

# High-Frequency Amplifier Transistor (18V, 50mA, 1.5GHz)

**2SC5661 / 2SC4725H / 2SC4725 / 2SC4082 /  
2SC3837K**

## ● Features

- 1) High transition frequency. (Typ.  $f_T = 1.5\text{GHz}$ )
- 2) Small  $r_{bb'}$ ,  $C_c$  and high gain. (Typ.  $6\text{ps}$ )
- 3) Small NF.

● **Absolute maximum ratings** ( $T_a = 25^{\circ}\text{C}$ )

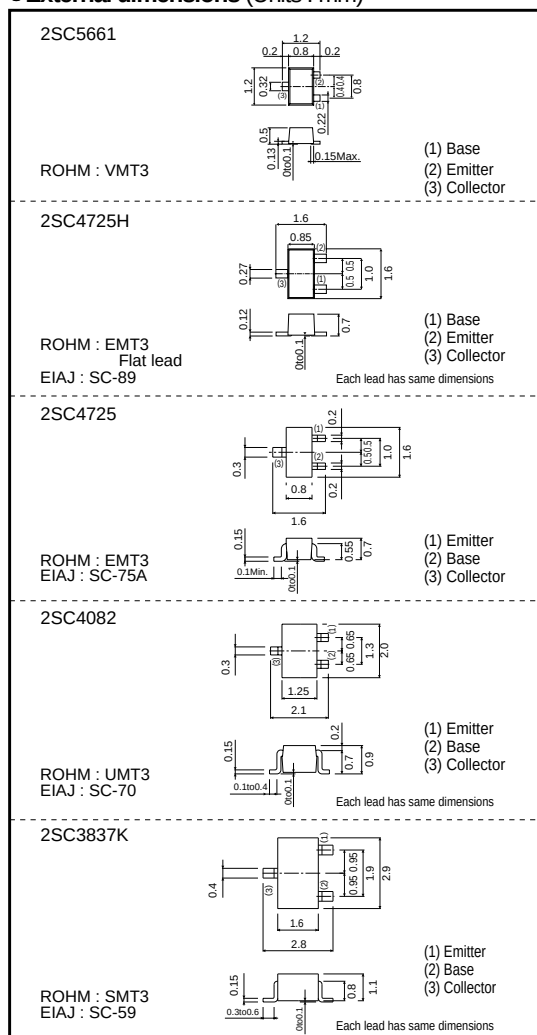
| Parameter                   |                            | Symbol    | Limits   | Unit |
|-----------------------------|----------------------------|-----------|----------|------|
| Collector-base voltage      |                            | $V_{CBO}$ | 30       | V    |
| Collector-emitter voltage   |                            | $V_{CE}$  | 18       | V    |
| Emitter-base voltage        |                            | $V_{EB}$  | 3        | V    |
| Collector current           |                            | $I_C$     | 50       | mA   |
| Collector power dissipation | 2SC5661, 2SC4725H, 2SC4725 | $P_C$     | 0.15     | W    |
|                             | 2SC4082, 2SC3837K          |           | 0.2      |      |
| Junction temperature        |                            | $T_J$     | 150      | °C   |
| Storage temperature         |                            | $T_{stg}$ | -55~+150 | °C   |

### ● Packaging specifications and $h_{FE}$

| Type                         | 2SC5661 | 2SC4725H | 2SC4725 | 2SC4082 | 2SC3837K |
|------------------------------|---------|----------|---------|---------|----------|
| Package                      | VMT3    | EMT3H    | EMT3    | UMT3    | SMT3     |
| hFE                          | NP      | NP       | NP      | NP      | NP       |
| Marking                      | AC*     | AC*      | AC*     | 1C*     | AC*      |
| Code                         | T2L     | T2L      | TL      | T106    | T146     |
| Basic ordering unit (pieces) | 8000    | 8000     | 3000    | 3000    | 3000     |

\* Denotes hrs

●External dimensions (Units : mm)



## Transistors

2SC5661 / 2SC4725H / 2SC4725 /  
2SC4082 / 2SC3837K

### ●Electrical characteristics (Ta = 25°C)

| Parameter                            | Symbol               | Min. | Typ. | Max. | Unit | Conditions                                                                    |
|--------------------------------------|----------------------|------|------|------|------|-------------------------------------------------------------------------------|
| Collector-base breakdown voltage     | BV <sub>CBO</sub>    | 30   | —    | —    | V    | I <sub>C</sub> = 10μA                                                         |
| Collector-emitter breakdown voltage  | BV <sub>CEO</sub>    | 18   | —    | —    | V    | I <sub>C</sub> = 1mA                                                          |
| Emitter-base breakdown voltage       | BV <sub>EBO</sub>    | 3    | —    | —    | V    | I <sub>E</sub> = 10μA                                                         |
| Collector cutoff current             | I <sub>CBO</sub>     | —    | —    | 0.5  | μA   | V <sub>CB</sub> = 10V                                                         |
| Emitter cutoff current               | I <sub>EBO</sub>     | —    | —    | 0.5  | μA   | V <sub>EB</sub> = 2V                                                          |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | —    | —    | 0.5  | V    | I <sub>C</sub> /I <sub>B</sub> = 20mA/4mA                                     |
| DC current transfer ratio            | h <sub>FE</sub>      | 56   | —    | 180  | —    | V <sub>CE</sub> /I <sub>C</sub> = 10V/10mA                                    |
| Transition frequency                 | f <sub>r</sub>       | 600  | 1500 | —    | MHz  | V <sub>CB</sub> = 10V, I <sub>C</sub> = 10mA, f = 200MHz                      |
| Output capacitance                   | C <sub>ob</sub>      | —    | 0.9  | 1.5  | pF   | V <sub>CB</sub> = 10V, I <sub>E</sub> = 0A, f = 1MHz                          |
| Collector-base time constant         | rbb'·Cc              | —    | 6    | 13   | ps   | V <sub>CB</sub> = 10V, I <sub>C</sub> = 10mA, f = 31.8MHz                     |
| Noise factor                         | NF                   | —    | 4.5  | —    | dB   | V <sub>CE</sub> = 12V, I <sub>C</sub> = 2mA, f = 200MHz, R <sub>g</sub> = 50Ω |