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# 4AE11

Silicon NPN/PNP Triple Diffused

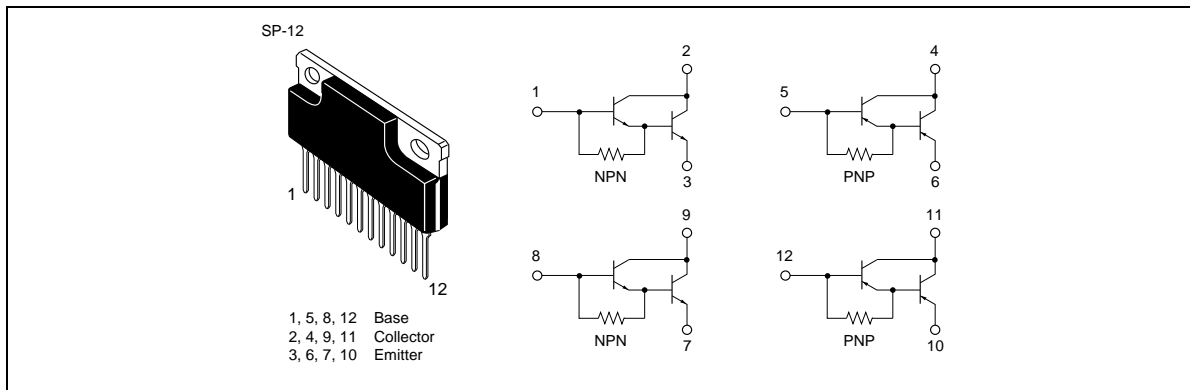
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### Application

Low frequency power amplifier

### Outline



## 4AE11

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

| Item                         | Symbol               | Ratings    |            | Unit             |
|------------------------------|----------------------|------------|------------|------------------|
|                              |                      | NPN        | PNP        |                  |
| Collector to base voltage    | $V_{\text{CBO}}$     | 300        | -300       | V                |
| Collector to emitter voltage | $V_{\text{CEO}}$     | 300        | -300       | V                |
| Emitter to base voltage      | $V_{\text{EBO}}$     | 7          | -7         | V                |
| Collector current            | $I_{\text{C}}$       | 0.3        | -0.3       | A                |
| Collector peak current       | $I_{\text{C(peak)}}$ | 0.6        | -0.6       | A                |
| Collector power dissipation  | $P_{\text{C}}^{*1}$  | 32         | 32         | W                |
| Junction temperature         | $T_{\text{j}}$       | 150        | 150        | $^\circ\text{C}$ |
| Storage temperature          | $T_{\text{stg}}$     | -55 to 150 | -55 to 150 | $^\circ\text{C}$ |

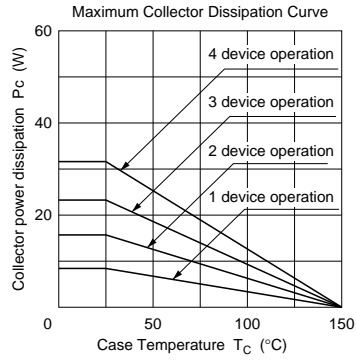
Note: 1. Value at  $T_{\text{C}} = 25^\circ\text{C}$ .

### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

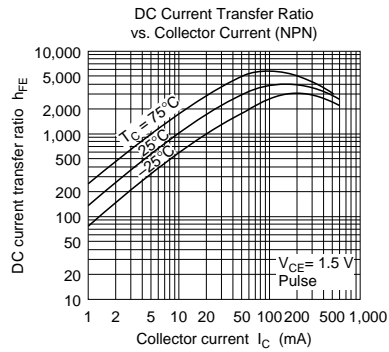
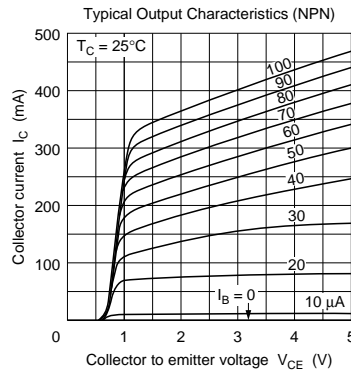
| Item                                    | Symbol                      | Min  | Typ | Max   | Unit          | Test conditions   |
|---|-----------------------------|------|-----|-------|---------------|---|
| Collector to base breakdown voltage     | $V_{(\text{BR})\text{CBO}}$ | 300  | —   | —     | V             | $I_{\text{C}} = 1 \text{ mA}, I_{\text{E}} = 0$                     |
| Collector to emitter breakdown voltage  | $V_{(\text{BR})\text{CEO}}$ | 300  | —   | —     | V             | $I_{\text{C}} = 10 \text{ mA}, R_{\text{BE}} = \infty$              |
| Emitter to base breakdown voltage       | $V_{(\text{BR})\text{EBO}}$ | 7    | —   | —     | V             | $I_{\text{E}} = 1 \text{ mA}, I_{\text{C}} = 0$                     |
| Collector cutoff current                | $I_{\text{CBO}}$            | —    | —   | 10    | $\mu\text{A}$ | $V_{\text{CB}} = 300 \text{ V}, I_{\text{E}} = 0$                   |
|   | $I_{\text{CEO}}$            | —    | —   | 10    |               | $V_{\text{CE}} = 60 \text{ V}, R_{\text{BE}} = \infty$              |
| Emitter cutoff current                  | $I_{\text{EBO}}$            | —    | —   | 10    | $\mu\text{A}$ | $V_{\text{EB}} = 5 \text{ V}, I_{\text{C}} = 0$                     |
| DC current transfer ratio               | $h_{\text{FE1}}$            | 1000 | —   | —     |               | $V_{\text{CE}} = 1.5 \text{ V}, I_{\text{C}} = 20 \text{ mA}^{*1}$  |
|   | $h_{\text{FE2}}$            | 3000 | —   | 30000 |               | $V_{\text{CE}} = 1.5 \text{ V}, I_{\text{C}} = 100 \text{ mA}^{*1}$ |
| Collector to emitter saturation voltage | $V_{\text{CE(sat)}}$        | —    | —   | 1.5   | V             | $I_{\text{C}} = 100 \text{ mA}, I_{\text{B}} = 0.2 \text{ mA}^{*1}$ |
| Base to emitter saturation voltage      | $V_{\text{BE(sat)}}$        | —    | —   | 2.0   | V             | $I_{\text{C}} = 100 \text{ mA}, I_{\text{B}} = 0.2 \text{ mA}^{*1}$ |

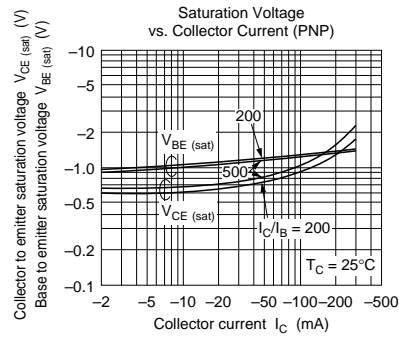
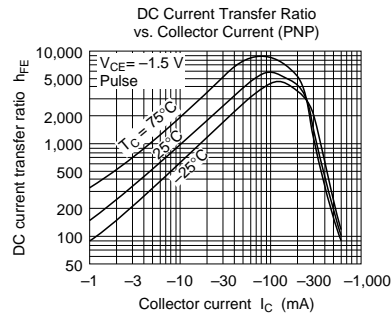
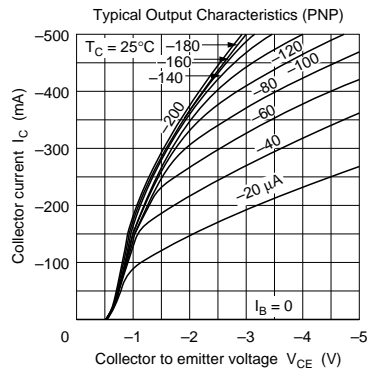
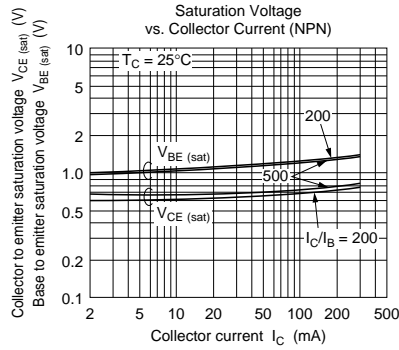
Notes: 1. Pulse test.

