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2SC5060

Transistors

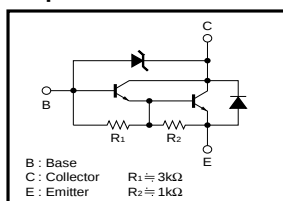
# Power transistor (90±10V, 3A)

## 2SC5060

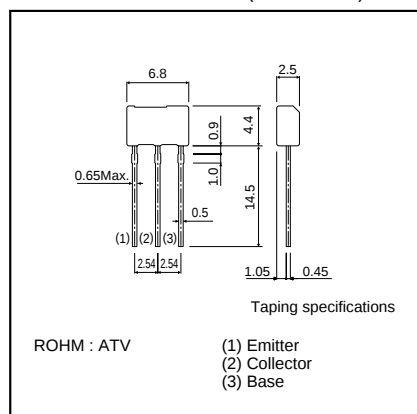
### ●Features

- 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      | $V_{CB0}$ | 90±10    | V           |
| Collector-emitter voltage   | $V_{CE0}$ | 90±10    | V           |
| Emitter-base voltage        | $V_{EB0}$ | 6        | V           |
| Collector current           | $I_C$     | 1        | A(DC)       |
|                             | $I_{CP}$  | 2        | A(Pulse) *1 |
| Collector power dissipation | $P_C$     | 1        | W *2        |
| Junction temperature        | $T_J$     | 150      | °C          |
| Storage temperature         | $T_{stg}$ | -55~+150 | °C          |

\*1 Single pulse, Pw<10ms

\*2 Printed circuit board : 1.7 mm thick, collector copper plating at least 100mm².

### ●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     | $BV_{CB0}$    | 80   | —    | 100  | V       | $I_C=50\mu A$                     |
| Collector-emitter breakdown voltage  | $BV_{CE0}$    | 80   | —    | 100  | V       | $I_C=1mA$                         |
| Collector cutoff current             | $I_{C0}$      | —    | —    | 10   | $\mu A$ | $V_{CB}=70V$                      |
| Emitter cutoff current               | $I_{E0}$      | —    | —    | 3    | mA      | $V_{EB}=5V$                       |
| DC current transfer ratio            | $h_{FE}$      | 1000 | —    | 2500 | —       | $V_{CE}=3V, I_C=0.5A$ *1          |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | —    | —    | 1.5  | V       | $I_C/I_E=500mA/1mA$               |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | —    | —    | 2    | V       | $I_C/I_E=500mA/1mA$ *1            |
| Transition frequency                 | $f_T$         | —    | 80   | —    | MHz     | $V_{CE}=5V, I_C=0.1A, f=30MHz$ *2 |
| Output capacitance                   | $C_{ob}$      | —    | 20   | —    | pF      | $V_{CE}=10V, I_E=0A, f=1MHz$      |
| Turn-on time                         | $t_{on}$      | —    | 0.2  | —    | $\mu s$ | $I_C=0.8A, R_L=50\Omega$          |
| Storage time                         | $t_{stg}$     | —    | 5    | —    | $\mu s$ | $I_{B1}=I_{B2}=9mA$               |
| Fall time                            | $t_f$         | —    | 0.6  | —    | $\mu s$ | $V_{CC}=40V$                      |

\*1 Measured using pulse current. \*2 Transition frequency of the device.