# 2SB715, 2SB716, 2SB716A

Silicon PNP Epitaxial

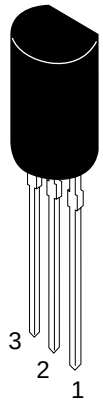
HITACHI

## Application

- Low frequency high voltage amplifier
- Complementary pair with 2SD755, 2SD756 and 2SD756A

## Outline

TO-92MOD




1. Emitter
2. Collector
3. Base

Hitachi semiconductor

## Absolute Maximum Ratings (Ta = 25°C)

| Item | Symbol | 2SB715 | 2SB716 | 2SB716A | Unit |
|---|---|---|---|---|---|
| Collector to base voltage | $V_{CBO}$ | –100 | –120 | –140 | V |
| Collector to emitter voltage | $V_{CEO}$ | –100 | –120 | –140 | V |
| Emitter to base voltage | $V_{EBO}$ | –5 | –5 | –5 | V |
| Collector current | $I_C$ | –50 | –50 | –50 | mA |
| Collector power dissipation | $P_C$ | 750 | 750 | 750 | mW |
| Junction temperature | Tj | 150 | 150 | 150 | °C |
| Storage temperature | Tstg | –55 to +150 | –55 to +150 | –55 to +150 | °C |

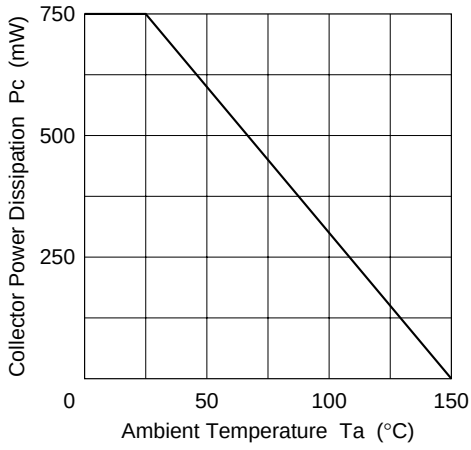
## Electrical Characteristics (Ta = 25°C)

| | | 2SB715 | | | 2SB716 | | | 2SB716A | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Item | Symbol | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | Unit | Test conditions |
| Collector to base breakdown voltage | $V_{(BR)CBO}$ | –100 | — | — | –120 | — | — | –140 | — | — | V | $I_C$ = –10 µA, $I_E$ = 0 |
| Collector to emitter breakdown voltage | $V_{(BR)CEO}$ | –100 | — | — | –120 | — | — | –140 | — | — | V | $I_C$ = –1 mA, $R_{BE}$ = ∞ |
| Collector cutoff current | $I_{CBO}$ | — | — | –0.5 | — | — | — | — | — | — | µA | $V_{CB}$ = –80 V, $I_E$ = 0 |
| | | — | — | — | — | — | –0.5 | — | — | –0.5 | µA | $V_{CB}$ = –100 V, $I_E$ = 0 |
| DC current transfer ratio | $h_{FE1}$*1 | 250 | — | 800 | 250 | — | 800 | 250 | — | 500 | | $V_{CE}$ = –12 V, $I_C$ = –2 mA |
| | $h_{FE2}$ | 125 | — | — | 125 | — | — | 125 | — | — | | $V_{CE}$ = –12 V, $I_C$ = –10 mA |
| Base to emitter voltage | $V_{BE}$ | — | — | –0.75 | — | — | –0.75 | — | — | –0.75 | V | $V_{CE}$ = –12 V, $I_C$ = –2 mA |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | — | — | –0.2 | — | — | –0.2 | — | — | –0.2 | V | $I_C$ = –10 mA, $I_B$ = –1 mA |
| Gain bandwidth product | $f_T$ | — | 150 | — | — | 150 | — | — | 150 | — | MHz | $V_{CE}$ = –12 V, $I_C$ = –5 mA |
| Collector output capacitance | Cob | — | 1.8 | — | — | 1.8 | — | — | 1.8 | — | pF | $V_{CB}$ = –25 V, $I_E$ = 0, f = 1 MHz |

