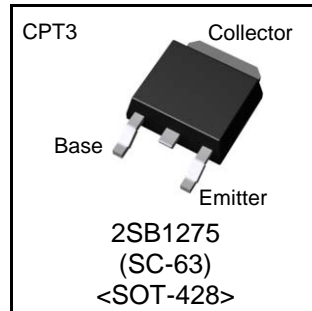


| Parameter | Value |
|-----------|-------|
| $V_{CEO}$ | -160V |
| $I_C$     | -1.5A |

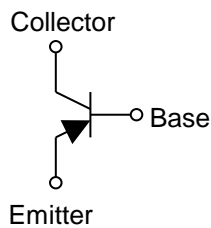
### ●Features

- 1) Suitable for Middle Power Driver
- 2) Complementary NPN Types : 2SD1918
- 3) High voltage :  $V_{CEO} = -160V$
- 4) Lead Free/RoHS Compliant.

### ●Outline



### ●Inner circuit



### ●Applications

Motor driver , LED driver  
Power supply

### ●Packaging specifications

| Part No. | Package | Package size (mm) | Taping code | Reel size (mm) | Tape width (mm) | Basic ordering unit (pcs) | Marking |
|----------|---------|-------------------|-------------|----------------|-----------------|---------------------------|---------|
| 2SB1275  | CPT3    | 6595              | TL          | 330            | 16              | 2,500                     | B1275   |

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

| Parameter                    |        | Symbol        | Values      | Unit |
|------------------------------|--------|---------------|-------------|------|
| Collector-base voltage       |        | $V_{CBO}$     | -160        | V    |
| Collector-emitter voltage    |        | $V_{CEO}$     | -160        | V    |
| Emitter-base voltage         |        | $V_{EBO}$     | -5          | V    |
| Collector current            | DC     | $I_C$         | -1.5        | A    |
|                              | Pulsed | $I_{CP}^{*1}$ | -3.0        | A    |
| Power dissipation            |        | $P_D^{*2}$    | 1           | W    |
|                              |        | $P_D^{*3}$    | 10          | W    |
| Junction temperature         |        | $T_j$         | 150         | °C   |
| Range of storage temperature |        | $T_{stg}$     | -55 to +150 | °C   |

\*1 Pw=100ms , single pulse

\*2 Mounted on a substrate

\*3 Tc=25°C

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

| Parameter                            | Symbol             | Conditions                               | Min. | Typ. | Max. | Unit    |
|--------------------------------------|--------------------|--|------|------|------|---------|
| Collector-emitter breakdown voltage  | $BV_{CEO}$         | $I_C = -1mA$                             | -160 | -    | -    | V       |
| Collector-base breakdown voltage     | $BV_{CBO}$         | $I_C = -50\mu A$                         | -160 | -    | -    | V       |
| Emitter-base breakdown voltage       | $BV_{EBO}$         | $I_E = -50\mu A$                         | -5   | -    | -    | V       |
| Collector cut-off current            | $I_{CBO}$          | $V_{CB} = -120V$                         | -    | -    | -1   | $\mu A$ |
| Emitter cut-off current              | $I_{EBO}$          | $V_{EB} = -4V$                           | -    | -    | -1   | $\mu A$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}^{*4}$ | $I_C = -1A, I_B = -0.1A$                 | -    | -    | -2   | V       |
| DC current gain                      | $h_{FE}$           | $V_{CE} = -5V, I_C = -100mA$             | 82   | -    | 180  | -       |
| Transition frequency                 | $f_T$              | $V_{CE} = -5V, I_E = 100mA$<br>$f=30MHz$ | -    | 50   | -    | MHz     |
| Output capacitance                   | $C_{ob}$           | $V_{CB} = -10V, I_E = 0A,$<br>$f = 1MHz$ | -    | 30   | -    | pF      |

\*4 Pulsed

**● $h_{FE}$  rank categories**

| Rank     | P         |
|----------|-----------|
| $h_{FE}$ | 82 to 180 |

●Electrical characteristic curves(Ta = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

