 210 |      | 460  | —             |
| Collector-emitter saturation voltage                                | $V_{\text{CE(sat)}}$ | $I_{\text{C}} = -100\ \text{mA}, I_{\text{B}} = -10\ \text{mA}$      |     | -0.2 | -0.5 | V             |
| Transition frequency  | $f_{\text{T}}$       | $V_{\text{CE}} = -10\ \text{V}, I_{\text{C}} = -2\ \text{mA}$        |     | 150  |      | MHz           |
| Collector output capacitance<br>(Common base, input open circuited) | $C_{\text{ob}}$      | $V_{\text{CB}} = -10\ \text{V}, I_{\text{E}} = 0, f = 1\ \text{MHz}$ |     | 2    |      | pF            |

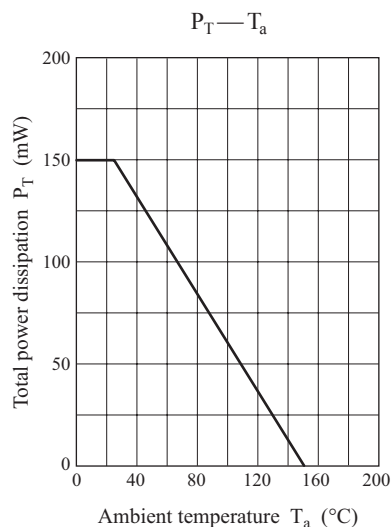
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