2. The minus sign of PNP is omitted.



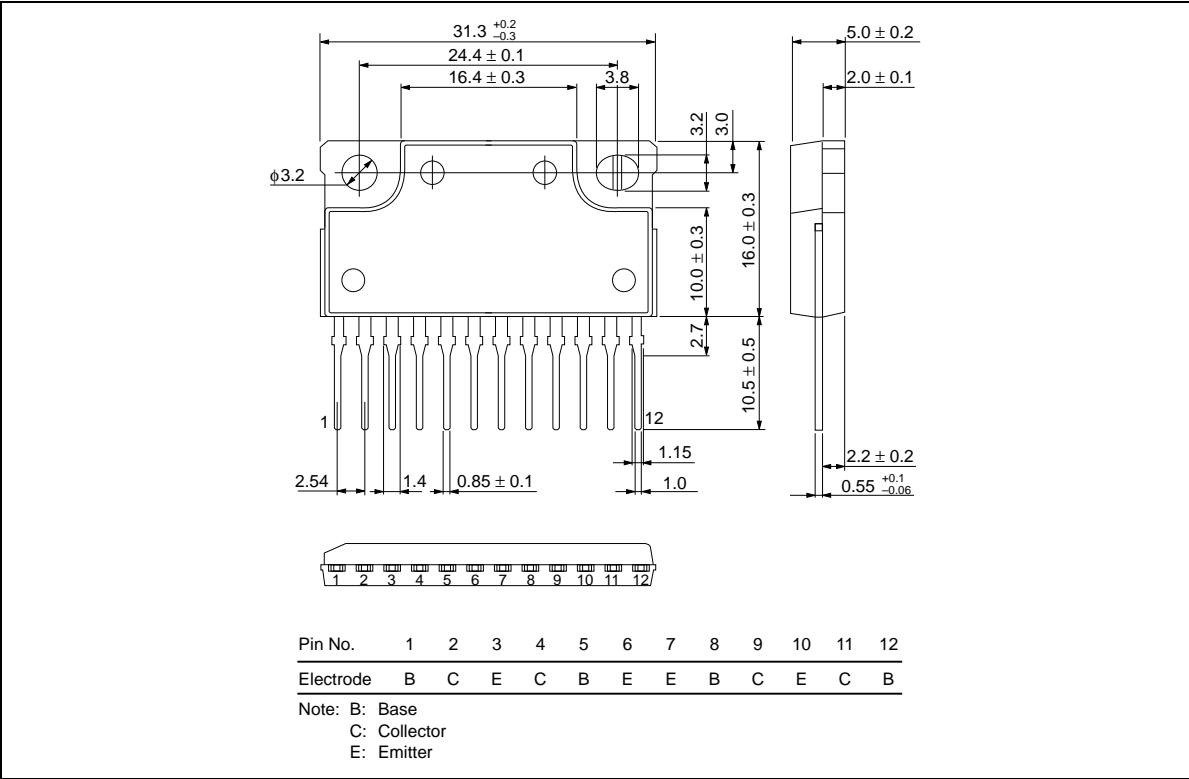
Note: Collector power dissipation of each devices is identical.





**4AE11**

Unit: mm



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