

**SANYO**

No.1245C

**2SB986/2SD1348**

PNP/NPN Epitaxial Planar Silicon Darlington Transistors

**High-Current Switching Applications****Applications**

- Power supplies, relay drivers, lamp drivers, electrical equipment.

**Features**

- Adoption of FBET and MBIT processes.
- Low saturation voltage.
- High current capacity and wide ASO.

( ): 2SB986

**Absolute Maximum Ratings at  $T_a = 25^\circ\text{C}$** 

unit

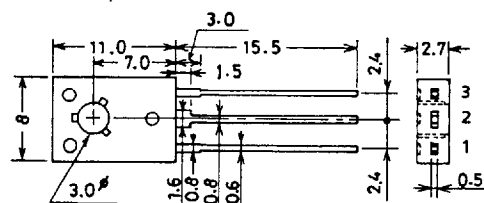
|                              |           |             |                  |
|------------------------------|-----------|-------------|------------------|
| Collector-to-Base Voltage    | $V_{CB0}$ | (- )60      | V                |
| Collector-to-Emitter Voltage | $V_{CEO}$ | (- )50      | V                |
| Emitter-to-Base Voltage      | $V_{EBO}$ | (- )6       | V                |
| Collector Current            | $I_C$     | (- )4       | A                |
| Collector Current (Pulse)    | $I_{CP}$  | (- )6       | A                |
| Collector Dissipation        | $P_C$     | 1.2         | W                |
|                              |           | 10          | W                |
| Junction Temperature         | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage Temperature          | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

 $T_c = 25^\circ\text{C}$ **Electrical Characteristics at  $T_a = 25^\circ\text{C}$** 

|                          |               |                                                           | min    | typ      | max     | unit |
|--------------------------|---------------|-----------------------------------------------------------|--------|----------|---------|------|
| Collector Cutoff Current | $I_{CBO}$     | $V_{CB} = (-)40\text{V}, I_E = 0$                         |        |          | (- )1.0 | mA   |
| Emitter Cutoff Current   | $I_{EBO}$     | $V_{EB} = (-)4\text{V}, I_C = 0$                          |        |          | (- )1.0 | mA   |
| DC Current Gain          | $h_{FE}(1)$   | $V_{CE} = (-)2\text{V}, I_C = (-)100\text{mA}$            | 100※   |          | 560※    |      |
|                          | $h_{FE}(2)$   | $V_{CE} = (-)2\text{V}, I_C = (-)3\text{A}$               | 40     |          |         |      |
| Gain Bandwidth Product   | $f_T$         | $V_{CE} = (-)10\text{V}, I_C = (-)50\text{mA}$            |        | 150      |         | MHz  |
| Output Capacitance       | $C_{ob}$      | $V_{CB} = (-)10\text{V}$                                  |        | 25       |         | pF   |
|                          |               |                                                           |        | (39)     |         |      |
| C-E Saturation Voltage   | $V_{CE(sat)}$ | $I_C = (-)2\text{A}, I_B = (-)100\text{mA}, \text{Pulse}$ |        | 0.19     | 0.5     | V    |
|                          |               |                                                           |        | (-0.35)  | (-0.7)  |      |
| B-E Saturation Voltage   | $V_{BE(sat)}$ | $I_C = (-)2\text{A}, I_B = (-)100\text{mA}, \text{Pulse}$ |        | (- )0.94 | (- )1.2 | V    |
| C-B Breakdown Voltage    | $V_{(BR)CBO}$ | $I_C = (-)10\mu\text{A}, I_E = 0$                         | (- )60 |          |         | V    |
| C-E Breakdown Voltage    | $V_{(BR)CEO}$ | $I_C = (-)1\text{mA}, R_{BE} = \infty$                    | (- )50 |          |         | V    |
| E-B Breakdown Voltage    | $V_{(BR)EBO}$ | $I_E = (-)10\mu\text{A}, I_C = 0$                         | (- )6  |          |         | V    |

※ : The 2SB986/2SD1348 are classified by 100mA  $h_{FE}$  as follows :

|     |   |     |     |   |     |     |   |     |     |   |     |
|-----|---|-----|-----|---|-----|-----|---|-----|-----|---|-----|
| 100 | R | 200 | 140 | S | 280 | 200 | T | 400 | 280 | U | 560 |
|-----|---|-----|-----|---|-----|-----|---|-----|-----|---|-----|

