

**Description**

- Extremely low collector-to-emitter saturation voltage  
( $V_{CE(SAT)} = -0.2V$  Typ. @  $I_C/I_B = -3A/-150mA$ )
- Suitable for low voltage large current drivers
- Excellent  $h_{FE}$  Linearity
- Complementary pair with DN500F

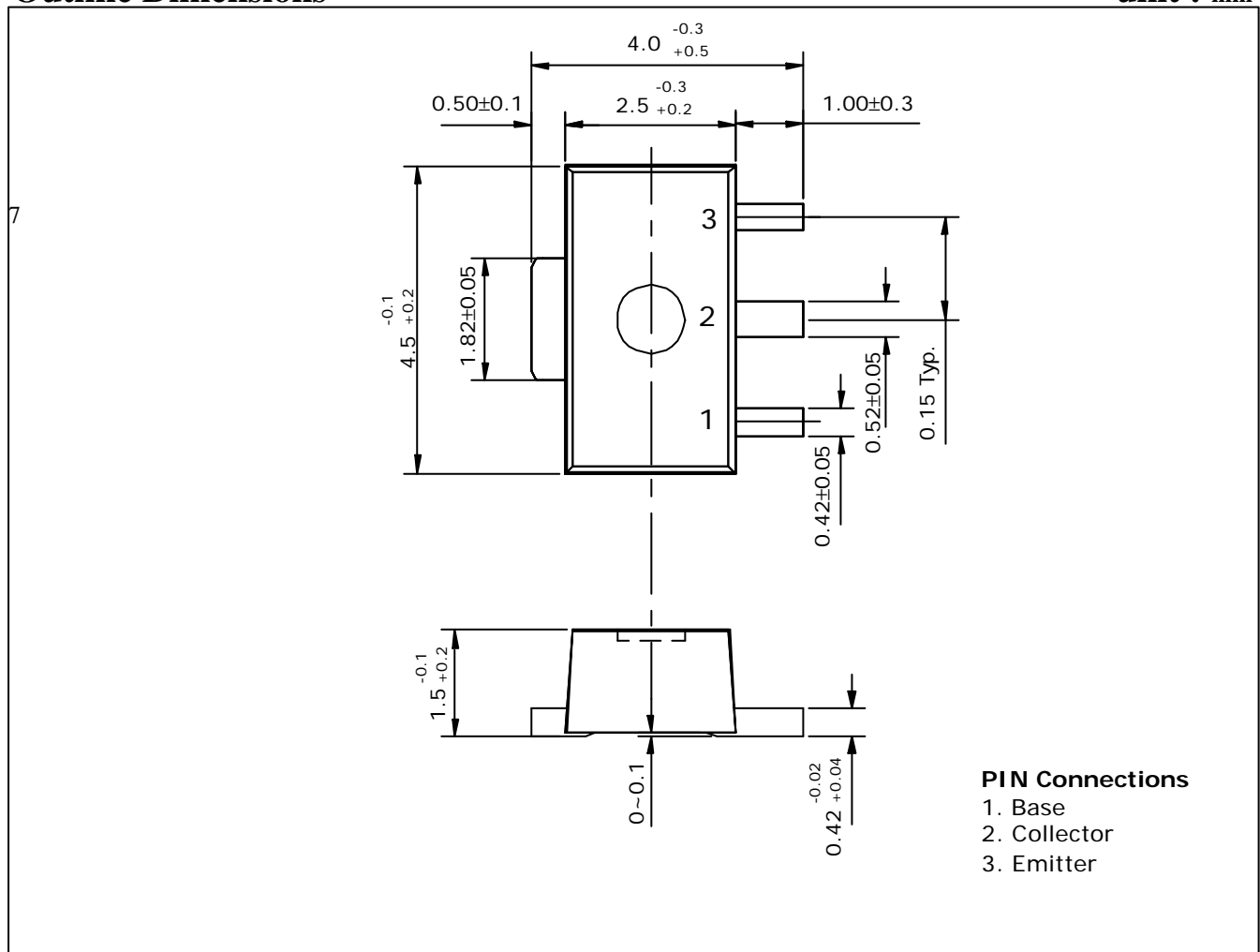
**Ordering Information**

| Type NO. | Marking | Package Code |
|----------|---------|--------------|
| DP500F   | P5□□    | SOT-89       |

□□ :  $h_{FE}$  rank, monthly code

**Outline Dimensions**

unit : mm



## Absolute maximum ratings

(Ta=25° C)

| Characteristic            | Symbol    | Ratings   | Unit |
|---------------------------|-----------|-----------|------|
| Collector-Base voltage    | $V_{CBO}$ | -15       | V    |
| Collector-Emitter voltage | $V_{CEO}$ | -12       | V    |
| Emitter-Base voltage      | $V_{EBO}$ | -5        | V    |
| Collector current         | $I_C$     | -5        | A    |
| Collector dissipation     | $P_C$     | 0.5       | W    |
|                           | $P_C^*$   | 2         |      |
| Junction temperature      | $T_J$     | 150       | °C   |
| Storage temperature       | $T_{stg}$ | -55 ~ 150 | °C   |

