

# 2SA715

Silicon PNP Epitaxial

# HITACHI

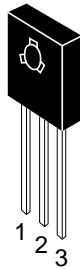
ADE-208-852 (Z)  
1st. Edition  
Sep. 2000

## Application

Low frequency power amplifier complementary pair with 2SC1162

## Outline

TO-126 MOD



1. Emitter  
2. Collector  
3. Base

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

| Item                         | Symbol               | Rating      | Unit             |
|------------------------------|----------------------|-------------|------------------|
| Collector to base voltage    | $V_{\text{CBO}}$     | -35         | V                |
| Collector to emitter voltage | $V_{\text{CEO}}$     | -35         | V                |
| Emitter to base voltage      | $V_{\text{EBO}}$     | -5          | V                |
| Collector current            | $I_{\text{C}}$       | -2.5        | A                |
| Collector peak current       | $I_{\text{C(peak)}}$ | -3          | A                |
| Collector power dissipation  | $P_{\text{C}}$       | 0.75        | W                |
|                              | $P_{\text{C}}^{*1}$  | 10          | W                |
| Junction temperature         | $T_{\text{j}}$       | 150         | $^\circ\text{C}$ |
| Storage temperature          | $T_{\text{stg}}$     | -55 to +150 | $^\circ\text{C}$ |

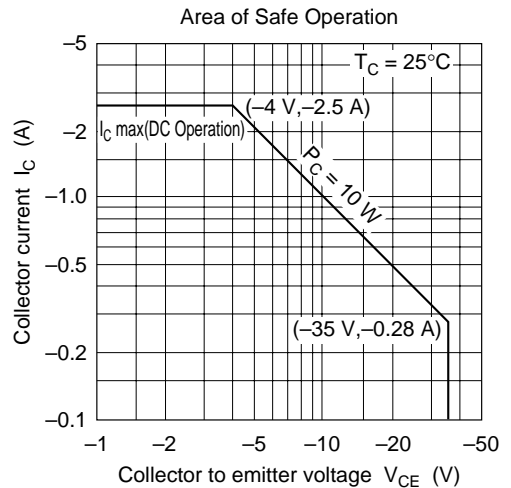
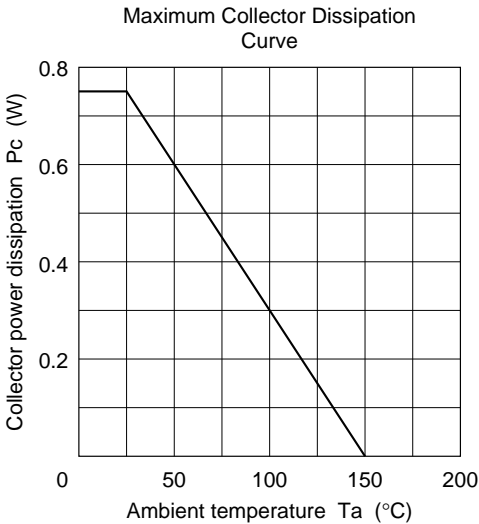
Note: 1. Value at  $T_{\text{c}} = 25^\circ\text{C}$