**Package Dimensions 2009B**  
(unit : mm)

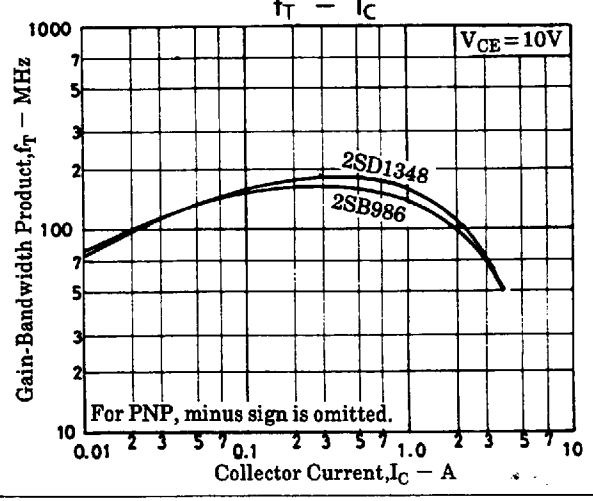
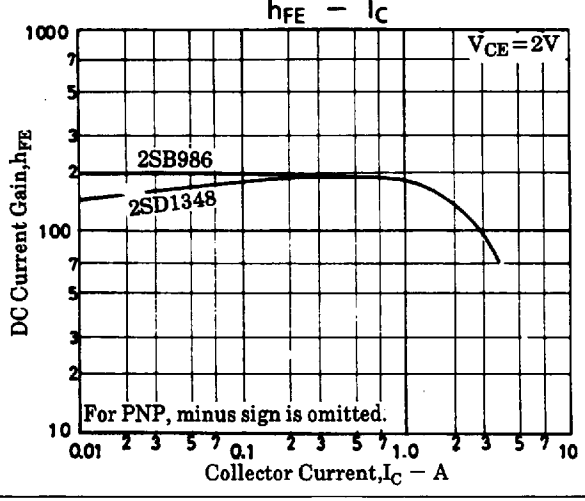
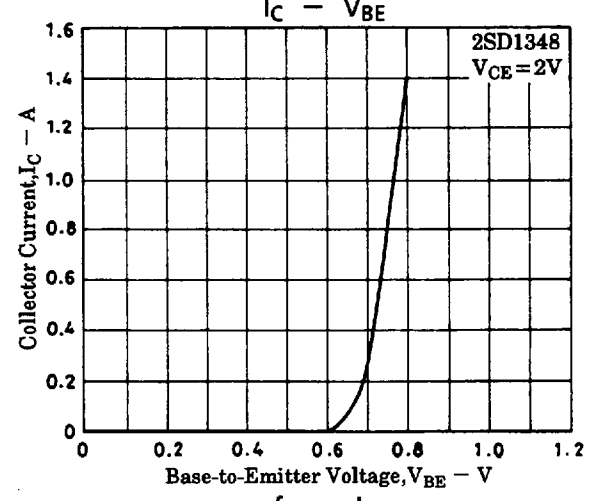
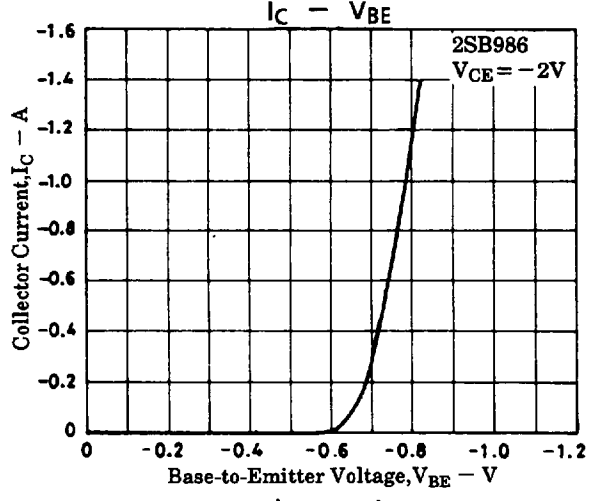
