



# THE DATASHEET OF 2SC5060TV2M

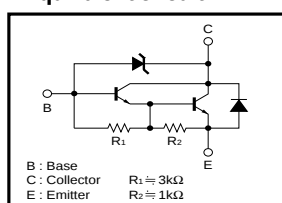
# Power transistor (90±10V, 3A)

## 2SC5060

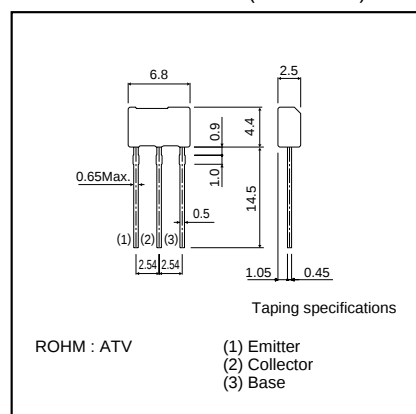
### ●Features

- 1) Built-in zener diode between collector and base.
- 2) Zener diode has low voltage dispersion.
- 3) Strong protection against reverse power surges due to "L" loads.
- 4) Darlington connection for high DC current gain.
- 5) Built-in resistor between base and emitter.
- 6) Built-in damper diode.

### ●Equivalent circuit



### ●External dimensions (Units : mm)



### ●Absolute maximum ratings (Ta=25°C)

| Parameter                   | Symbol           | Limits   | Unit                   |
|-----------------------------|------------------|----------|------------------------|
| Collector-base voltage      | V <sub>CB0</sub> | 90±10    | V                      |
| Collector-emitter voltage   | V <sub>CE0</sub> | 90±10    | V                      |
| Emitter-base voltage        | V <sub>EB0</sub> | 6        | V                      |
| Collector current           | I <sub>C</sub>   | 1        | A(DC)                  |
|                             | I <sub>CP</sub>  | 2        | A(Pulse) <sup>+1</sup> |
| Collector power dissipation | P <sub>C</sub>   | 1        | W <sup>+2</sup>        |
| Junction temperature        | T <sub>J</sub>   | 150      | °C                     |
| Storage temperature         | T <sub>stg</sub> | -55~+150 | °C                     |

<sup>+1</sup> Single pulse P<sub>av</sub>≤10ms

<sup>+2</sup> Printed circuit board : 1.7 mm thick, collector copper plating at least 100mm<sup>2</sup>.

### ●Packaging specifications and hFE

|                              |         |
|------------------------------|---------|
| Type                         | 2SC5060 |
| Package                      | ATV     |
| hFE                          | M       |
| Code                         | TV2     |
| Basic ordering unit (pieces) | 2500    |

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

| Parameter                            | Symbol               | Min. | Typ. | Max. | Unit | Conditions                                                       |
|--------------------------------------|----------------------|------|------|------|------|------------------------------------------------------------------|
| Collector-base breakdown voltage     | BV <sub>CB0</sub>    | 80   | —    | 100  | V    | I <sub>C</sub> =50μA                                             |
| Collector-emitter breakdown voltage  | BV <sub>CE0</sub>    | 80   | —    | 100  | V    | I <sub>C</sub> =1mA                                              |
| Collector cutoff current             | I <sub>CB0</sub>     | —    | —    | 10   | μA   | V <sub>CB</sub> =70V                                             |
| Emitter cutoff current               | I <sub>EB0</sub>     | —    | —    | 3    | mA   | V <sub>EB</sub> =5V                                              |
| DC current transfer ratio            | h <sub>FE</sub>      | 1000 | —    | 2500 | —    | V <sub>CE</sub> =3V, I <sub>C</sub> =0.5A <sup>+1</sup>          |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | —    | —    | 1.5  | V    | I <sub>C</sub> /I <sub>B</sub> =500mA/1mA                        |
| Base-emitter saturation voltage      | V <sub>BE(sat)</sub> | —    | —    | 2    | V    | I <sub>C</sub> /I <sub>B</sub> =500mA/1mA <sup>+1</sup>          |
| Transition frequency                 | f <sub>T</sub>       | —    | 80   | —    | MHz  | V <sub>CE</sub> =5V, I <sub>E</sub> =0.1A, f=30MHz <sup>+2</sup> |
| Output capacitance                   | C <sub>ob</sub>      | —    | 20   | —    | pF   | V <sub>CE</sub> =10V, I <sub>E</sub> =0A, f=1MHz                 |
| Turn-on time                         | t <sub>on</sub>      | —    | 0.2  | —    | μs   | I <sub>C</sub> =0.8A, R <sub>L</sub> =50Ω                        |
| Storage time                         | t <sub>stg</sub>     | —    | 5    | —    | μs   | I <sub>B1</sub> =-I <sub>B2</sub> =8mA                           |
| Fall time                            | t <sub>f</sub>       | —    | 0.6  | —    | μs   | V <sub>CC</sub> ≈40V                                             |

<sup>+1</sup> Measured using pulse current. <sup>+2</sup> Transition frequency of the device.

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