Ordering number:EN3553

NPN Epitaxial Planar Silicon Transistor

# 2SC4433

## HF Amplifier Applications

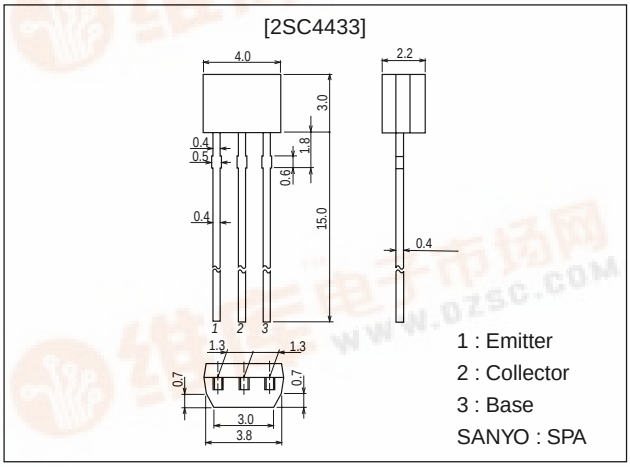
## Features

- High power gain : PG=28dB typ (f=100MHz).
- High cutoff frequency : $f_T$=750MHz typ.
- Small $C_{ob}$, $C_{re}$.

## Package Dimensions

unit:mm

2033A




## 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 | $P_C$ | | 300 | 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* | | 320* | |
| Gain-Bandwidth Product | $f_T$ | $V_{CE}$=10V, $I_C$=5mA | | 750 | | MHz |
| Output Capacitance | $C_{ob}$ | $V_{CB}$=10V, f=1MHz | | 1.0 | 1.5 | pF |
| Reverse transfer Capacitance | $C_{re}$ | $V_{CB}$=10V, f=1MHz | | 0.65 | | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$=10mA, $I_B$=1mA | | | 0.2 | V |
| Base-to-Collector Time Constant | $r_{bb}'C_C$ | $V_{CE}$=10V, $I_C$=5mA, f=31.9MHz | | | 25 | ps |
| Power Gain | PG | $V_{CE}$=10V, $I_C$=10mA, f=100MHz | | 26 | | dB |

* : The 2SC4433 is classified by 5mA $h_{FE}$ as follows :

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 60 | D | 120 | 100 | E | 200 | 160 | F | 320 |



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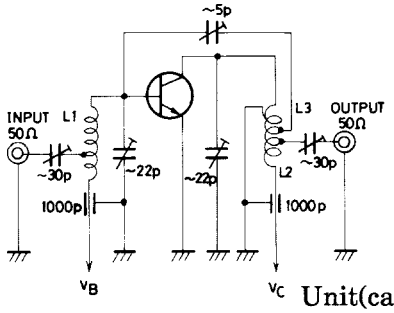
**PG Test Circuit**




Unit(capacitance : F)

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

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

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