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# 2SD755, 2SD756, 2SD756A

Silicon NPN Epitaxial

# HITACHI

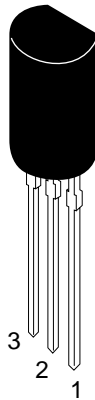
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## Application

- Low frequency high voltage amplifier
- Complementary pair with 2SB715, 2SB716 and 2SB716A

## Outline

TO-92MOD



1. Emitter
2. Collector
3. Base

# 2SD755, 2SD756, 2SD756A

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

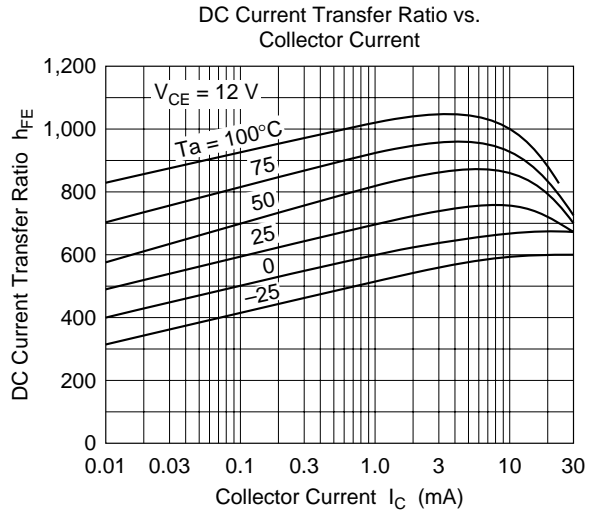
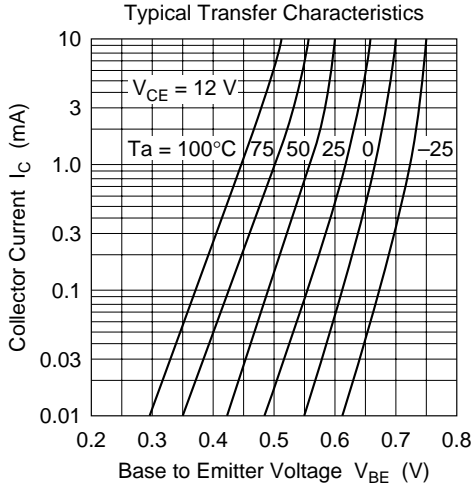
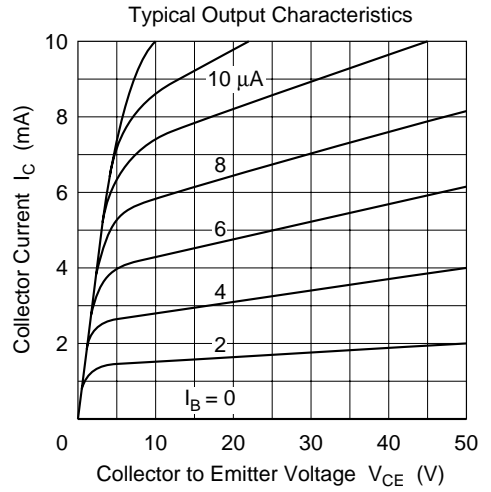
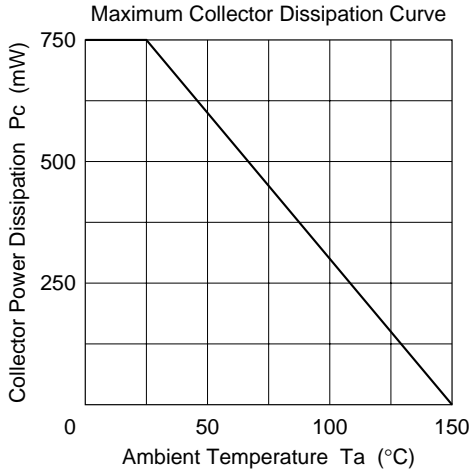
| Item                         | Symbol    | 2SD755      | 2SD756      | 2SD756A     | Unit |
|------------------------------|-----------|-------------|-------------|-------------|------|
| Collector to base voltage    | $V_{CBO}$ | 100         | 120         | 140         | V    |
| Collector to emitter 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         | $T_j$     | 150         | 150         | 150         | °C   |
| Storage temperature          | $T_{stg}$ | -55 to +150 | -55 to +150 | -55 to +150 | °C   |

