# 2SA1499

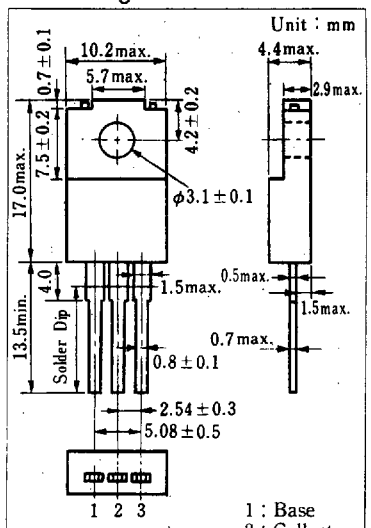
## Silicon PNP Epitaxial Planar Type

### High Speed Switching

### ■ Features

- High DC current gain ($h_{FE}$)
- High collector-base voltage ($V_{CBO}$)
- High collector-emitter voltage ($V_{CEO}$)
- "Full Pack" package for simplified mounting on a heat sink with one screw

### ■ Package Dimensions



TO-220 Full Pack Package (a)

### ■ Absolute Maximum Ratings (Tc=25°C)

| Item | | Symbol | Value | Unit |
|---|---|---|---|---|
| Collector-base voltage | | $V_{CBO}$ | −400 | V |
| Collector-emitter voltage | | $V_{CEO}$ | −400 | V |
| Emitter-base voltage | | $V_{EBO}$ | −7 | V |
| Peak collector current | | $I_{CP}$ | −1.2 | A |
| Collector current | | $I_C$ | −0.6 | A |
| Collector power dissipation | Tc=25℃ | $P_C$ | 25 | W |
| | Ta=25℃ | | 2 | |
| Junction temperature | | $T_j$ | 150 | ℃ |
| Storage temperature | | $T_{stg}$ | −55～+150 | ℃ |

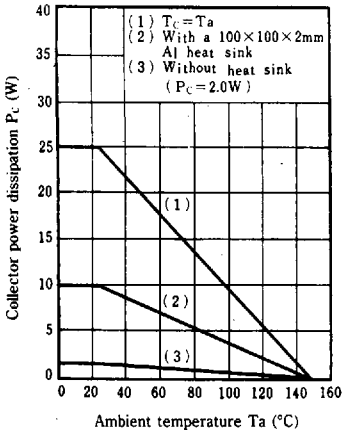
### ■ Electrical Characteristics (Tc=25°C)

| Item | Symbol | Condition | min. | typ. | max. | Unit |
|---|---|---|---|---|---|---|
| Collector cutoff current | $I_{CBO}$ | $V_{CB}=-400V$, $I_E=0$ | | | −100 | μA |
| Emitter cutoff current | $I_{EBO}$ | $V_{EB}=-7$ V, $I_C=0$ | | | −100 | μA |
| Collector isolation voltage | $V_{CEO}$ | $I_C=-10$ mA, $I_B=0$ | −400 | | | V |
| DC current gain | $h_{FE1}$* | $V_{CE}=-5$ V, $I_C=-100$ mA | 30 | | 160 | |
| | $h_{FE2}$ | $V_{CE}=-5$ V, $I_C=-300$ mA | 10 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=-300$ mA, $I_B=-60$ mA | | | −1.0 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=-10V$, $I_B=-60$mA | | | −1.2 | V |
| Transition frequency | $f_T$ | $V_{CE}=-10V$, $I_C=-100$mA, f=1MHz | | 15 | | MHz |
| Turn-on time | $t_{on}$ | $I_C=-300$ mA | | | 1.0 | μs |
| Storage time | $t_{stg}$ | $I_{B1}=-60$mA, $I_{B2}=60$ mA | | | 3.5 | μs |
| Fall time | $t_f$ | $V_{CC}=-100$ V | | | 1.0 | μs |