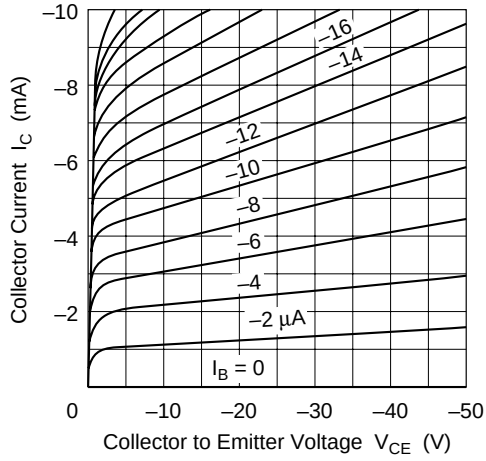
Note: 1. The 2SB715, 2SB716 and 2SB716A are grouped by $h_{FE1}$ as follows.

| | D | E |
|---|---|---|
| 2SB715, 2SB716 | 250 to 500 | 400 to 800 |
| 2SB716A | 250 to 500 | — |

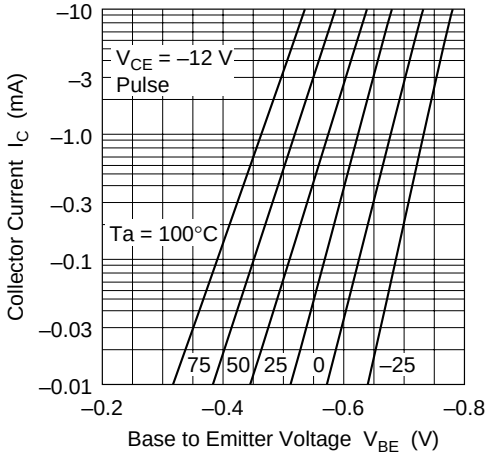
Maximum Collector Dissipation Curve



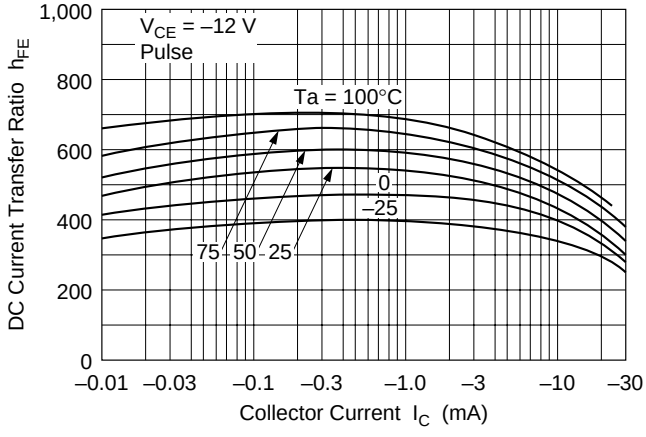

Typical Output Characteristics



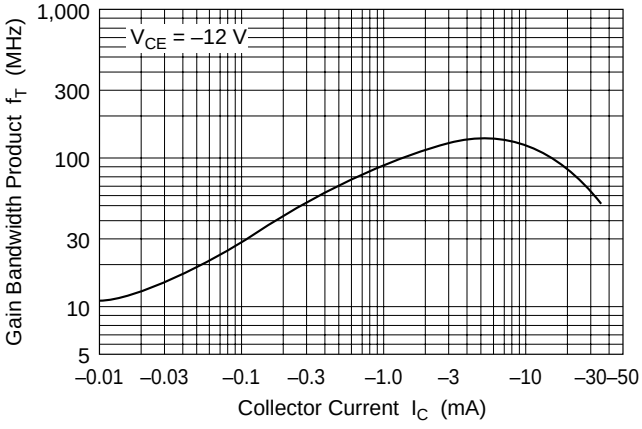

Typical Transfer Characteristics



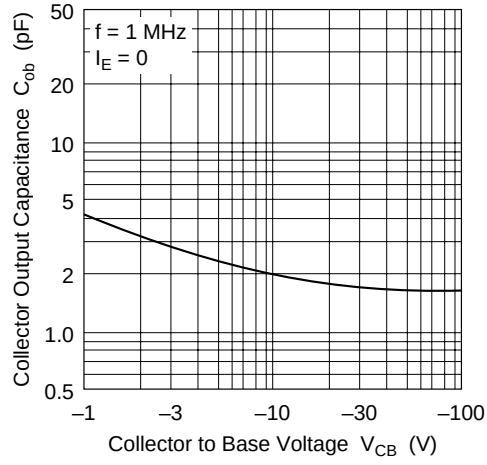