• Tr2

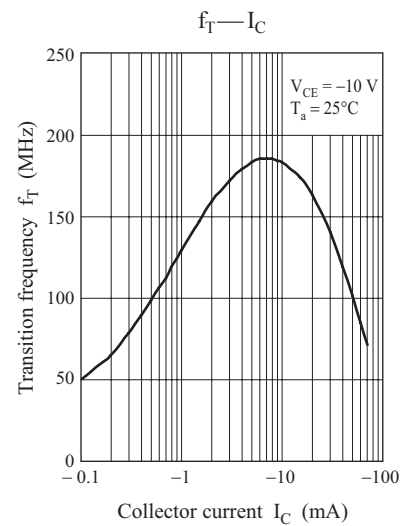
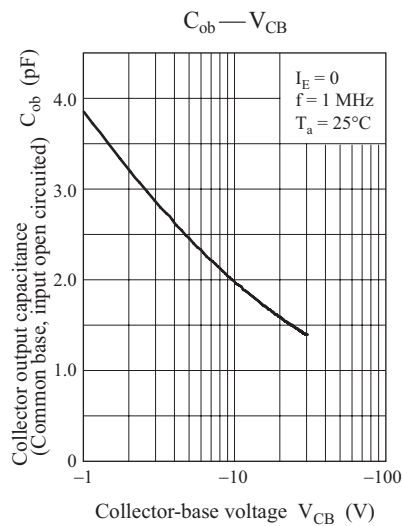
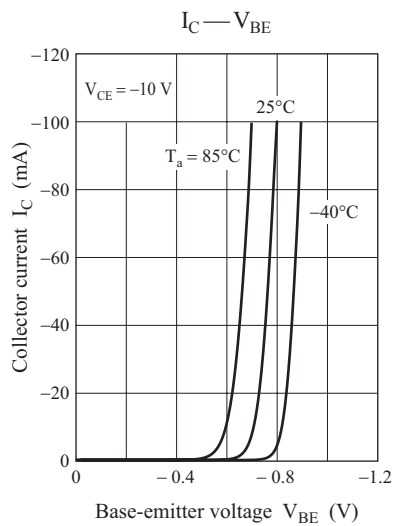
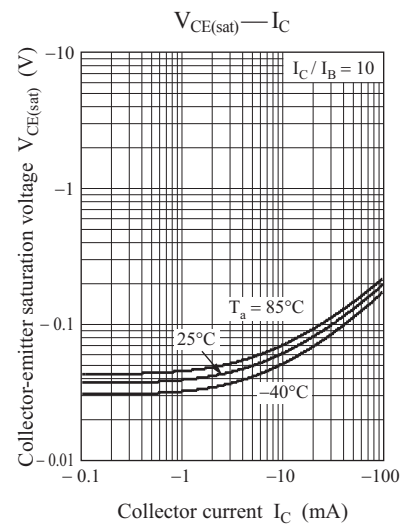
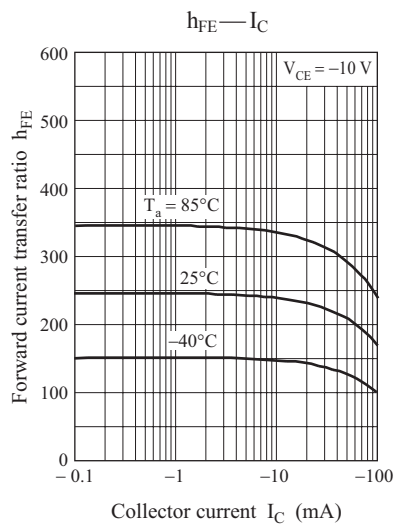
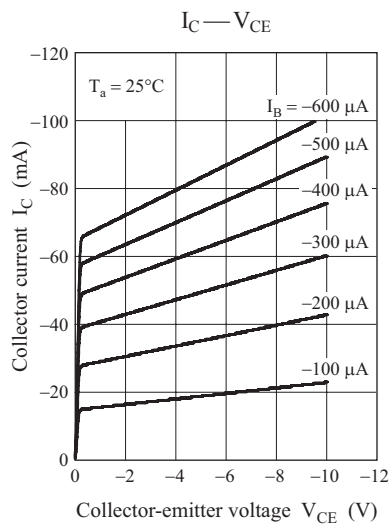
| Parameter   | Symbol               | Conditions  | Min | Typ  | Max | Unit          |
|---|----------------------|---|-----|------|-----|---------------|
| Collector-base voltage (Emitter open)                               | $V_{\text{CBO}}$     | $I_{\text{C}} = 10\ \mu\text{A}, I_{\text{E}} = 0$                  | 60  |      |     | V             |
| Collector-emitter voltage (Base open)                               | $V_{\text{CEO}}$     | $I_{\text{C}} = 2\ \text{mA}, I_{\text{B}} = 0$                     | 50  |      |     | V             |
| Emitter-base voltage (Collector open)                               | $V_{\text{EBO}}$     | $I_{\text{E}} = 10\ \mu\text{A}, I_{\text{C}} = 0$                  | 7   |      |     | V             |
| Collector-base cutoff current (Emitter open)                        | $I_{\text{CBO}}$     | $V_{\text{CB}} = 20\ \text{V}, I_{\text{E}} = 0$                    |     |      | 0.1 | $\mu\text{A}$ |
| Collector-emitter cutoff current (Base open)                        | $I_{\text{CEO}}$     | $V_{\text{CE}} = 10\ \text{V}, I_{\text{B}} = 0$                    |     |      | 100 | $\mu\text{A}$ |
| Forward current transfer ratio                                      | $h_{\text{FE}}$      | $V_{\text{CE}} = 10\ \text{V}, I_{\text{C}} = 2\ \text{mA}$         | 210 |      | 460 | —             |
| Collector-emitter saturation voltage                                | $V_{\text{CE(sat)}}$ | $I_{\text{C}} = 100\ \text{mA}, I_{\text{B}} = 10\ \text{mA}$       |     | 0.13 | 0.3 | V             |
| Transition frequency  | $f_{\text{T}}$       | $V_{\text{CE}} = 10\ \text{V}, I_{\text{C}} = 2\ \text{mA}$         |     | 150  |     | MHz           |
| Collector output capacitance<br>(Common base, input open circuited) | $C_{\text{ob}}$      | $V_{\text{CB}} = 10\ \text{V}, I_{\text{E}} = 0, f = 1\ \text{MHz}$ |     | 1.5  |     | pF            |