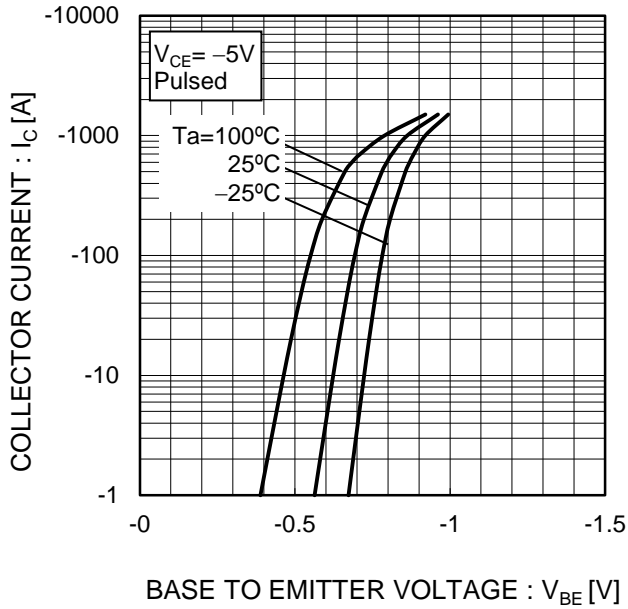


Fig.2 Typical Output Characteristics

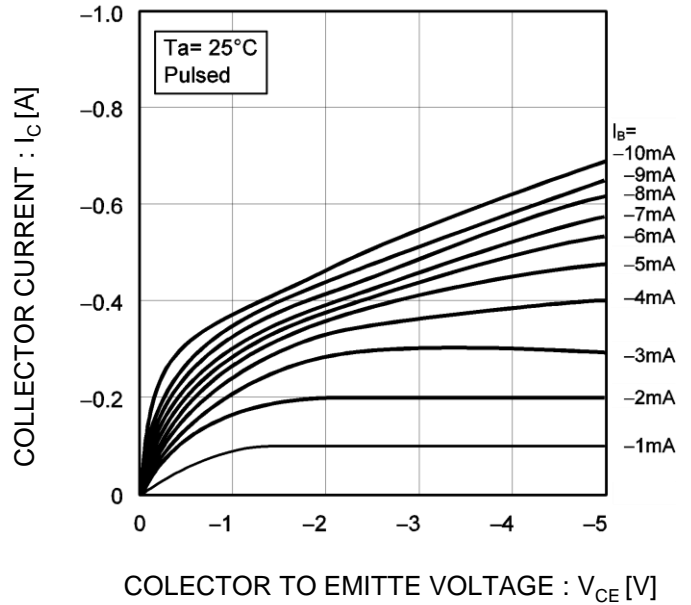


Fig.3 DC Current Gain vs. Collector Current(I)

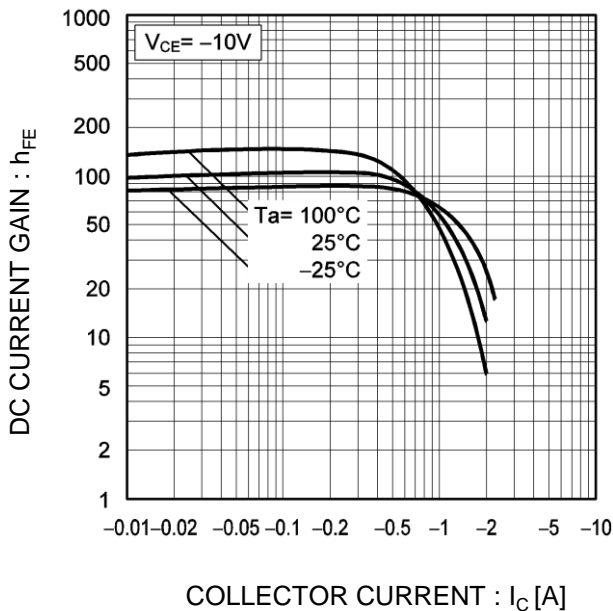
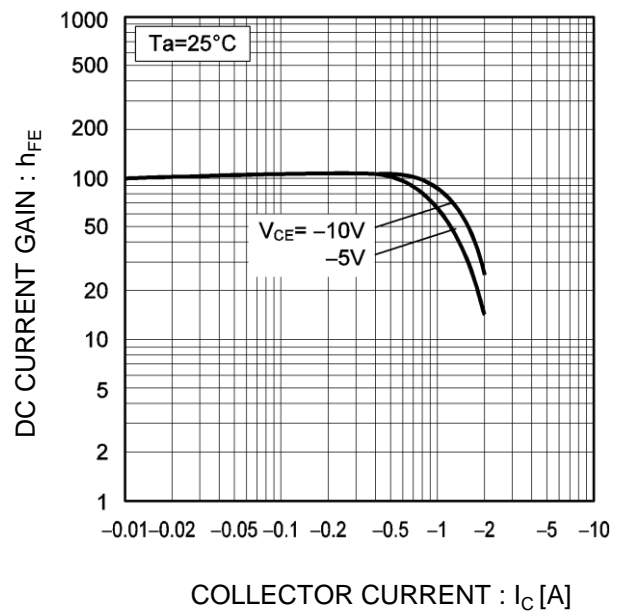


