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# 2SD789

Silicon NPN Epitaxial

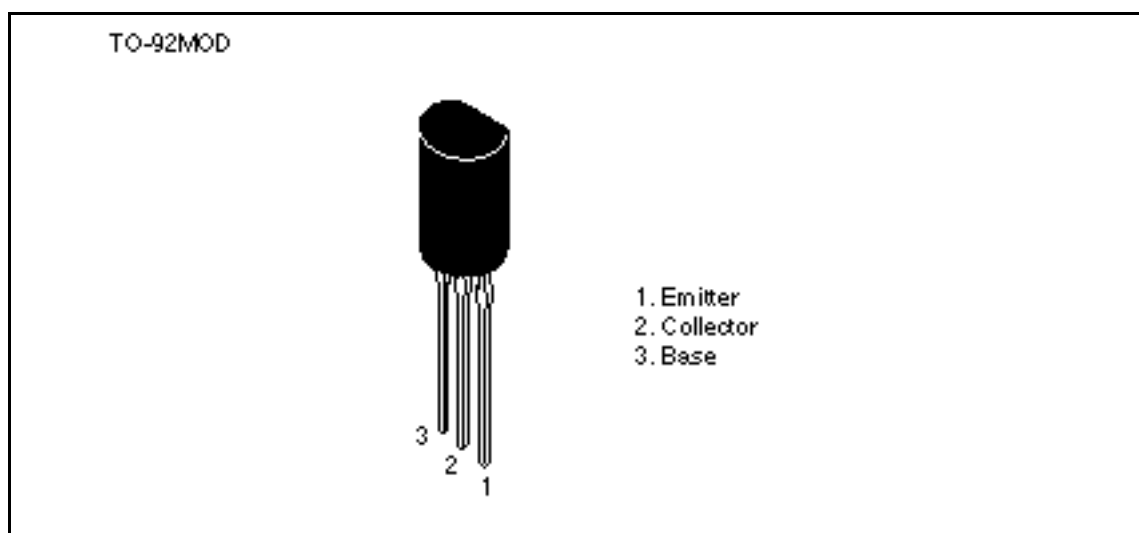
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## Application

- Σ Low frequency power amplifier
- Σ Complementary pair with 2SB740

## Outline



## 2SD789

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

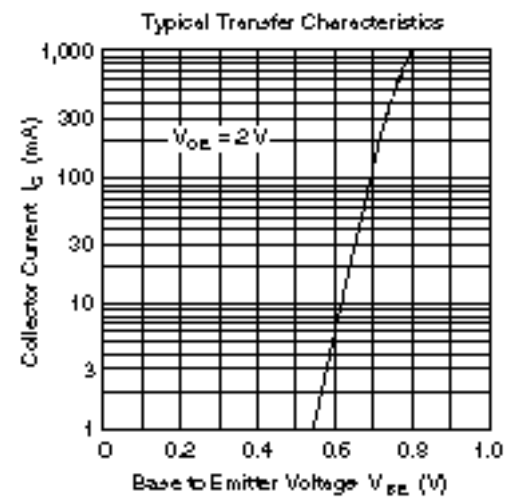
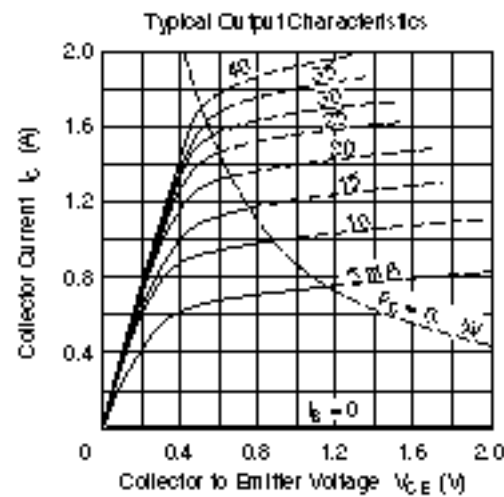
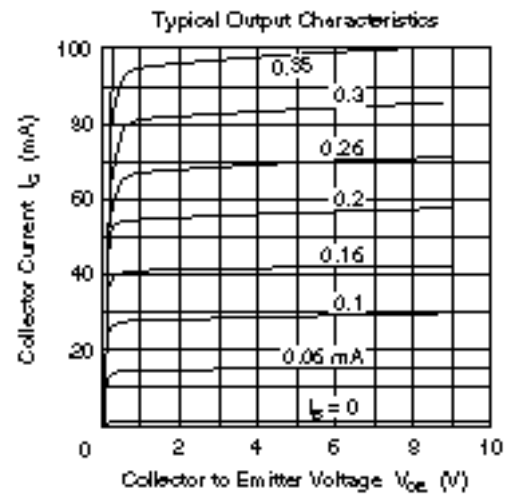
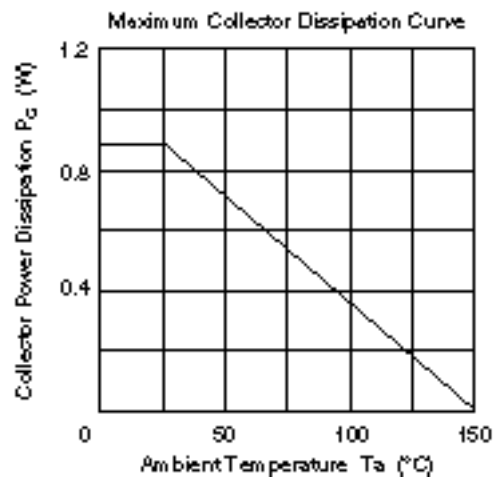
| Item                         | Symbol    | Ratings     | Unit |
|------------------------------|-----------|-------------|------|
| Collector to base voltage    | $V_{CBO}$ | 100         | V    |
| Collector to emitter voltage | $V_{CEO}$ | 50          | V    |
| Emitter to base voltage      | $V_{EBO}$ | 6           | V    |
| Collector current            | $I_C$     | 1           | A    |
| Collector power dissipation  | $P_C$     | 0.9         | W    |
| Junction temperature         | $T_j$     | 150         | °C   |
| Storage temperature          | $T_{stg}$ | –55 to +150 | °C   |

