HITACHI

# 2SD2540

**Silicon NPN Epitaxial**

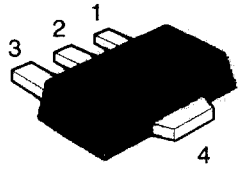
## Application

Low frequency power amplifier

## Features

- Low saturation voltage
  $V_{CE(sat)} \leq 0.3$ V
- Large current capacitance.
  $I_C = 5$ A

UPAK




1. Base
2. Collector
3. Emitter
4. Collector

**Table 1 Absolute Maximum Ratings** (Ta = 25°C)

| Item | Symbol | Ratings | Unit |
|---|---|---|---|
| Collector to base voltage | $V_{CBO}$ | 40 | V |
| Collector to emitter voltage | $V_{CEO}$ | 20 | V |
| Emitter to base voltage | $V_{EBO}$ | 7 | V |
| Collector current | $I_C$ | 5 | A |
| Collector peak current | ic(peak)* | 8 | A |
| Collector power dissipation | $P_C$** | 1 | W |
| Junction temperature | Tj | 150 | °C |
| Storage temperature | Tstg | –55 to +150 | °C |

* PW ≤ 10 ms, duty cycle ≤ 20 %

** When using the alumina ceramic board (12.5 x 20 x 0.7 mm)

Note: Marking is "HS"

Attention: This device is very sensitive to electro static discharge.
It is recommended to adopt appropriate cautions when handling this transistor.

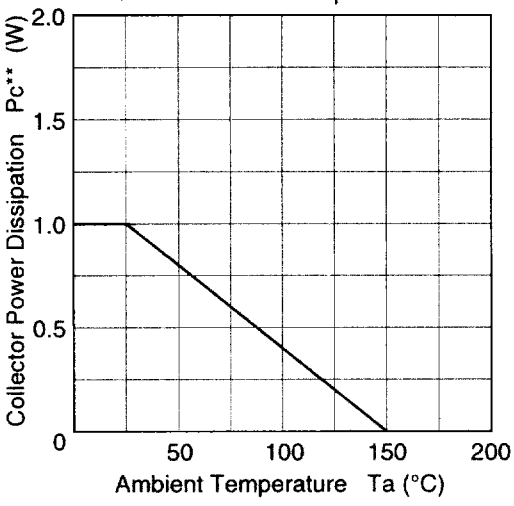
## 2SD2540

**Table 2 Electrical Characteristics** (Ta = 25°C)

| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|---|---|---|---|---|---|---|
| Collector to base breakdown voltage | $V_{(BR)CBO}$ | 40 | — | — | V | $I_C$ = 10 µA, $I_E$ = 0 |
| Collector to emitter breakdown voltage | $V_{(BR)CEO}$ | 20 | — | — | V | $I_C$ = 1 mA, $R_{BE}$ = ∞ |
| Emitter to base breakdown voltage | $V_{(BR)EBO}$ | 7 | — | — | V | $I_E$ = 10 µA $I_C$ = 0 |
| Collector to base cutoff current | $I_{CBO}$ | — | — | 0.1 | µA | $V_{CB}$ = 20 V, $I_E$ = 0 |
| Collector to emitter cutoff current | $I_{CEO}$ | — | — | 1 | µA | $V_{CE}$ = 10 V, $R_{BE}$ = ∞ |
| Emitter to base cutoff current | $I_{EBO}$ | — | — | 0.1 | µA | $V_{EB}$ = 5 V, $I_C$ = 0 |
| DC current transfer ratio | $h_{FE}1$* | 250 | — | 600 | | $V_{CE}$ = 2 V, $I_C$ = 0.5 A |
| DC current transfer ratio | $h_{FE}2$* | 150 | — | — | | $V_{CE}$ = 2 V, $I_C$ = 5 A |
| Collector to emitter saturation voltage | $V_{CE(sat)}$* | — | 0.21 | 0.3 | V | $I_C$ =3 A $I_B$ = 0.1 A |
| Base to emitter saturation voltage | $V_{BE(sat)}$* | — | 0.95 | 1.2 | V | $I_C$ =2 A $I_B$ = 0.2 A |
| Gain bandwidth product | $f_T$ | — | 190 | — | MHz | $V_{CE}$ = 6 V, $I_C$ = 50 mA |
| Collector output capacitance | Cob | — | 30 | — | pF | $V_{CB}$ = 10 V $I_E$ = 0 f = 1 MHz |