DC Current Transfer Ratio vs. Collector Current



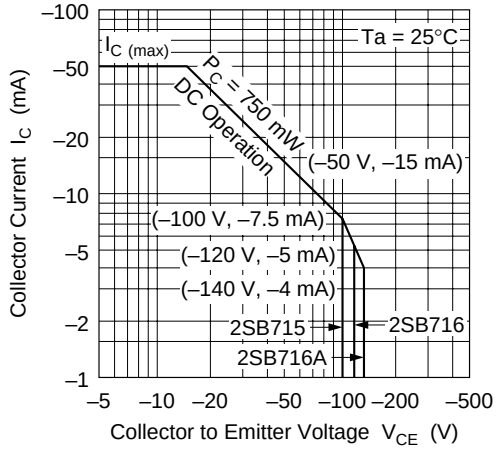
Gain Bandwidth Product vs. Collector Current



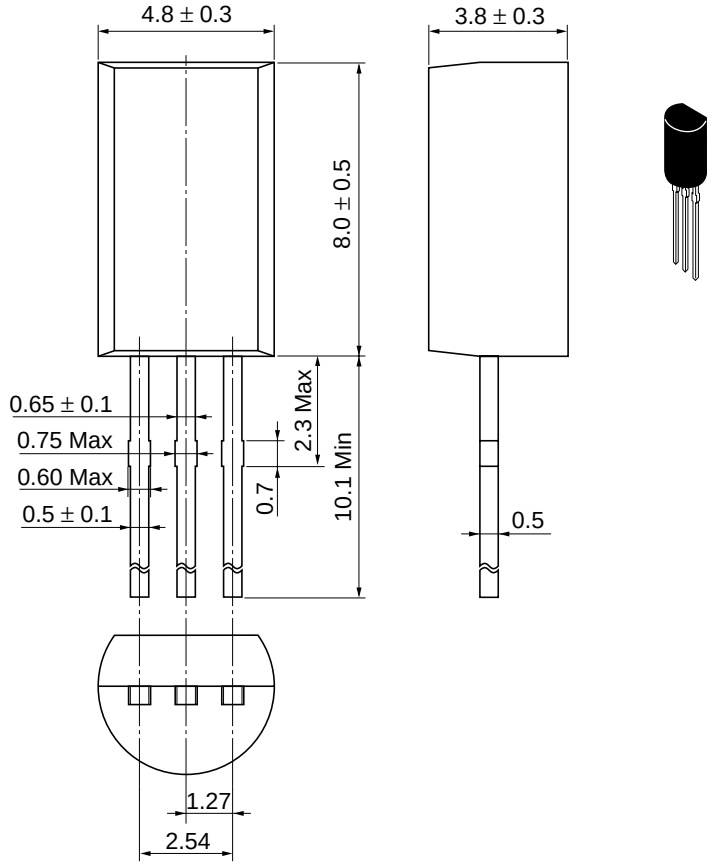

Collector Output Capacitance vs. Collector to Base Voltage




Area of Safe Operation



Unit: mm




| | |
|---|---|
| Hitachi Code | TO-92 Mod |
| JEDEC | — |
| EIAJ | Conforms |
| Weight (reference value) | 0.35 g |

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