



# 2SB1133 / 2SD1666

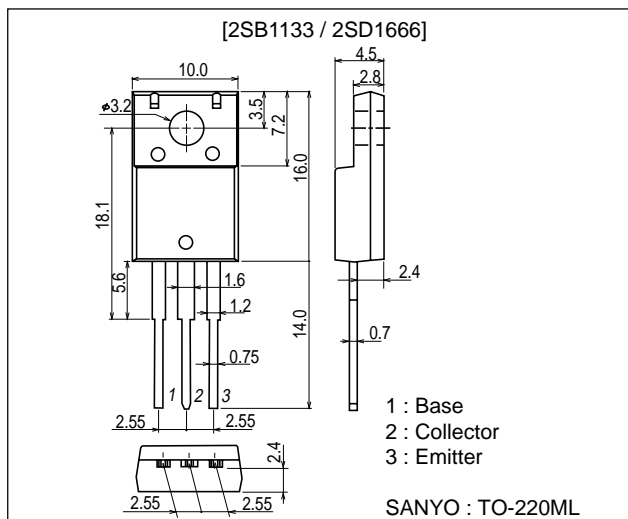
## Low-Frequency General-Purpose Amplifier Applications

### Features

- Wide ASO(Adoption of MBIT process).
- Micaless package facilitating easy mounting.
- High reliability.

### Package Dimensions

unit : mm  
2041A



### Specifications

( ) : 2SB1133

#### Absolute Maximum Ratings at Ta=25°C

| Parameter                    | Symbol           | Conditions           | Ratings     | Unit |
|------------------------------|------------------|----------------------|-------------|------|
| Collector-to-Base Voltage    | V <sub>CB0</sub> |                      | (-)60       | V    |
| Collector-to-Emitter Voltage | V <sub>CEO</sub> |                      | (-)60       | V    |
| Emitter-to-Base Voltage      | V <sub>EBO</sub> |                      | (-)6        | V    |
| Collector Current            | I <sub>C</sub>   |                      | (-)3        | A    |
| Collector Current (Pulse)    | I <sub>CP</sub>  |                      | (-)8        | A    |
| Collector Dissipation        | P <sub>C</sub>   |                      | 2           | W    |
|                              |                  | T <sub>c</sub> =25°C | 25          | W    |
| Junction Temperature         | T <sub>j</sub>   |                      | 150         | °C   |
| Storage Temperature          | T <sub>stg</sub> |                      | -40 to +150 | °C   |

#### Electrical Characteristics at Ta=25°C

| Parameter                | Symbol              | Conditions                                      | Ratings |     |        | Unit |
|--------------------------|---------------------|---|---------|-----|--------|------|
|                          |                     |   | min     | typ | max    |      |
| Collector Cutoff Current | I <sub>CB0</sub>    | V <sub>CB</sub> =(-)40V, I <sub>E</sub> =0      |         |     | (-)100 | μA   |
| Emitter Cutoff Current   | I <sub>EBO</sub>    | V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0       |         |     | (-)100 | μA   |
| DC Current Gain          | h <sub>FE</sub> (1) | V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)0.5A | *70     |     | *280   |      |
|                          | h <sub>FE</sub> (2) | V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)3A   | 20      |     |        |      |

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\* : The 2SB1133 / 2SD1666 are classified by 0.5A h<sub>FE</sub> as follows :

| Rank            | Q         | R          | S          |
|-----------------|-----------|------------|------------|
| h <sub>FE</sub> | 70 to 140 | 100 to 200 | 140 to 280 |