Fig.4 DC current gain vs. output current (II)



●Electrical characteristic curves(Ta = 25°C)

Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

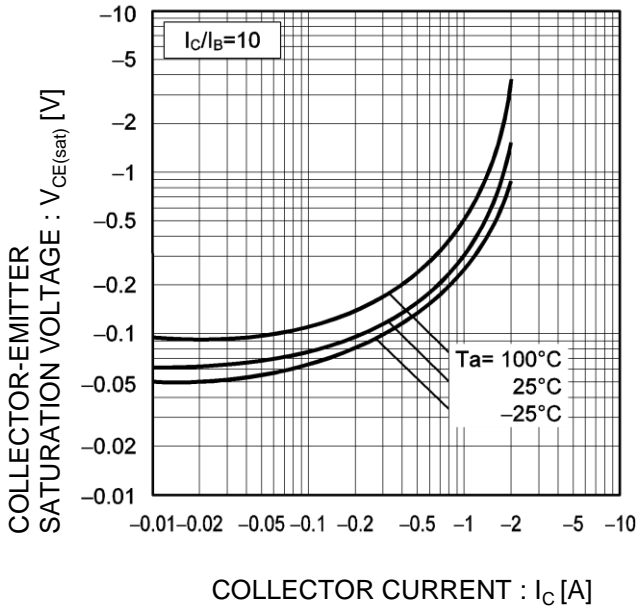


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

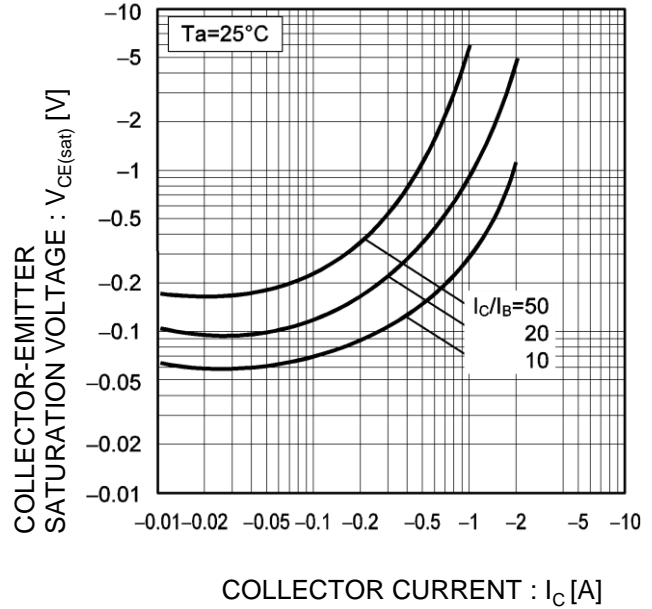


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

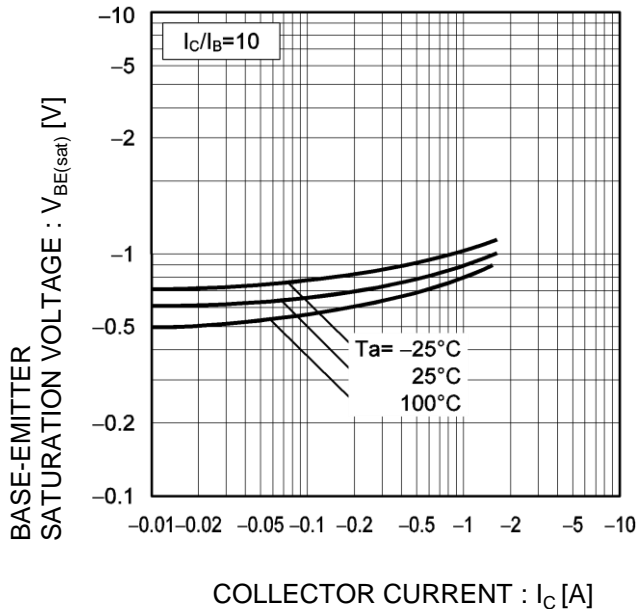
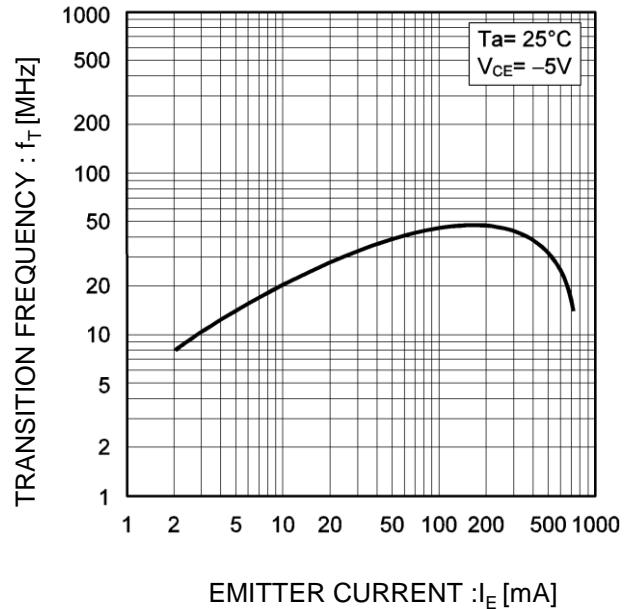


