

Low $V_{CE(sat)}$ Transistor (-20V, -3A)

2SB1424 / 2SA1585S

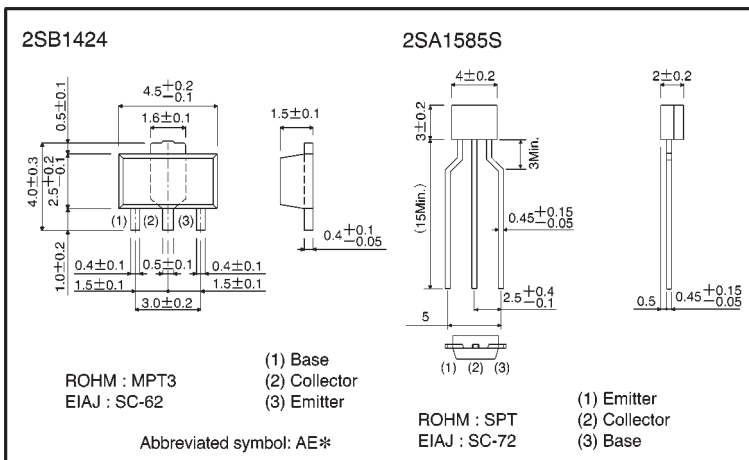
●Features

- 1) Low $V_{CE(sat)}$.
 $V_{CE(sat)} = -0.2V$ (Typ.)
 $(I_c/I_b = -2A / -0.1A)$
- 2) Excellent DC current gain characteristics.
- 3) Complements the 2SD2150 / 2SC4115S.

●Structure

Epitaxial planar type
 PNP silicon transistor

●External dimensions (Units: mm)



* Denotes hFE

●Absolute maximum ratings (Ta = 25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|-----------|----------|-------------|
| Collector-base voltage | V_{CBO} | -20 | V |
| Collector-emitter voltage | V_{CEO} | -20 | V |
| Emitter-base voltage | V_{EBO} | -6 | V |
| Collector current | 2SB1424 | -3 | A |
| | 2SA1585S | -2 | |
| | I_{CP} | -5 | A (Pulse) * |
| Collector power dissipation | 2SB1424 | 0.6 | W |
| | 2SA1585S | 0.4 | |
| Junction temperature | T_j | 150 | °C |
| Storage temperature | T_{stg} | -55~+150 | °C |

* Single pulse $P_w=10ms$

●Electrical characteristics (Ta = 25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|-----------------------|------|------|------|------|--|
| Collector-base breakdown voltage | BV _{CB0} | -20 | — | — | V | I _c =-50 μA |
| Collector-emitter breakdown voltage | BV _{CEO} | -20 | — | — | V | I _c =-1mA |
| Emitter-base breakdown voltage | BV _{EB0} | -6 | — | — | V | I _E =-50 μA |
| Collector cutoff current | I _{CB0} | — | — | -0.1 | μA | V _{CB} =-20V |
| Emitter cutoff current | I _{EB0} | — | — | -0.1 | μA | V _{EB} =-5V |
| Collector-emitter saturation voltage | V _{CE (sat)} | — | — | -0.5 | V | I _c /I _B =-2A/-0.1A |
| DC current transfer ratio | h _{FE} | 120 | — | 390 | — | V _{CE} =-2V, I _c =-0.1A |
| Transition frequency | f _T | — | 240 | — | MHz | V _{CE} =-2V, I _E =0.5A, f=100MHz |
| Output capacitance | C _{ob} | — | 35 | — | pF | V _{CB} =-10V, I _E =0A, f=1MHz |

●Packaging specifications and f_{FE}

| Type | h _{FE} | Package | Taping | |
|----------|-----------------|------------------------------|--------|------|
| | | Code | TP | T100 |
| | | Basic ordering unit (pieces) | 5000 | 1000 |
| 2SA1585S | QR | | ○ | — |
| 2SB1424 | QR | | — | ○ |

h_{FE} values are classified as follows :

| Item | Q | R |
|-----------------|---------|---------|
| h _{FE} | 120~270 | 180~390 |