## Electrical Characteristics (Ta = 25°C)

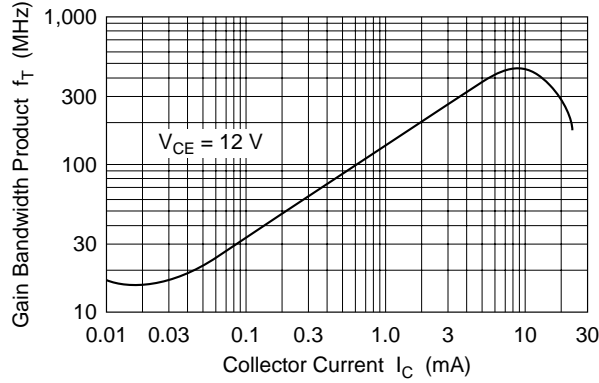
| Item                                    | Symbol         | 2SD755 |     |      | 2SD756 |     |      | 2SD756A |     |      | Unit          | Test conditions  |
|---|----------------|--------|-----|------|--------|-----|------|---------|-----|------|---------------|--|
|   |                | Min    | Typ | Max  | Min    | Typ | Max  | Min     | Typ | Max  |               |  |
| Collector to emitter breakdown voltage  | $V_{(BR)CEO}$  | 100    | —   | —    | 120    | —   | —    | 140     | —   | —    | V             | $I_C = 1 \text{ mA}$ ,<br>$R_{BE} = \infty$                  |
| Collector to base breakdown voltage     | $V_{(BR)CBO}$  | 100    | —   | —    | 120    | —   | —    | 140     | —   | —    | V             | $I_C = 10 \text{ }\mu\text{A}$ , $I_E = 0$                   |
| Collector cutoff current                | $I_{CBO}$      | —      | —   | 0.5  | —      | —   | 0.5  | —       | —   | 0.5  | $\mu\text{A}$ | $V_{CB} = 100 \text{ V}$ , $I_E = 0$                         |
| DC current transfer ratio               | $h_{FE1}^{*1}$ | 250    | —   | 1200 | 250    | —   | 800  | 250     | —   | 500  |               | $V_{CE} = 12 \text{ V}$ ,<br>$I_C = 2 \text{ mA}$            |
|   | $h_{FE2}$      | 125    | —   | —    | 125    | —   | —    | 125     | —   | —    |               | $V_{CE} = 12 \text{ V}$ ,<br>$I_C = 10 \text{ mA}$           |
| Base to emitter voltage                 | $V_{BE}$       | —      | —   | 0.75 | —      | —   | 0.75 | —       | —   | 0.75 | V             | $V_{CE} = 12 \text{ V}$ ,<br>$I_C = 2 \text{ mA}$            |
| Collector to emitter saturation voltage | $V_{CE(sat)}$  | —      | —   | 0.2  | —      | —   | 0.2  | —       | —   | 0.2  | V             | $I_C = 10 \text{ mA}$ ,<br>$I_B = 1 \text{ mA}$              |
| Gain bandwidth product                  | $f_T$          | —      | 350 | —    | —      | 350 | —    | —       | 350 | —    | MHz           | $V_{CE} = 12 \text{ V}$ ,<br>$I_C = 5 \text{ mA}$            |
| Collector output capacitance            | $C_{ob}$       | —      | 1.6 | —    | —      | 1.6 | —    | —       | 1.6 | —    | pF            | $V_{CB} = 25 \text{ V}$ , $I_E = 0$ ,<br>$f = 1 \text{ MHz}$ |

Note: 1. The 2SD755, 2SD756 and 2SD756A are grouped by  $h_{FE1}$  as follows.

