# 2SD789

Silicon NPN Epitaxial

HITACHI

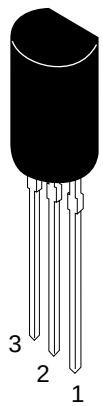
ADE-208-1140A (Z)
2nd. Edition
Mar. 2001

## Application

- Low frequency power amplifier
- Complementary pair with 2SB740

## Outline

TO-92MOD




1. Emitter
2. Collector
3. Base

Hitachi semiconductor

## 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 | Tj | 150 | °C |
| Storage temperature | Tstg | –55 to +150 | °C |

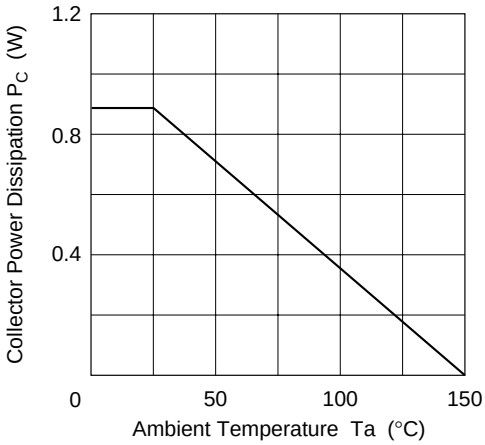
## Electrical Characteristics (Ta = 25°C)

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

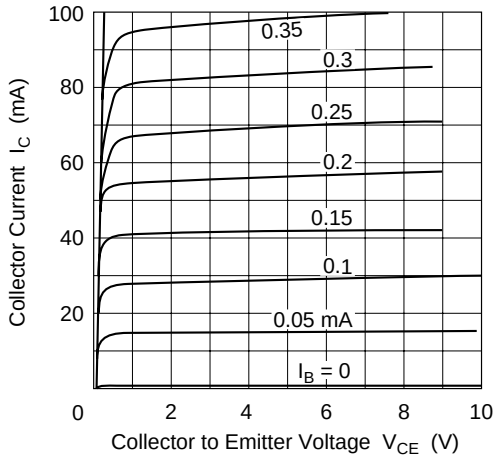
Note: 1. The 2SD789 is grouped by $h_{FE}$ as follows.