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

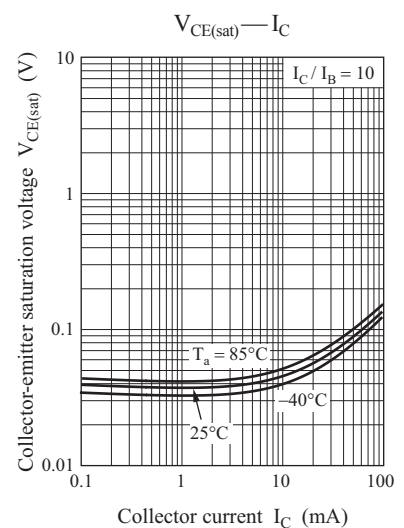
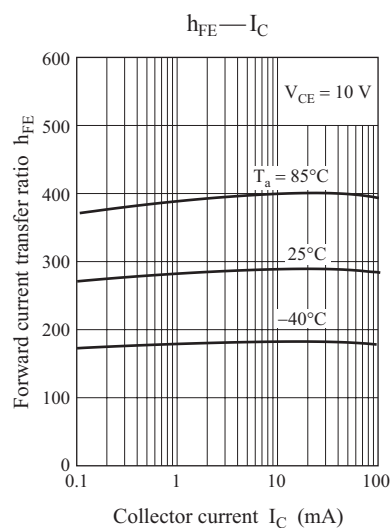
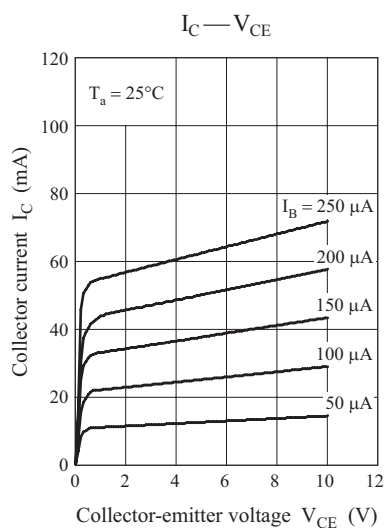
Common characteristics chart

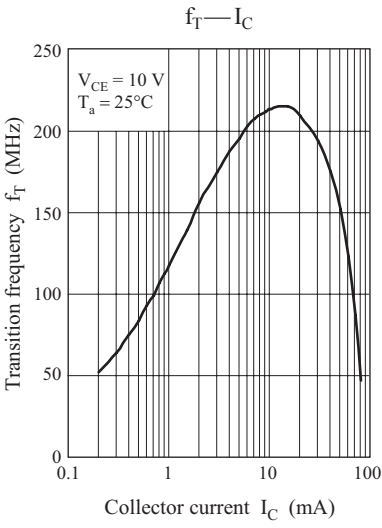
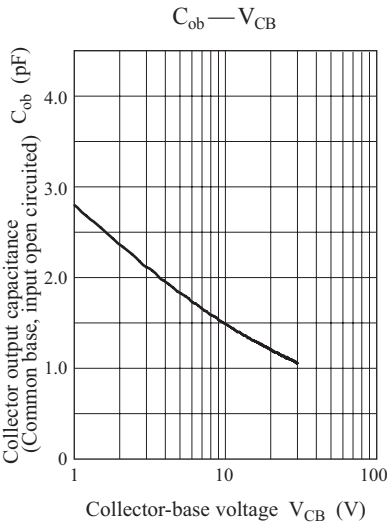
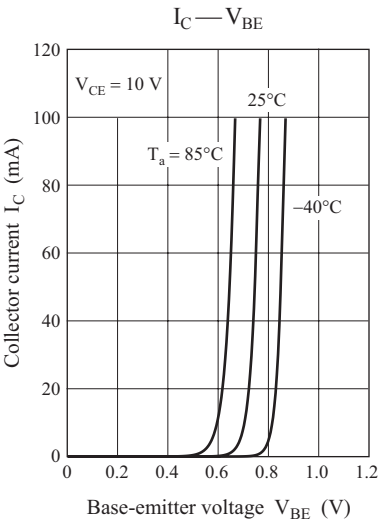


