Ordering number:EN3195

NPN Epitaxial Planar Silicon Transistor

# 2SC4400

## High-Frequency General-Purpose Amplifier Applications

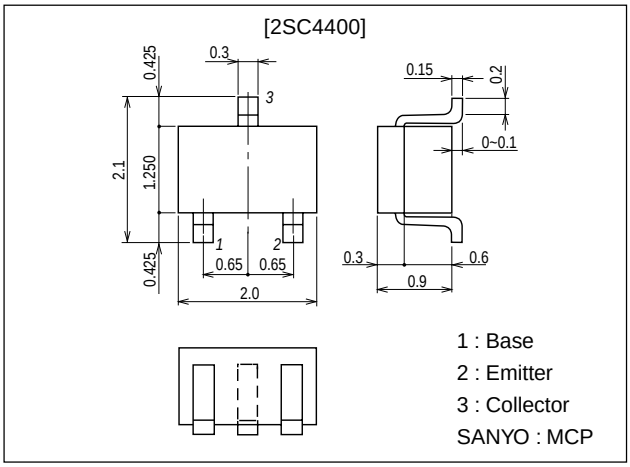
## Features

- High power gain.
- High cutoff frequency.
- Small $C_{ob}$, $C_{re}$.
- Very small-sized package permitting the 2SC4400-applied sets to be made small and slim.

## Package Dimensions

unit:mm

2059B




## Specifications

### Absolute Maximum Ratings at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Collector-to-Base Voltage | $V_{CBO}$ | | 40 | V |
| Collector-to-Emitter Voltage | $V_{CEO}$ | | 18 | V |
| Emitter-to-Base Voltage | $V_{EBO}$ | | 3 | V |
| Collector Current | $I_C$ | | 50 | mA |
| Collector Dissipation | $P_C$ | | 150 | mW |
| Junction Temperature | Tj | | 150 | ˚C |
| Storage Temperature | Tstg | | –55 to +150 | ˚C |

### Electrical Characteristics at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=18V, $I_E$=0 | | | 0.1 | μA |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=2V, $I_C$=0 | | | 0.1 | μA |
| DC Current Gain | $h_{FE}$ | $V_{CE}$=10V, $I_C$=5mA | 60* | | 270* | |
| Gain-Bandwidth Product | $f_T$ | $V_{CE}$=10V, $I_C$=5mA | | 750 | | MHz |
| Output Capacitance | $C_{ob}$ | $V_{CB}$=10V, f=1MHz | | 0.7 | 1.2 | pF |
| Reverse transfer Capacitance | $C_{re}$ | $V_{CB}$=10V, f=1MHz | | 0.45 | | pF |

* : The 2SC4400 is classified by 5mA $h_{FE}$ as follows :

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 60 | 3 | 120 | 90 | 4 | 180 | 135 | 5 | 270 |

Marking : RT
$h_{FE}$ rank : 3, 4, 5

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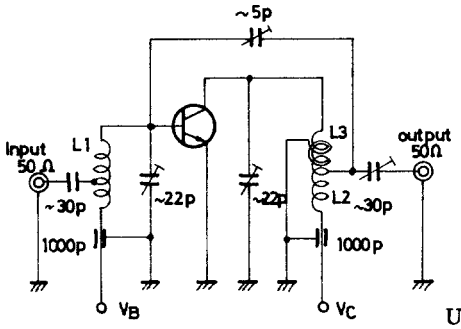
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$=10mA, $I_B$=1mA | | | 0.2 | V |
| Base-to-Collector Time Constant | $r_{bb}'C_C$ | $V_{CB}$=10V, $I_C$=5mA, f=31.9MHz | | | 23 | ps |
| Power Gain | PG | $V_{CB}$=10V, $I_C$=10mA, f=100MHz | | 28 | | dB |

## PG Test Circuit




Unit (capacitance : F)

$L_1$ : 1mmø plated wire, 10mmø 5T, pitch 15mm,
tap : 2T from base side

$L_2$ : 1mmø plated wire, 10mmø 7T, pitch 10mm,
tap : 2T from $V_C$ side

$L_3$ : 1mmø enamel wire, 10mmø 3T, pitch 10mm