

# Power Transistor (−160V , −1.5A)

## 2SB1275 / 2SB1236A

●Features

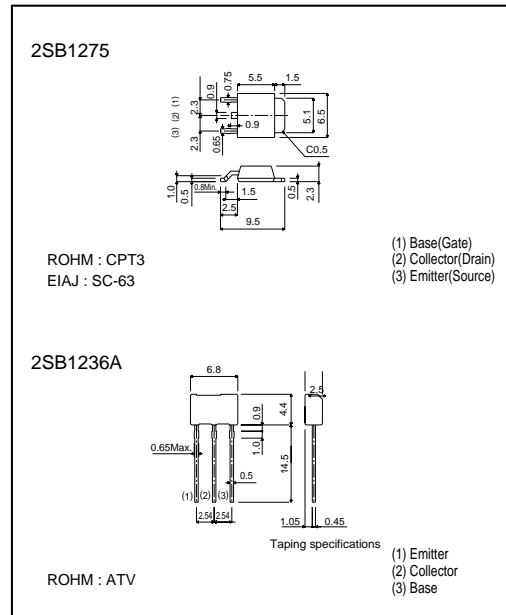
- 1) High breakdown voltage.( $BV_{CEO} = -160V$ )
- 2) Low collector output capacitance.  
(Typ. 30pF at  $V_{CB} = 10V$ )
- 3) High transition frequency.( $f_T = 50MHz$ )
- 4) Complements the 2SD1918 / 2SD1857A.

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

| Parameter                   | Symbol    | Limits   | Unit                     |
|-----------------------------|-----------|----------|--------------------------|
| Collector-base voltage      | $V_{CBO}$ | -160     | V                        |
| Collector-emitter voltage   | $V_{CEO}$ | -160     | V                        |
| Emitter-base voltage        | $V_{EBO}$ | -5       | V                        |
| Collector current           | $I_C$     | -1.5     | A(DC)                    |
|                             |           | -3       | A(Pulse) *1              |
| Collector power dissipation | $P_C$     | 1        | W( $T_C = 25^{\circ}C$ ) |
|                             |           | 10       |                          |
| Junction temperature        | $T_J$     | 1        | W *2                     |
|                             |           | 150      |                          |
| Storage temperature         | $T_{stg}$ | -55→+150 | $^{\circ}C$              |

\*1 Single pulse  $P_W = 100ms$   
 \*2 Printed circuit board 1.7mm thick, collector plating 1cm<sup>2</sup> or larger.

●External dimensions (Unit : mm)



●Packaging specifications and  $h_{FE}$

| Type                         | 2SB1275 | 2SB1236A |
|------------------------------|---------|----------|
| Package                      | CPT3    | ATV      |
| $h_{FE}$                     | P       | PQ       |
| Code                         | TL      | TV2      |
| Basic ordering unit (pieces) | 2500    | 2500     |

●Electrical characteristics ( $T_a = 25^{\circ}C$ )

| Parameter                            | Symbol        | Min. | Typ. | Max. | Unit    | Conditions                            |
|--------------------------------------|---------------|------|------|------|---------|---------------------------------------|
| Collector-base breakdown voltage     | $BV_{CBO}$    | -160 | -    | -    | V       | $I_C = -50\mu A$                      |
| Collector-emitter breakdown voltage  | $BV_{CEO}$    | -160 | -    | -    | V       | $I_C = -1mA$                          |
| Emitter-base breakdown voltage       | $BV_{EBO}$    | -5   | -    | -    | V       | $I_E = -50\mu A$                      |
| Collector cutoff current             | $I_{CBO}$     | -    | -    | -1   | $\mu A$ | $V_{CB} = -120V$                      |
| Emitter cutoff current               | $I_{EBO}$     | -    | -    | -1   | $\mu A$ | $V_{EB} = -4V$                        |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | -    | -    | -2   | V       | $I_C/I_B = -1A/-0.1A$ *               |
| DC current transfer ratio            | 2SB1275       | 82   | -    | 180  | -       | $V_{CE} = -5V, I_C = -0.1A$           |
|                                      | 2SB1236A      | 82   | -    | 270  | -       |                                       |
| Transition frequency                 | $f_T$         | -    | 50   | -    | MHz     | $V_{CE} = -5V, I_E = 0.1A, f = 30MHz$ |
| Output capacitance                   | $C_{ob}$      | -    | 30   | -    | pF      | $V_{CB} = -10V, I_E = 0A, f = 1MHz$   |

\*Measured using pulse current.

