

# Power Transistor (-50V, -2A)

**2SB1443**
**●Features**

1) Low saturation voltage.

$$V_{CE(sat)} = -0.35V \text{ (Max.) at } I_C / I_B = -1A / -50mA.$$

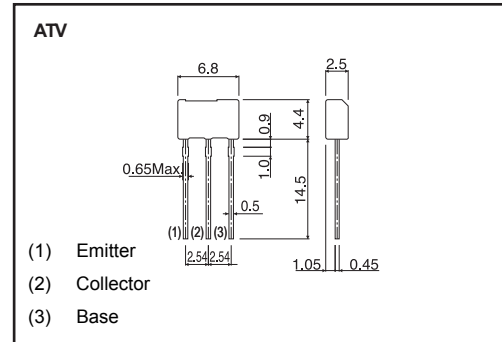
2) Excellent DC current gain characteristics.

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

| Parameter                   | Symbol    | Limits      | Unit         |
|-----------------------------|-----------|-------------|--------------|
| Collector-base voltage      | $V_{CBO}$ | -50         | V            |
| Collector-emitter voltage   | $V_{CEO}$ | -50         | V            |
| Emitter-base voltage        | $V_{EBO}$ | -6          | V            |
| Collector current           | $I_C$     | -2          | A (DC)       |
|                             |           | -5          | A (Pulse) *1 |
| Collector power dissipation | $P_C$     | 1           | W *2         |
| Junction temperature        | $T_J$     | 150         | °C           |
| Storage temperature         | $T_{stg}$ | -55 to +150 | °C           |

 \*1 Single pulse,  $P_w=10ms$ 

 \*2 Printed circuit board 1.7mm thick, collector plating 1cm<sup>2</sup> or larger.

**●Dimensions (Unit : mm)**

**●Packaging specifications and hFE**

|                              |         |
|------------------------------|---------|
| Type                         | 2SB1443 |
| Package                      | ATV     |
| hFE                          | Q       |
| Marking                      | -       |
| Code                         | TV2     |
| Basic ordering unit (pieces) | 2500    |

\*Denotes hFE

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

| Parameter                            | Symbol        | Min. | Typ.  | Max.  | Unit    | Conditions                       |
|--------------------------------------|---------------|------|-------|-------|---------|----------------------------------|
| Collector-base breakdown voltage     | $BV_{CBO}$    | -50  | -     | -     | V       | $I_C=-50\mu A$                   |
| Collector-emitter breakdown voltage  | $BV_{CEO}$    | -50  | -     | -     | V       | $I_C=-1mA$                       |
| Emitter-base breakdown voltage       | $BV_{EBO}$    | -6   | -     | -     | V       | $I_E=-50\mu A$                   |
| Collector cutoff current             | $I_{CBO}$     | -    | -     | -0.1  | $\mu A$ | $V_{CB}=-50V$                    |
| Emitter cutoff current               | $I_{EBO}$     | -    | -     | -0.1  | $\mu A$ | $V_{EB}=-5V$                     |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | -    | -0.15 | -0.35 | V       | $I_C/I_B=-1A/-50mA$ *            |
| DC current transfer ratio            | hFE           | 120  | -     | 270   | -       | $V_{CE}/I_C=-2V/-0.5A$           |
| Transition frequency                 | $f_T$         | -    | 200   | -     | MHz     | $V_{CE}=-2V, I_E=0.5A, f=100MHz$ |
| Output capacitance                   | $C_{ob}$      | -    | 36    | -     | pF      | $V_{CB}=-10V, I_E=0A, f=1MHz$ *  |

\* Measured using pulse current

●Electrical characteristics curves

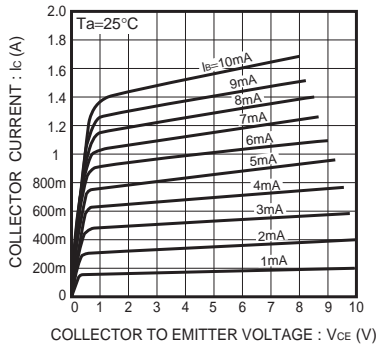


Fig.1 Grounded Emitter Output Characteristics

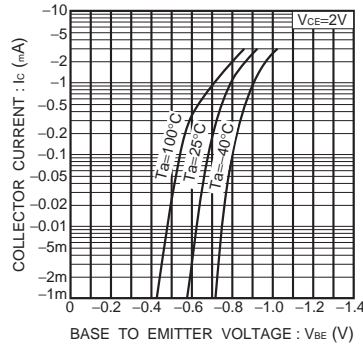


Fig.2 Grounded Emitter Propagation Characteristics

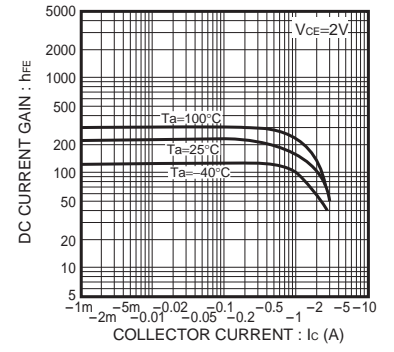


Fig.3 DC Current Gain vs. Collector Current

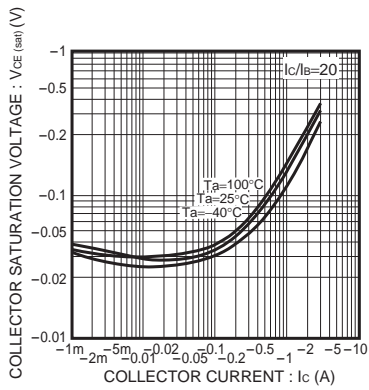


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current

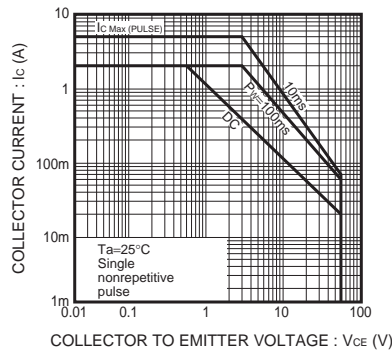


Fig.5 Safe Operating Area

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