Fig.8 Gain Bandwidth Product vs. Emitter Current



●Electrical characteristic curves(Ta = 25°C)

Fig.9 Collector output capacitance vs. Collector-Base Voltage

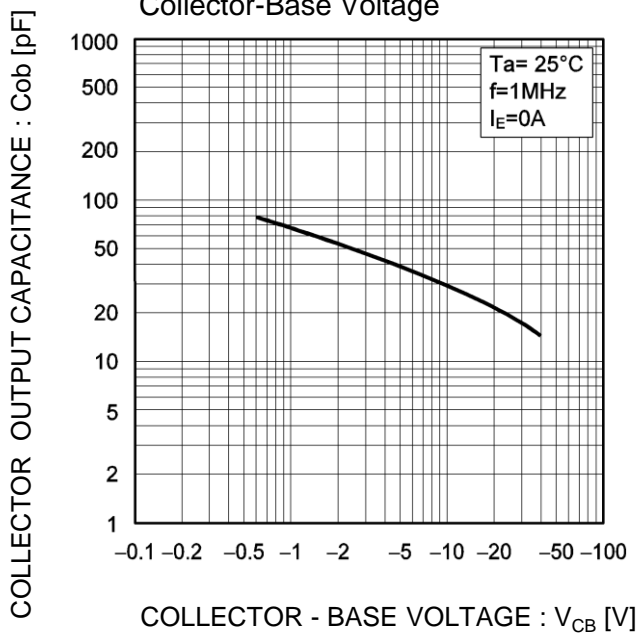
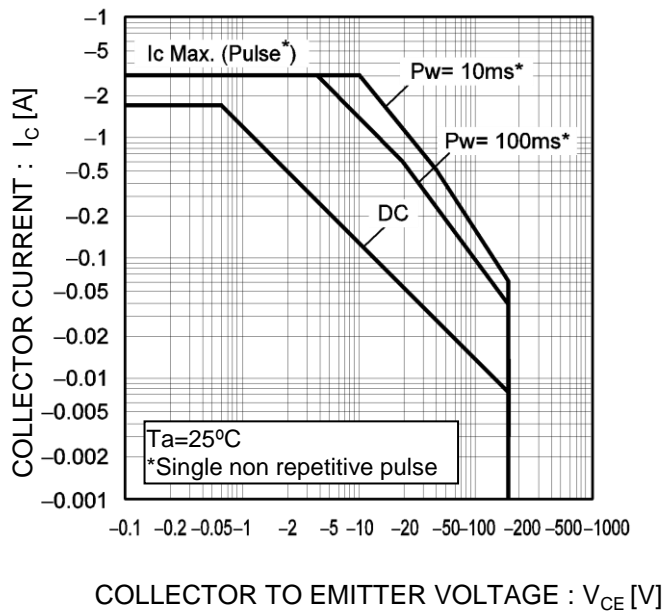
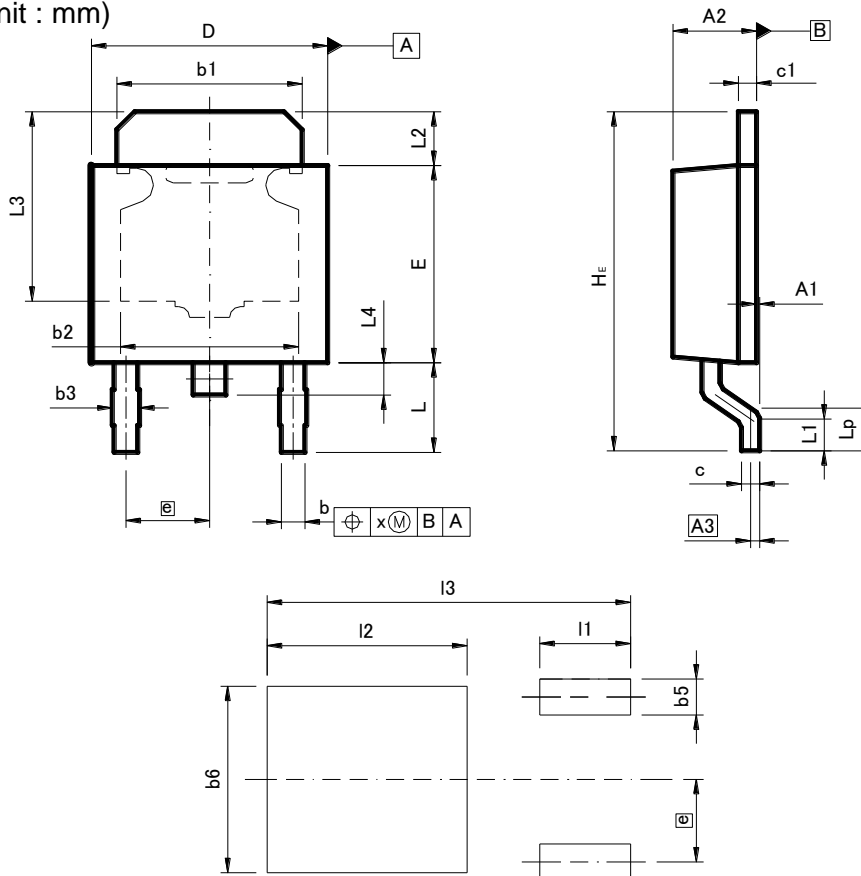