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●Electrical characteristics curves

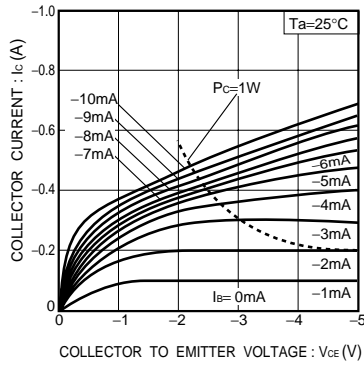


Fig.1 Ground emitter output characteristics

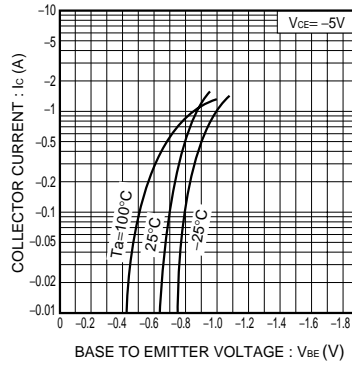


Fig.2 Ground emitter propagation characteristics

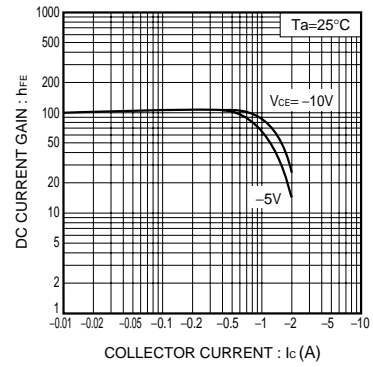


Fig.3 DC current gain vs. collector current ( I )

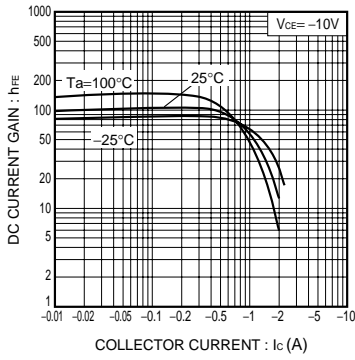


Fig.4 DC current gain vs. collector current ( II )

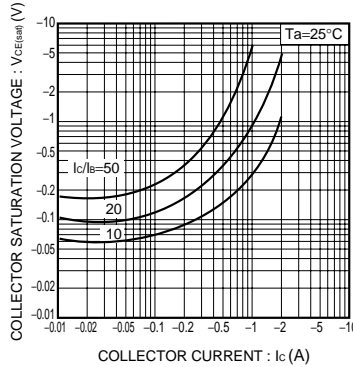


Fig.5 Collector-emitter saturation voltage vs. collector current

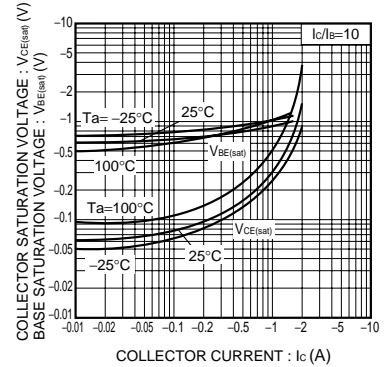


Fig.6 Collector-emitter saturation voltage Base-emitter saturation voltage vs. collector current

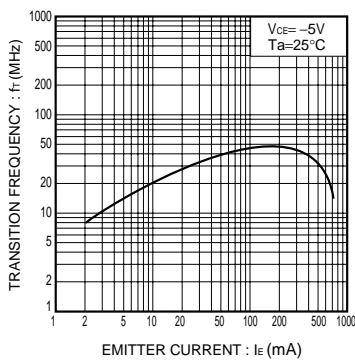


Fig.7 Resistance ratio vs. emitter current

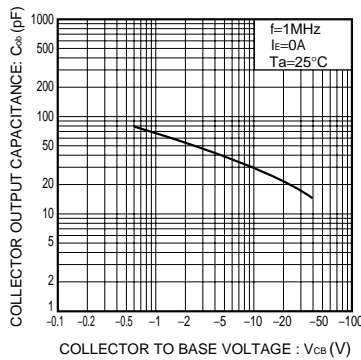


Fig.8 Collector output capacitance vs. collector-base voltage

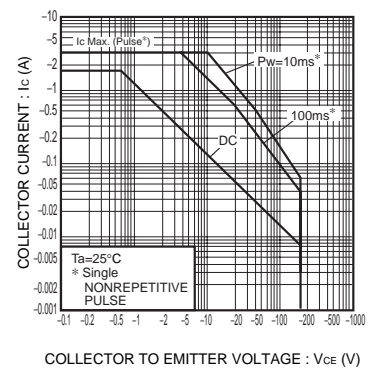
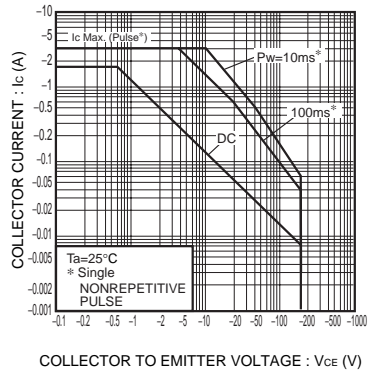


Fig.9 Safe operating area (2SB1236A)

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