# 2SD1641

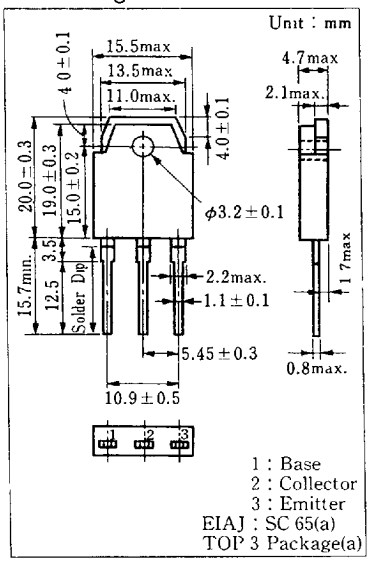
## Silicon PNP Triple-Diffused Planar Type

High DC Current Gain ($h_{FE}$), High Power Amplifier
TV Power Source Output

### ■ Features

- Wide area of safety operation (ASO)
- Protective avalanche diode built-in
- High DC current gain ($h_{FE}$)
- Good linearity of DC current gain ($h_{FE}$)

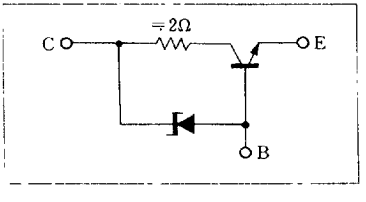
### ■ Package Dimensions




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

| Item | | Symbol | Value | Unit |
|---|---|---|---|---|
| Collector-base voltage | | $V_{CBO}$ | $55^{-15}_{-10}$ | V |
| Collector-emitter voltage | | $V_{CEO}$ | $55^{+15}_{-10}$ | V |
| Emitter-base voltage | | $V_{EBO}$ | 5 | V |
| Peak collector current | | $I_{CP}$ | 20 | A |
| Collector current | | $I_C$ | 4 | A |
| Collector power dissipation | Tc=25 °C | $P_C$ | 80 | W |
| | Ta=25 °C | | 2.5 | |
| Junction temperature | | $T_j$ | 150 | °C |
| Storage temperature | | $T_{stg}$ | −55 ~ +150 | °C |

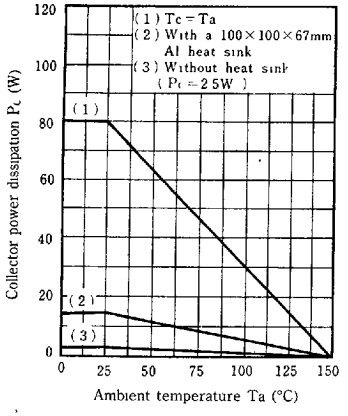
### ■ Inner Circuit



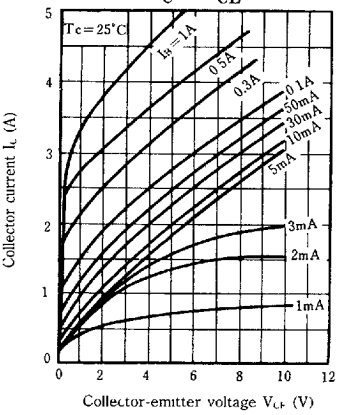

### ■ Electrical Characteristics (Tc=25°C)

| Item | Symbol | Condition | min | typ | max | Unit |
|---|---|---|---|---|---|---|
| Collector cutoff current | $I_{CBO}$ | $V_{CB}$=−30 V, $I_E$=0 | | | 100 | μA |
| Emitter cutoff current | $I_{EBO}$ | $V_{EB}$=5 V, $I_C$=0 | | | 10 | μA |
| Collector-base voltage | $V_{(BR)CBO}$ | $I_C$=10 mA, $I_E$=0 | 45 | | 70 | V |
| Collector-emitter voltage | $V_{(BR)CEO}$ | $I_C$=100 mA, $I_B$=0 | 45 | | 70 | V |
| DC current gain | $h_{FE}$ | $V_{CE}$=5 V, $I_C$=0.5 A | 500 | | 2500 | |
| Collector-emitter saturation voltage | $V_{CE(sat)1}$ | $I_C$=0.5 A, $I_B$=2 mA | | | 2 | V |
| Base-emitter saturation voltage | $V_{CE(sat)2}$ | $I_C$=1 A, $I_B$=20 mA | | | 3 | V |
| Base voltage | $V_{BE}$ | $V_{CE}$=5V, $I_C$=0.5A | | | 0.8 | V |
| Transition frequency | $f_T$ | $V_{CE}$=10V, $I_C$=0.5A, f=10MHz | | 45 | | MHz |

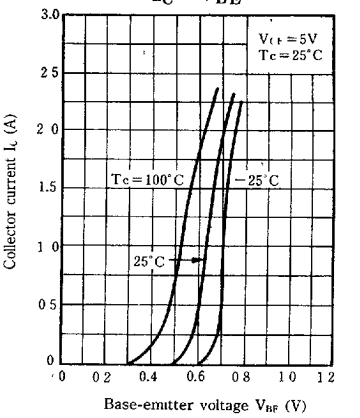
## $P_C - Ta$



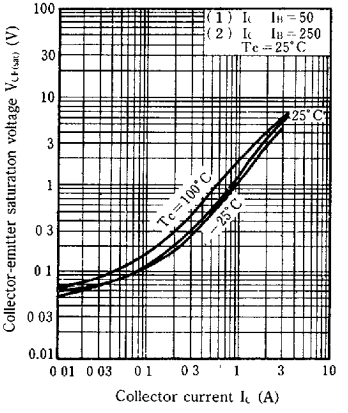

## $I_C - V_{CE}$



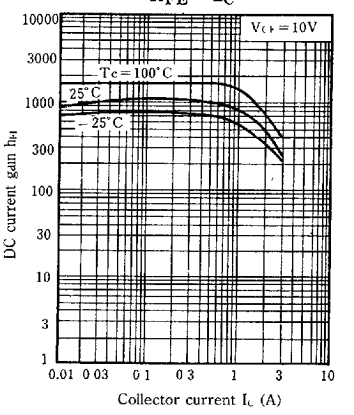

## $I_C - V_{BE}$



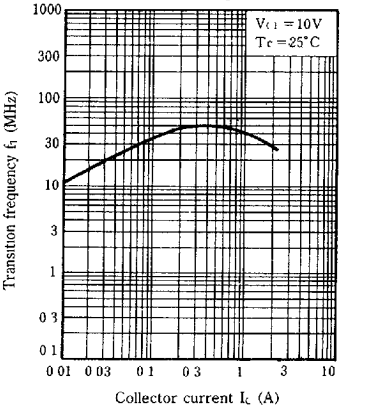

## $V_{CE(sat)} - I_C$



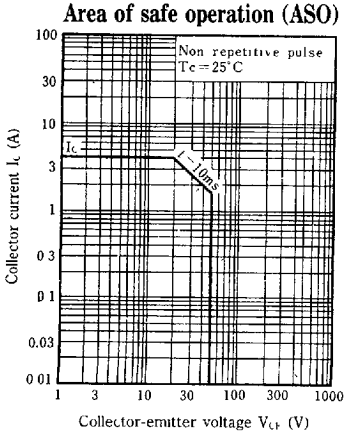

## $h_{FE} - I_C$




## $f_T - I_C$




## Area of safe operation (ASO)




## $R_{th(t)} - t$