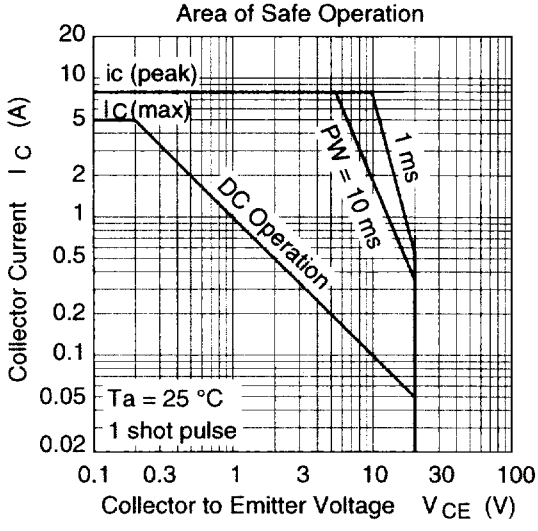
* Pulse Test

Maximum Power Dissipation Curve

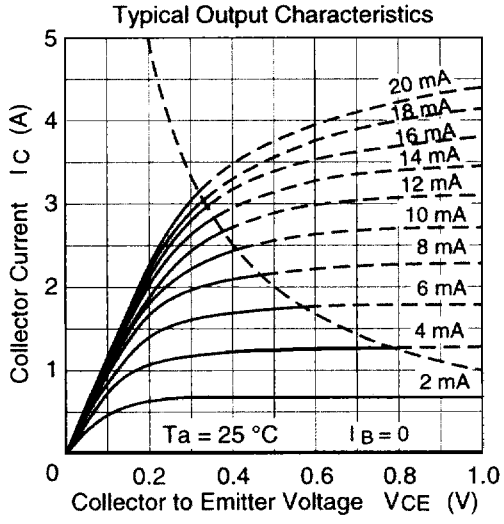



** When using the alumina ceramic board (12.5 x 20 x 0.7 mm)

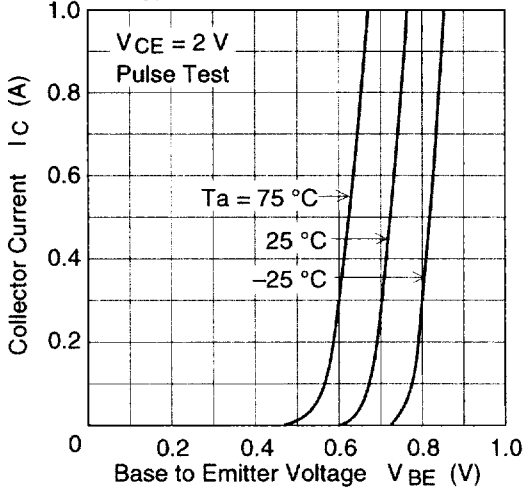
Area of Safe Operation




Typical Output Characteristics

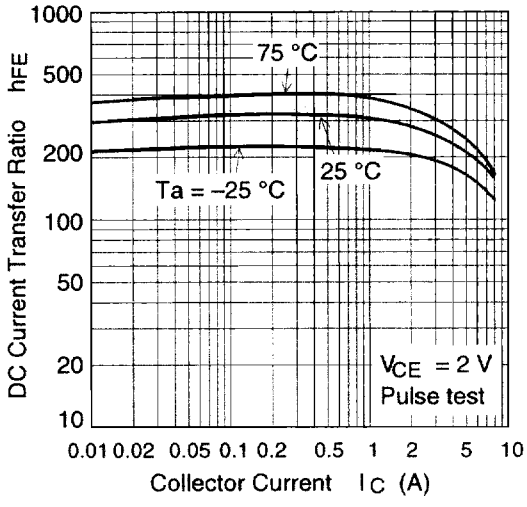



Typical Transfer Characteristics

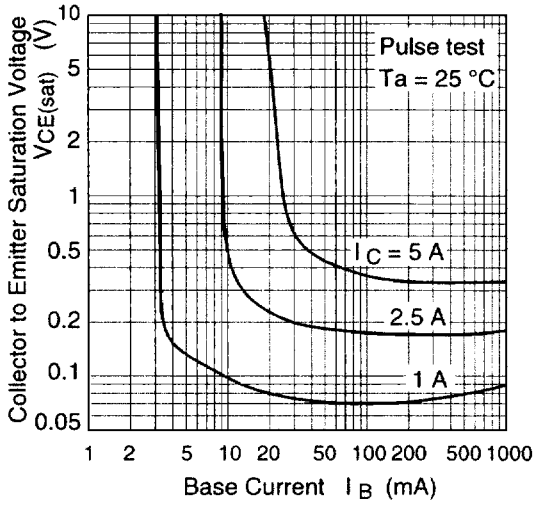


## 2SD2540

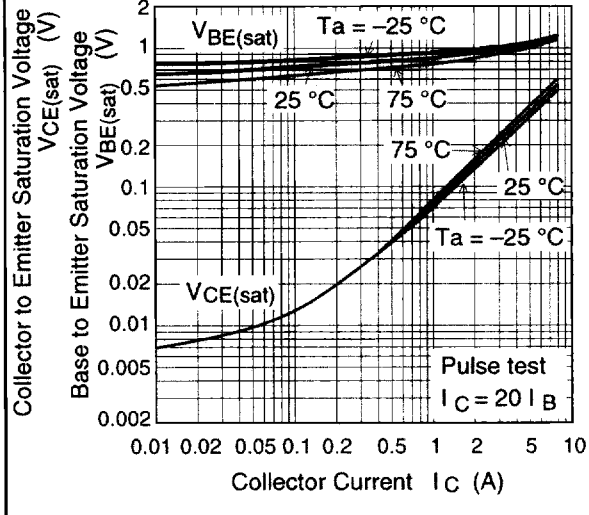
DC Current Transfer Ratio vs. Collector Current