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

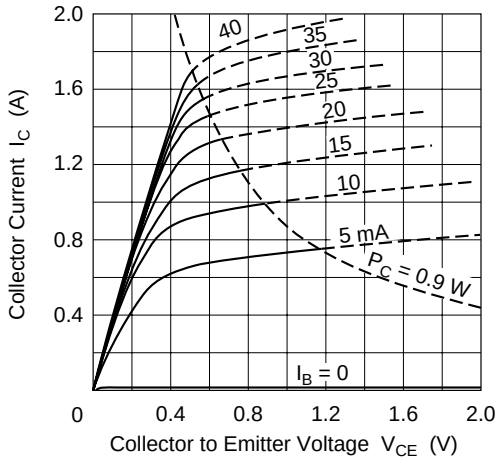
Maximum Collector Dissipation Curve



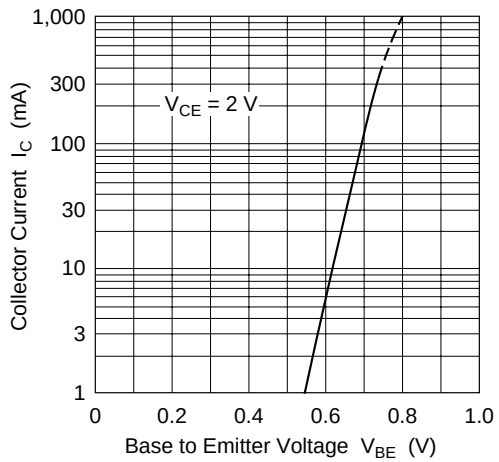

Typical Output Characteristics



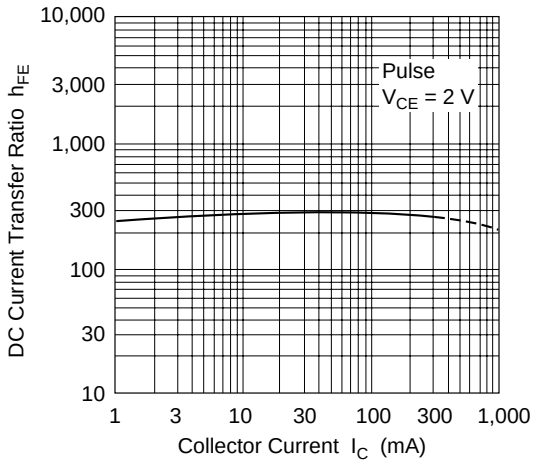

Typical Output Characteristics



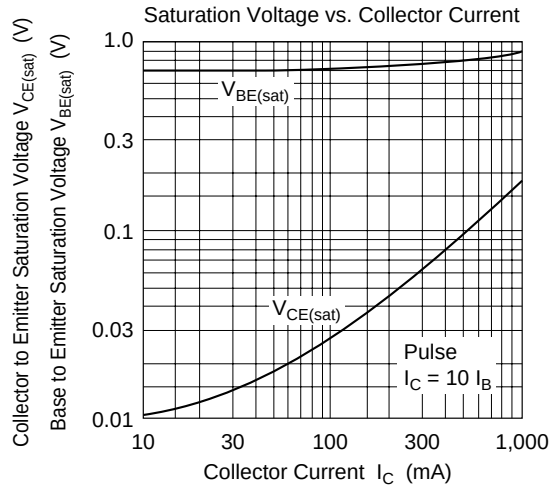

Typical Transfer Characteristics



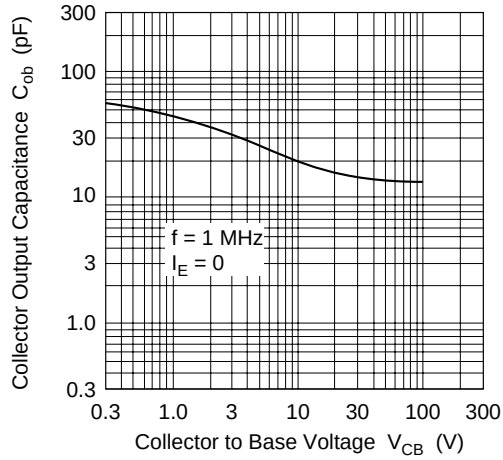
DC Current Transfer Ratio vs. Collector Current




Saturation Voltage vs. Collector Current

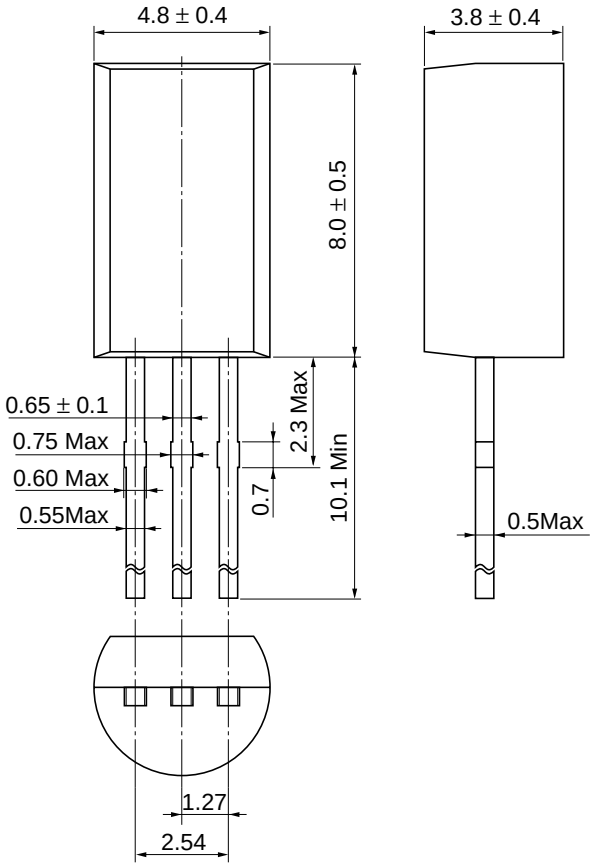



Collector Output Capacitance vs. Collector to Base Voltage



## Package Dimensions

As of January, 2001
Unit: mm




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

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