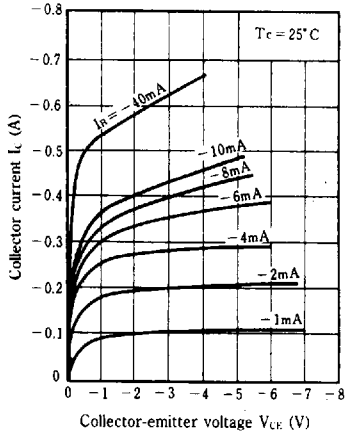
*$h_{FE1}$ Classifications

| Class | Q | P | O |
|---|---|---|---|
| $h_{FE1}$ | 30～60 | 50～100 | 80～160 |

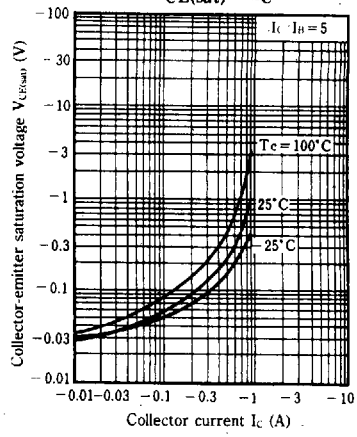
## $P_C - Ta$



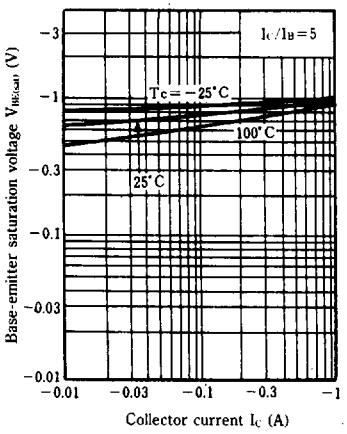

## $I_C - V_{CE}$



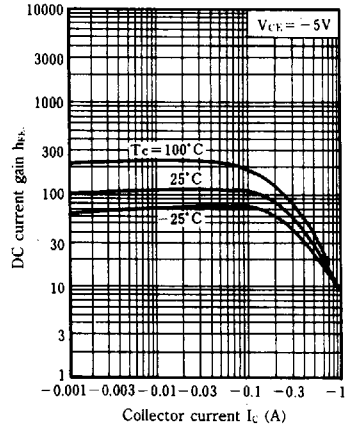

## $V_{CE(sat)} - I_C$



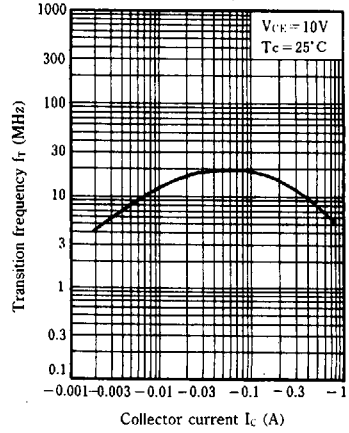

## $V_{BE(sat)} - I_C$



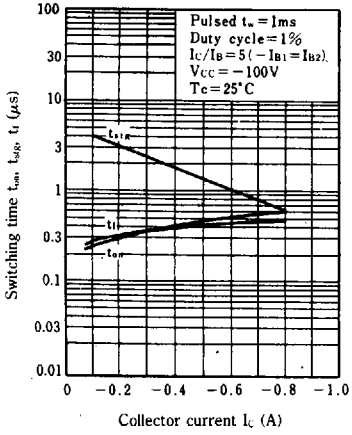

## $h_{FE} - I_C$



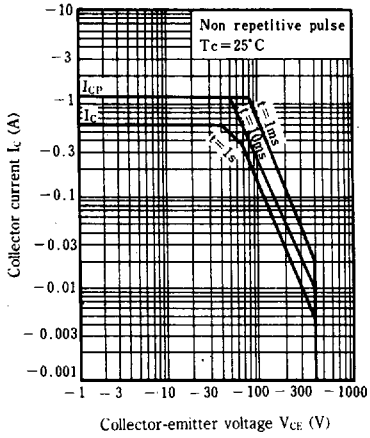

## $f_T - I_C$




## $t_{on}, t_{stg}, t_f - I_C$




## Area of safe operation (ASO)




Note) Refer to P.177 (on 2SB941/A) for $R_{th(t)} - t$ characteristics.

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