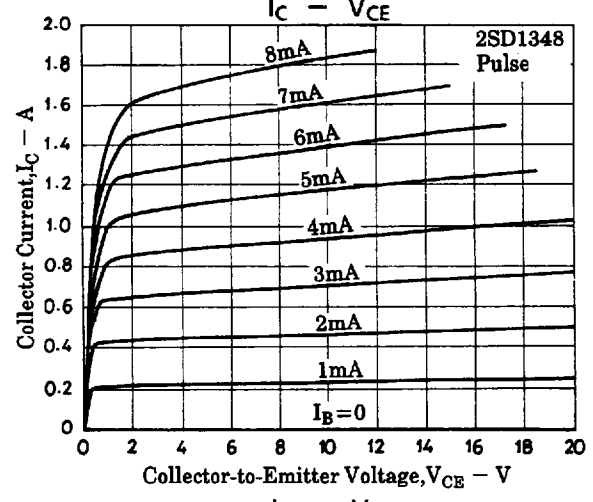
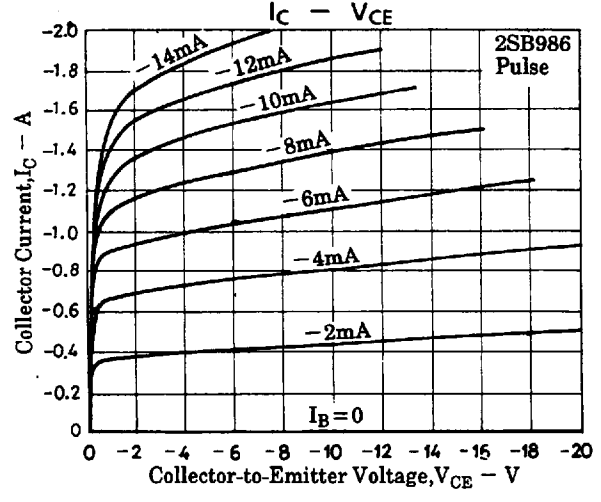
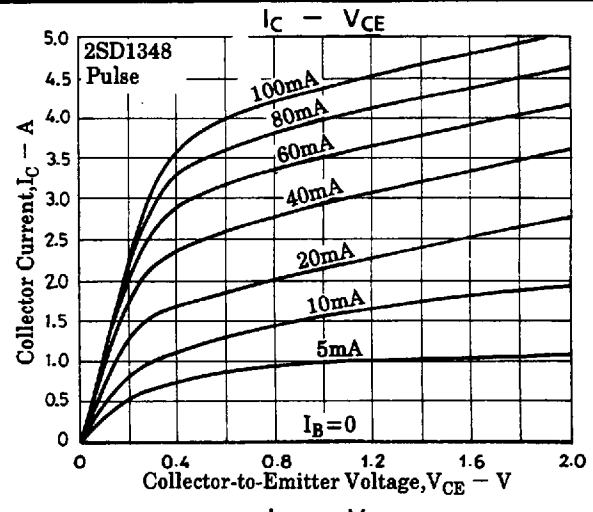
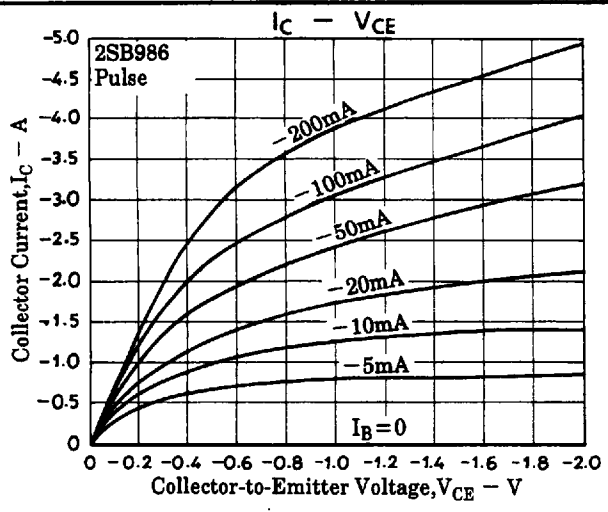
JEDEC: TO-126