Characteristics charts of Tr1



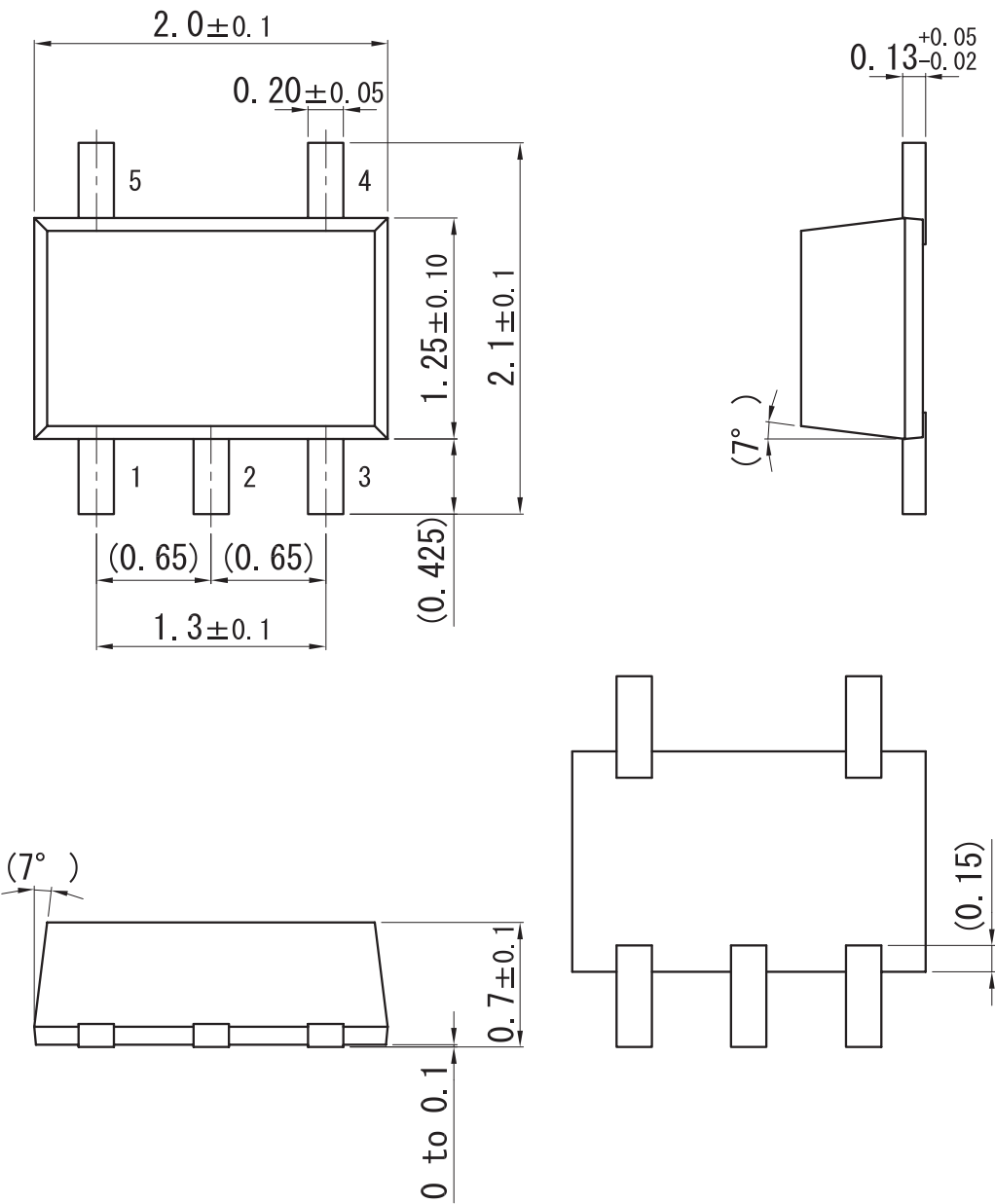
Characteristics charts of Tr2



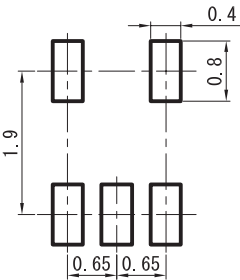


SMini5-F3-B

Unit: mm



■ Land Pattern (Reference) (Unit: mm)



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