Fig.10 Safe Operating Area



●Dimensions (Unit : mm)

CPT3



Pattern of terminal position areas  
[Not a recommended pattern of soldering pads]

| DIM | MILIMETERS |       | INCHES |       |
|-----|------------|-------|--------|-------|
|     | MIN        | MAX   | MIN    | MAX   |
| A1  | 0.00       | 0.15  | 0.000  | 0.006 |
| A2  | 2.20       | 2.50  | 0.087  | 0.098 |
| A3  | 0.25       |       | 0.010  |       |
| b   | 0.55       | 0.75  | 0.022  | 0.030 |
| b1  | 5.00       | 5.30  | 0.197  | 0.209 |
| b2  | 5.00       |       | 0.197  |       |
| b3  | 0.75       |       | 0.030  |       |
| c   | 0.40       | 0.60  | 0.016  | 0.024 |
| c1  | 0.40       | 0.60  | 0.016  | 0.024 |
| D   | 6.30       | 6.70  | 0.248  | 0.264 |
| E   | 5.40       | 5.80  | 0.213  | 0.228 |
| e   | 2.30       |       | 0.091  |       |
| HE  | 9.00       | 10.00 | 0.354  | 0.394 |
| L   | 2.20       | 2.80  | 0.087  | 0.110 |
| L1  | 0.80       | 1.40  | 0.031  | 0.055 |
| L2  | 1.20       | 1.80  | 0.047  | 0.071 |
| L3  | 5.30       |       | 0.209  |       |
| L4  | 0.90       |       | 0.035  |       |
| Lp  | 1.00       | 1.60  | 0.039  | 0.063 |
| x   | -          | 0.25  | -      | 0.010 |

| DIM | MILIMETERS |       | INCHES |       |
|-----|------------|-------|--------|-------|
|     | MIN        | MAX   | MIN    | MAX   |
| b5  | -          | 1.00  | -      | 0.04  |
| b6  | -          | 5.20  | -      | 0.205 |
| l1  | -          | 2.50  | -      | 0.098 |
| l2  | -          | 5.50  | -      | 0.217 |
| l3  | -          | 10.00 | -      | 0.394 |

Dimension in mm / inches

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## 2SB1275 - Web Page

[Distribution Inventory](#)

|                             |         |
|-----------------------------|---------|
| Part Number                 | 2SB1275 |
| Package                     | CPT3    |
| Unit Quantity               | 2500    |
| Minimum Package Quantity    | 2500    |
| Packing Type                | Taping  |
| Constitution Materials List | inquiry |
| RoHS                        | Yes     |



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