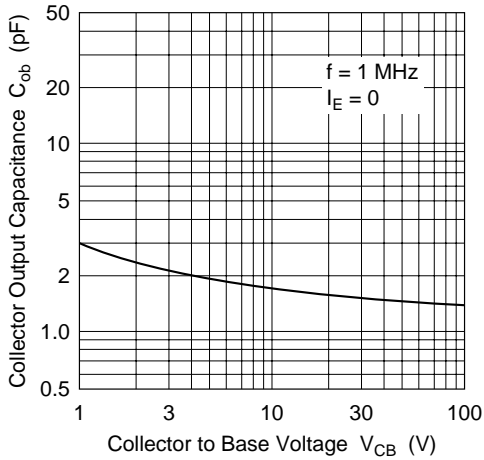
|         | D          | E          | F           |
|---------|------------|------------|-------------|
| 2SD755  | 250 to 500 | 400 to 800 | 600 to 1200 |
| 2SD756  | 250 to 500 | 400 to 800 | —           |
| 2SD756A | 250 to 500 | —          | —           |



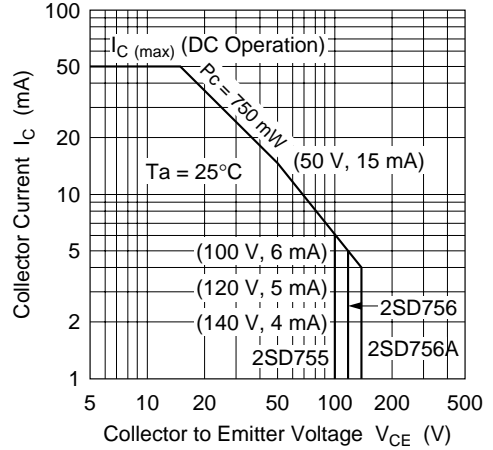
Gain Bandwidth Product vs. Collector Current

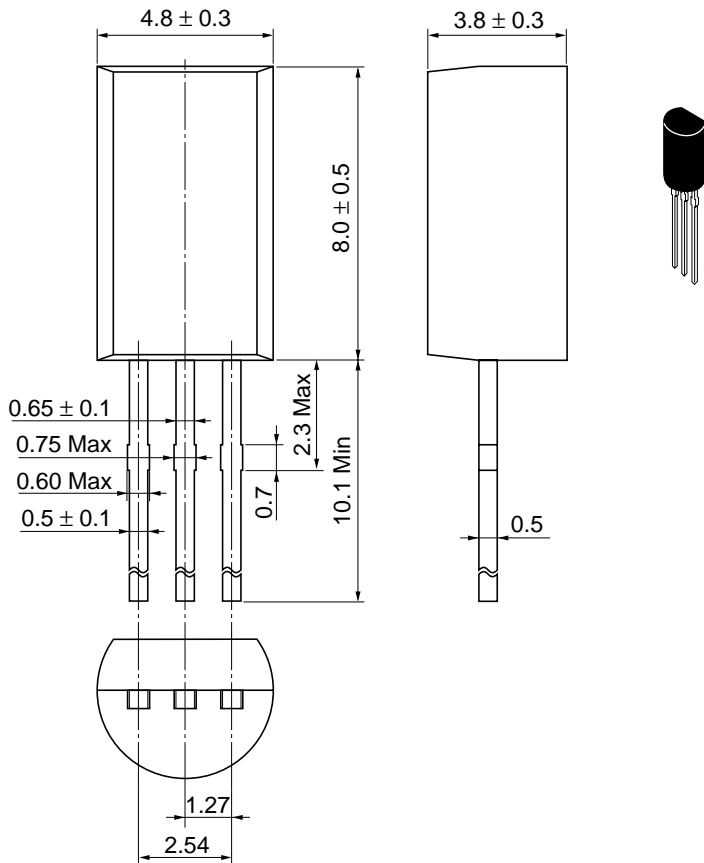


Collector Output Capacitance vs. Collector to Base Voltage



Area of Safe Operation





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

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