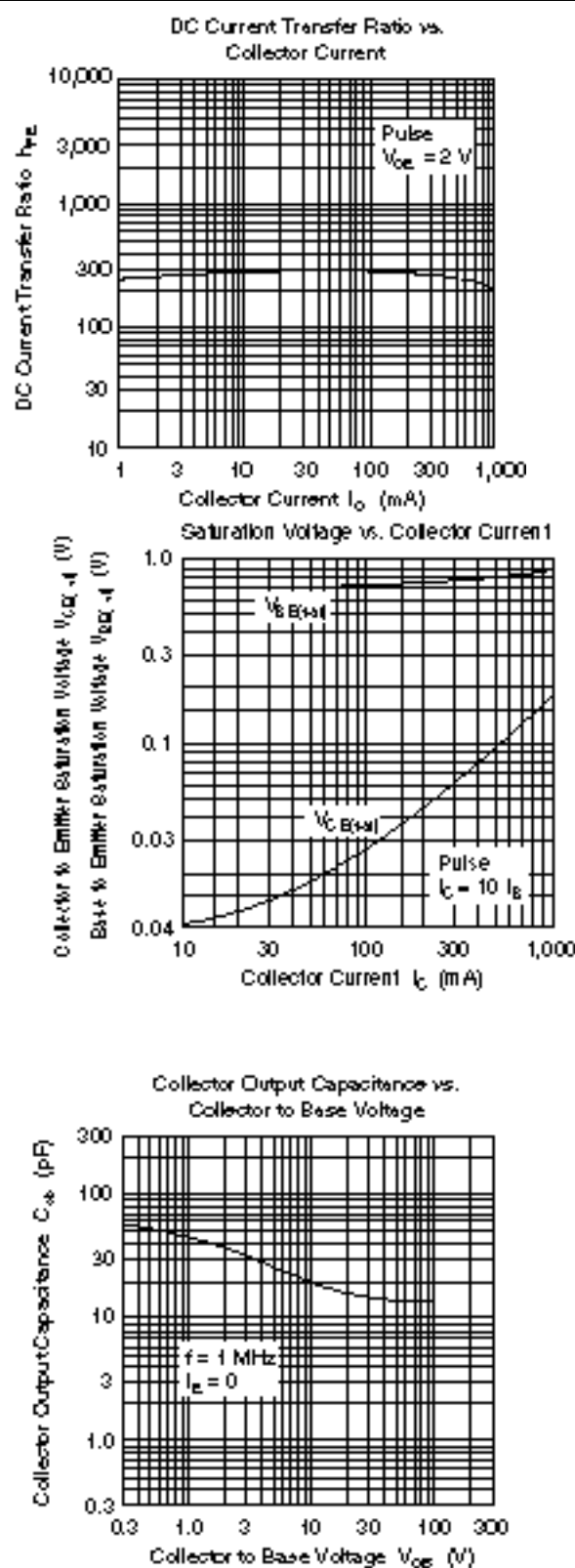
### Electrical Characteristics (Ta = 25°C)

| Item                                    | Symbol        | Min | Typ | Max | Unit    | Test conditions                                     |
|-----------------------------------------|---------------|-----|-----|-----|---------|-----------------------------------------------------|
| Collector to base breakdown voltage     | $V_{(BR)CBO}$ | 100 | —   | —   | V       | $I_C = 10 \mu A, I_E = 0$                           |
| Collector to emitter breakdown voltage  | $V_{(BR)CEO}$ | 50  | —   | —   | V       | $I_C = 1 \text{ mA}, R_{BE} = \bullet$              |
| Emitter to base breakdown voltage       | $V_{(BR)EBO}$ | 6   | —   | —   | V       | $I_E = 10 \mu A, I_C = 0$                           |
| Collector cutoff current                | $I_{CBO}$     | —   | —   | 1   | $\mu A$ | $V_{CB} = 80 \text{ V}, I_E = 0$                    |
| Emitter cutoff current                  | $I_{EBO}$     | —   | —   | 0.2 | $\mu A$ | $V_{EB} = 6 \text{ V}, I_C = 0$                     |
| DC current transfer ratio               | $h_{FE}^{*1}$ | 100 | —   | 800 |         | $V_{CE} = 2 \text{ V}, I_C = 0.1 \text{ A}$         |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | —   | —   | 0.3 | V       | $I_C = 1 \text{ A}, I_B = 0.1 \text{ A}$            |
| Gain bandwidth product                  | $f_T$         | —   | 100 | —   | MHz     | $V_{CE} = 2 \text{ V}, I_C = 10 \text{ mA}$         |
| Collector output capacitance            | $C_{ob}$      | —   | 20  | —   | pF      | $V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$ |

Note: 1. The 2SD789 is grouped by  $h_{FE}$  as follows.

| B          | C          | D          | E          |
|------------|------------|------------|------------|
| 100 to 200 | 160 to 320 | 250 to 500 | 400 to 800 |





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