## Electrical Characteristics (Ta = 25°C)

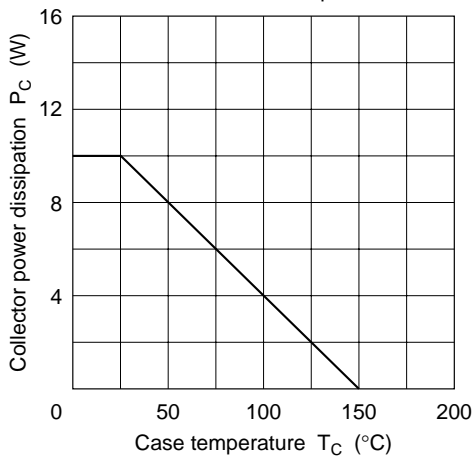
| Item                                    | Symbol        | Min | Typ  | Max  | Unit          | Test conditions   |
|---|---------------|-----|------|------|---------------|---|
| Collector to base breakdown voltage     | $V_{(BR)CBO}$ | -35 | —    | —    | V             | $I_C = -1 \text{ mA}, I_E = 0$                                |
| Collector to emitter breakdown voltage  | $V_{(BR)CEO}$ | -35 | —    | —    | V             | $I_C = -10 \text{ mA}, R_{BE} = \infty$                       |
| Emitter to base breakdown voltage       | $V_{(BR)EBO}$ | -5  | —    | —    | V             | $I_E = -1 \text{ mA}, I_C = 0$                                |
| Collector cutoff current                | $I_{CBO}$     | —   | —    | -20  | $\mu\text{A}$ | $V_{CB} = -35 \text{ V}, I_E = 0$                             |
| DC current transfer ratio               | $h_{FE}^{*1}$ | 60  | —    | 320  |               | $V_{CE} = -2 \text{ V}, I_C = -0.5 \text{ A}$                 |
|   | $h_{FE}$      | 20  | —    | —    |               | $V_{CE} = -2 \text{ V}, I_C = -1.5 \text{ A}$<br>(Pulse test) |
| Base to emitter voltage                 | $V_{BE}$      | —   | -1.0 | -1.5 | V             | $V_{CE} = -2 \text{ V}, I_C = -1.5 \text{ A}$<br>(Pulse test) |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | —   | -0.5 | -1.0 | V             | $I_C = -2 \text{ A}, I_B = -0.2 \text{ A}$<br>(Pulse test)    |
| Gain bandwidth product                  | $f_T$         | —   | 160  | —    | MHz           | $V_{CE} = -2 \text{ V}, I_C = -0.2 \text{ A}$<br>(Pulse test) |

Note: 1. The 2SA715 is grouped by  $h_{FE}$  as follows.

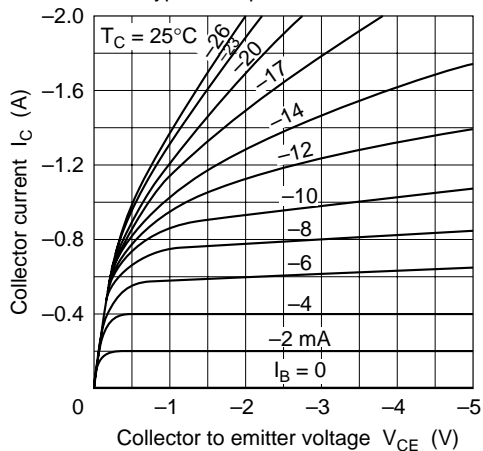
| B         | C          | D          |
|-----------|------------|------------|
| 60 to 120 | 100 to 200 | 160 to 320 |



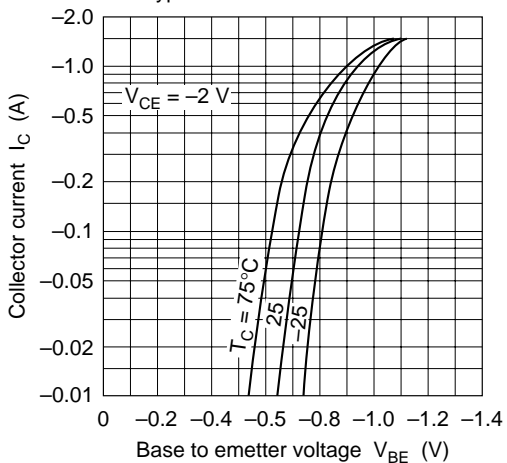
Maximum Collector Dissipation Curve



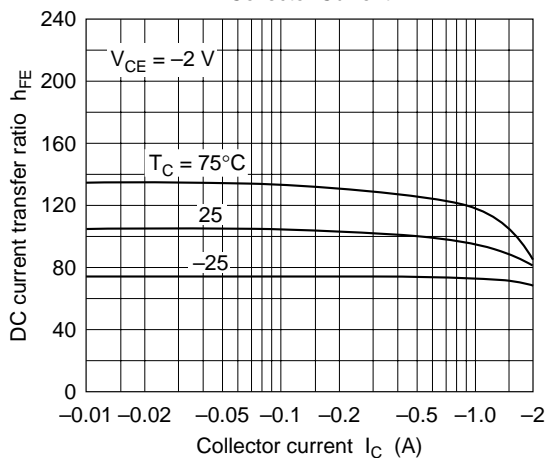
Typical Output Characteristics



Typical Transfer Characteristics



DC Current Transfer Ratio vs. Collector Current





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