\* : When mounted on 40×40×0.8mm ceramic substate

## Electrical Characteristics

(Ta=25° C)

| Characteristic                      | Symbol        | Test Condition                     | Min. | Typ. | Max. | Unit    |
|-------------------------------------|---------------|------------------------------------|------|------|------|---------|
| Collector-Base breakdown voltage    | $BV_{CBO}$    | $I_C = -50\mu A, I_E = 0$          | -15  | -    | -    | V       |
| Collector-Emitter breakdown voltage | $BV_{CEO}$    | $I_C = -1mA, I_B = 0$              | -12  | -    | -    | V       |
| Emitter-Base breakdown voltage      | $BV_{EBO}$    | $I_E = -50\mu A, I_C = 0$          | -5   | -    | -    | V       |
| Collector cut-off current           | $I_{CBO}$     | $V_{CB} = -12V, I_E = 0$           | -    | -    | -1   | $\mu A$ |
| Emitter cut-off current             | $I_{EBO}$     | $V_{EB} = -5V, I_C = 0$            | -    | -    | -1   | $\mu A$ |
| DC current gain                     | $h_{FE1}^*$   | $V_{CE} = -1V, I_C = -100mA$       | 120  | -    | 700  | -       |
|                                     | $h_{FE2}$     | $V_{CE} = -1V, I_C = -3A$          | 40   | -    | -    | -       |
| Collector-Emitter on voltage        | $V_{CE(sat)}$ | $I_C = -3A, I_B = -150mA$          | -    | -    | -0.3 | V       |
| Base-Emitter on voltage             | $V_{BE(sat)}$ | $I_C = -3A, I_B = -150mA$          | -    | -    | -1.2 | V       |
| Transition frequency                | $f_T$         | $V_{CB} = -5V, I_C = -500mA$       | -    | 150  | -    | MHz     |
| Collector output capacitance        | $C_{ob}$      | $V_{CB} = -10V, I_E = 0, f = 1MHz$ | -    | -    | 50   | pF      |

\* :  $h_{FE}$  rank / O : 120 ~ 240, Y : 200 ~ 400, G : 350 ~ 700

Electrical Characteristic Curves

Fig. 1  $P_c - T_a$

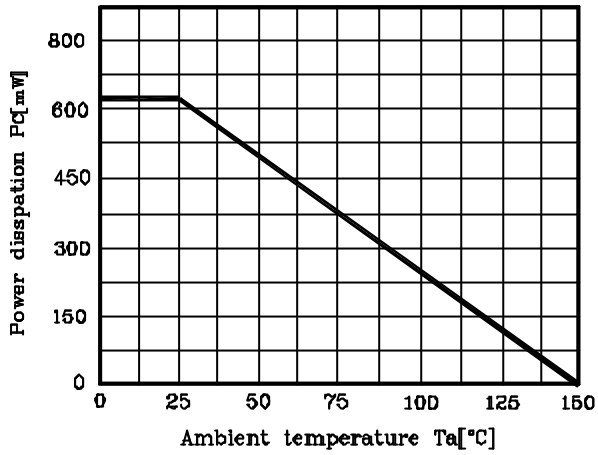


Fig. 2  $I_c - V_{BE}$

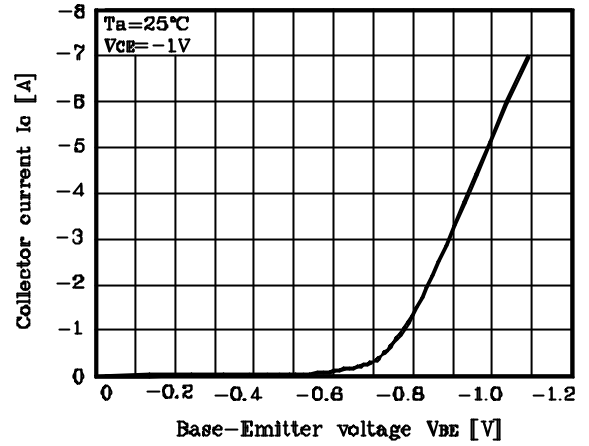


Fig. 3  $h_{FE} - I_c$

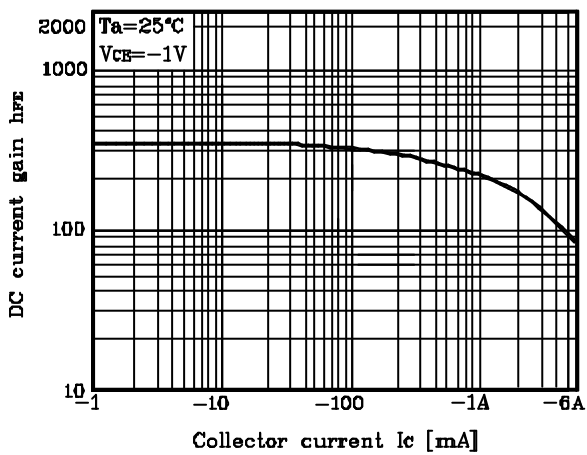
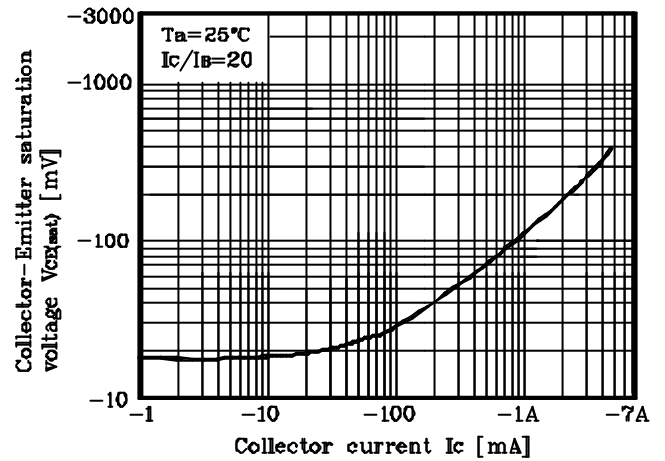


Fig. 4  $V_{CE(sat)} - I_c$





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