 1 : Emitter  
 2 : Collector  
 3 : Base
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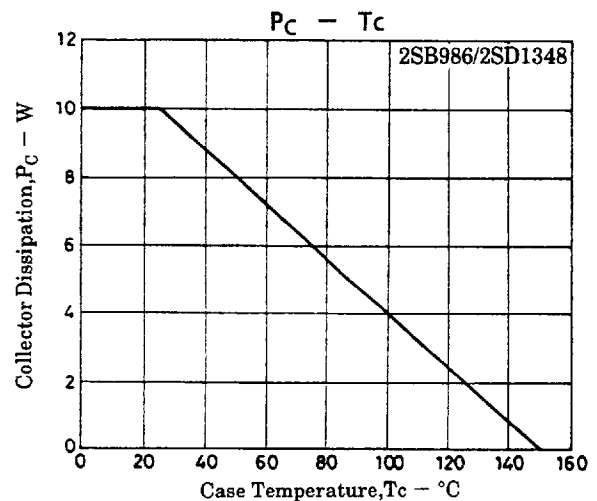
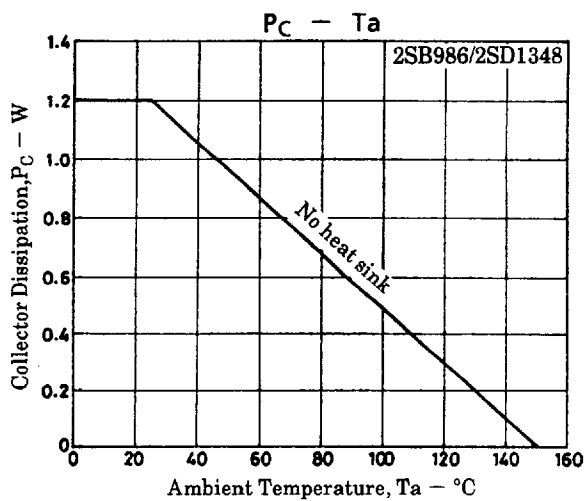
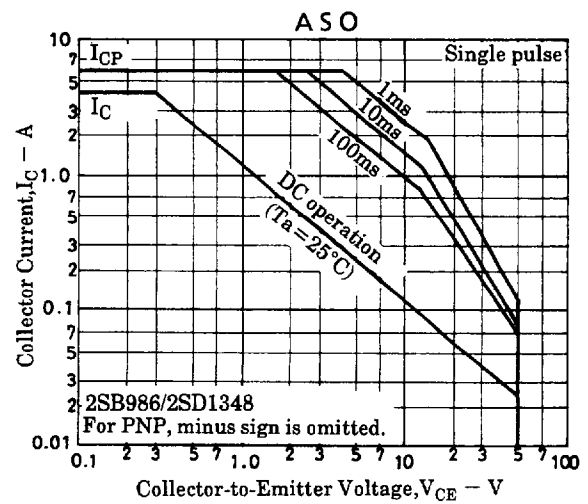
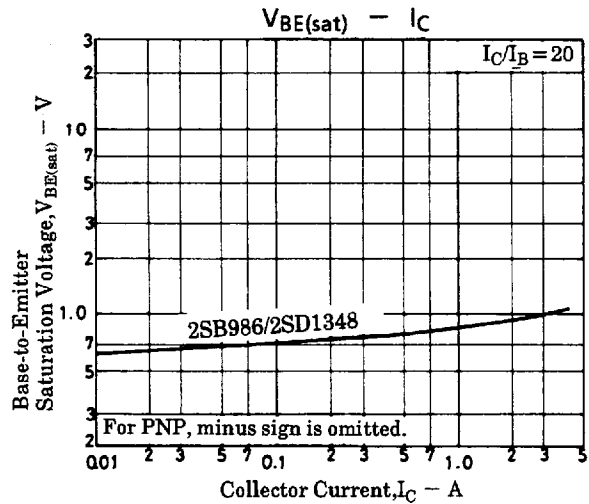
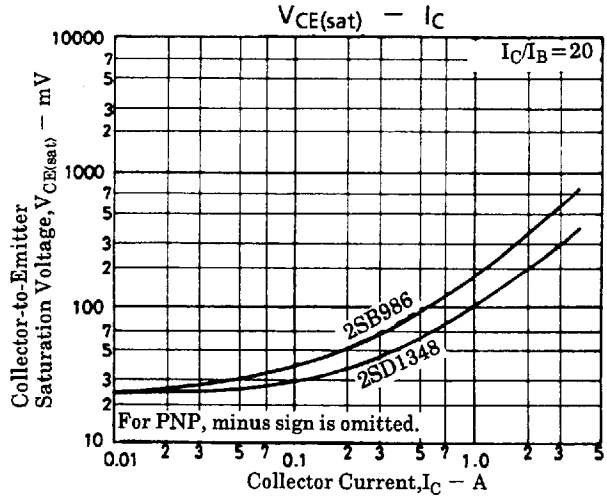
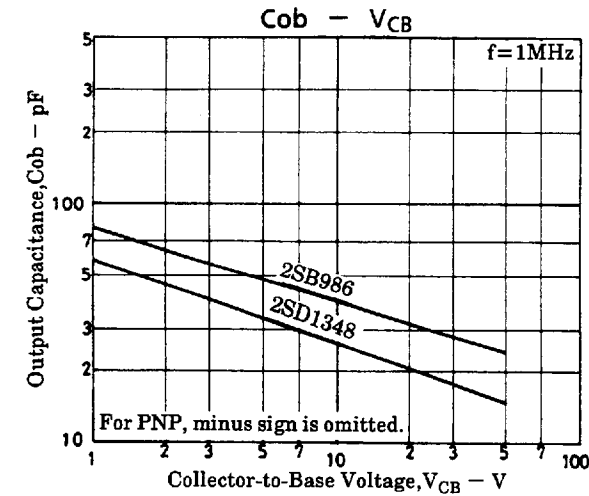
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# 2SB986/2SD1348



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