●Electrical characteristic curves

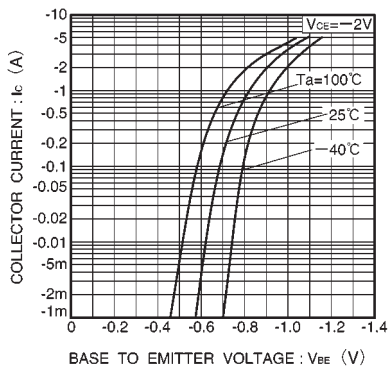


Fig.1 Grounded emitter propagation characteristics

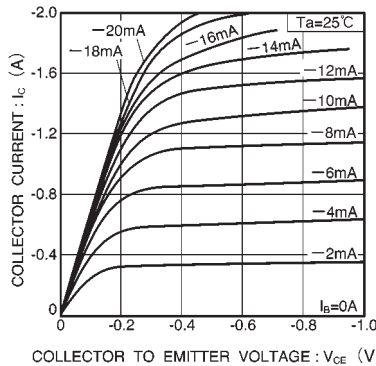


Fig.2 Grounded emitter output characteristics (I)

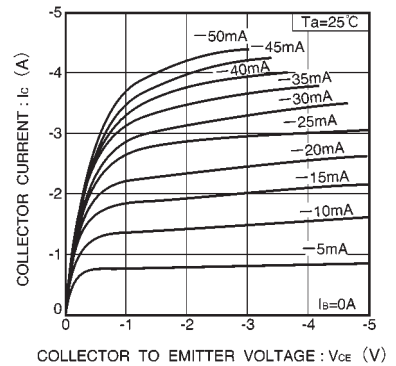


Fig.3 Grounded emitter output characteristics (II)

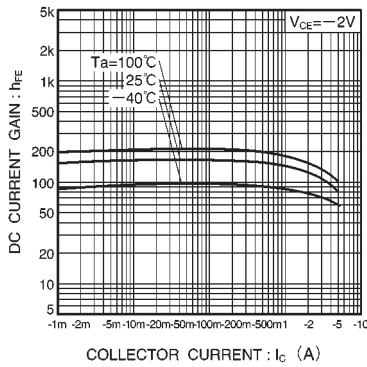


Fig.4 DC current gain vs. collector current

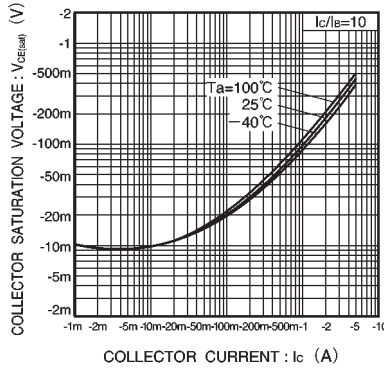


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

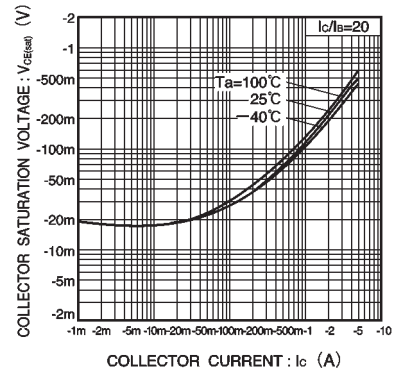


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

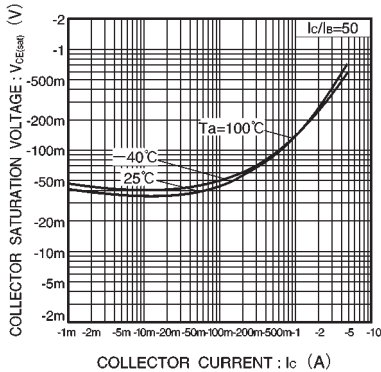


Fig.7 Collector-emitter saturation voltage vs. collector current (III)

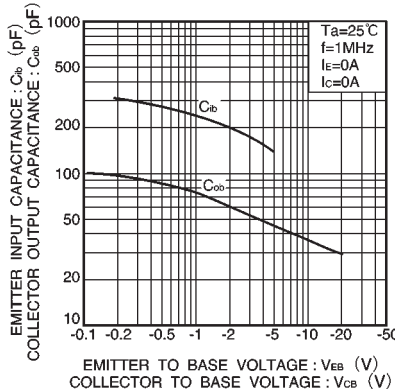


Fig.8 Gain bandwidth product vs. emitter current
Collector output capacitance vs. collector-base voltage

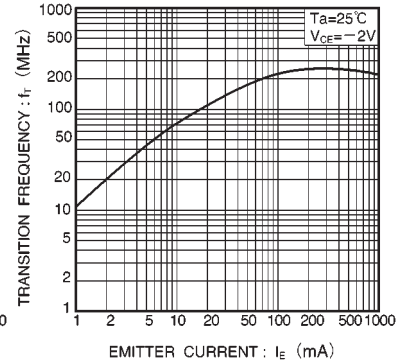


Fig.9 Emitter input capacitance vs. emitter base voltage