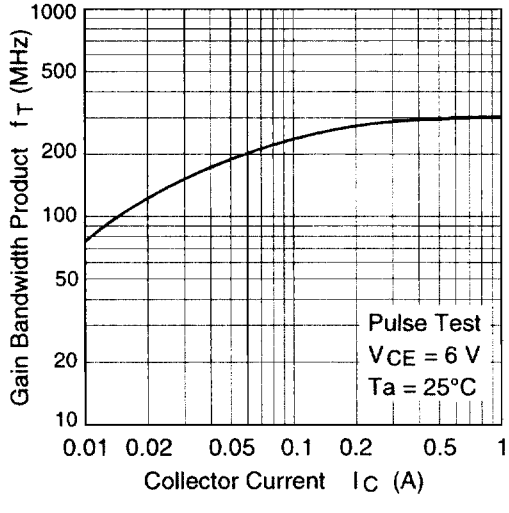

Collector to Emitter Saturation Voltage vs. Base Current

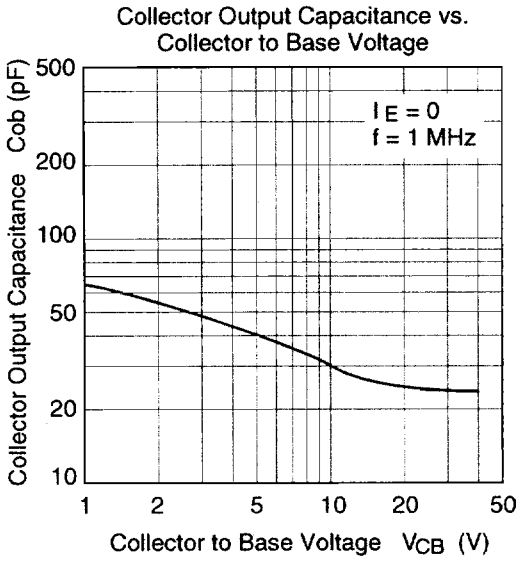



Saturation Voltage vs. Collector Current



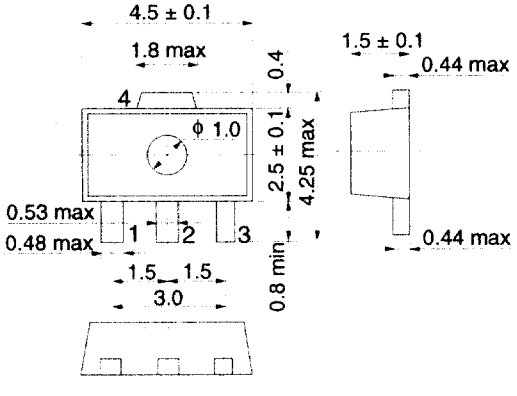

Gain Bandwidth Product vs. Collector Current

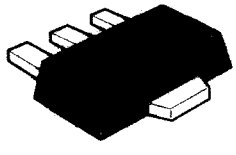





## Package Dimensions

Unit : mm



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|---|---|
| Hitachi Code | UPAK |
| EIAJ | SC–62 |
| JEDEC | UPAK |