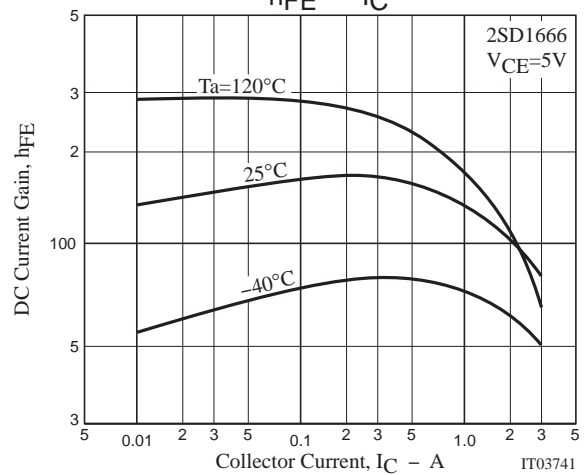
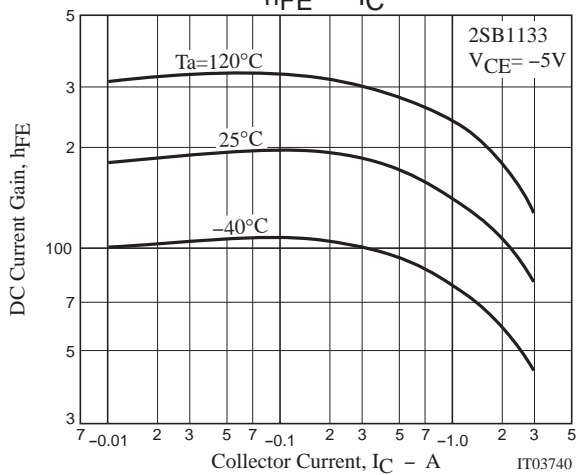
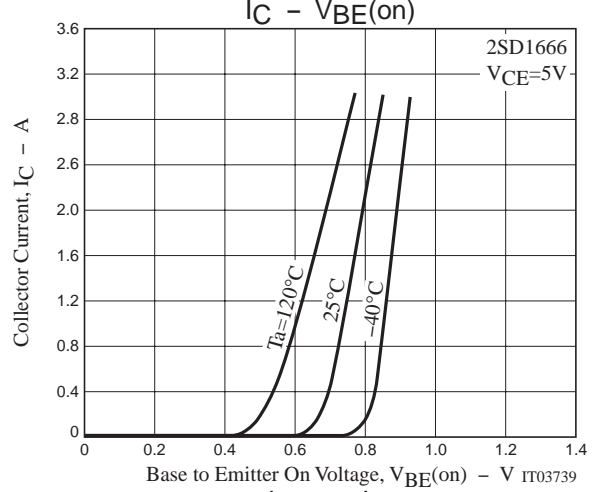
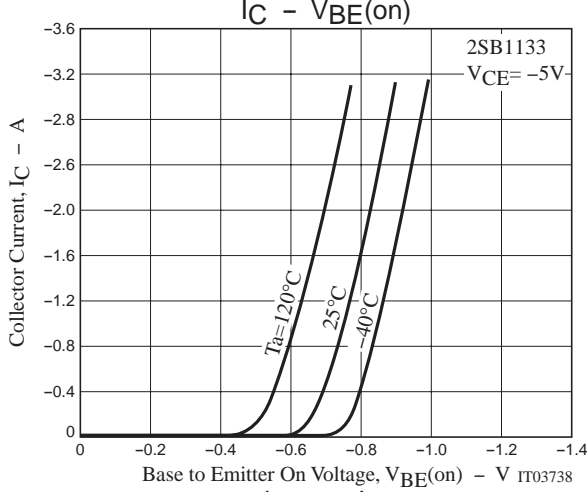
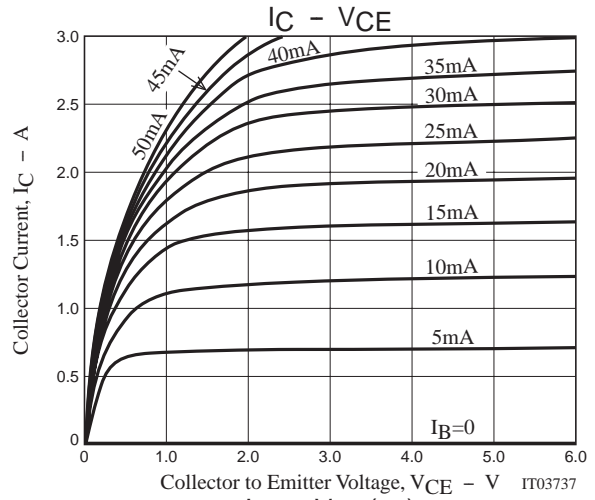
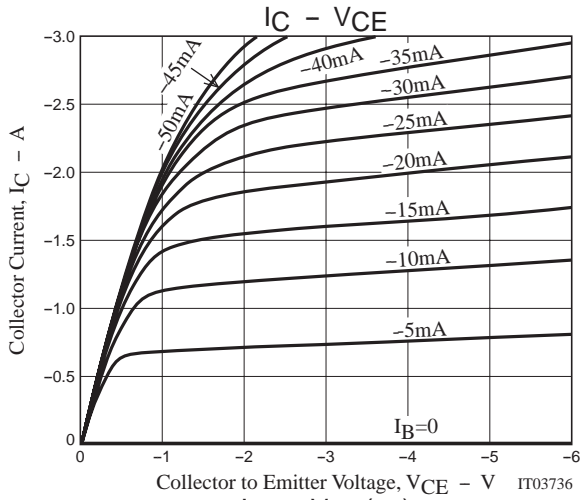
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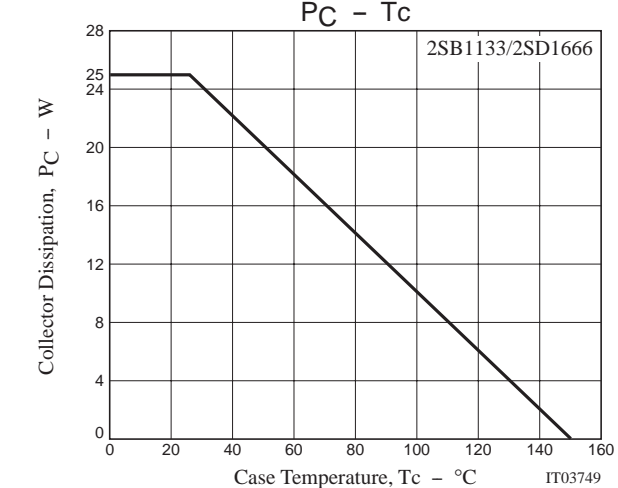
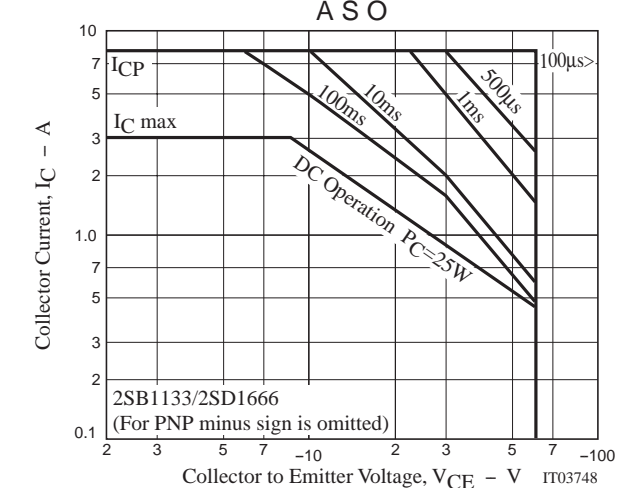
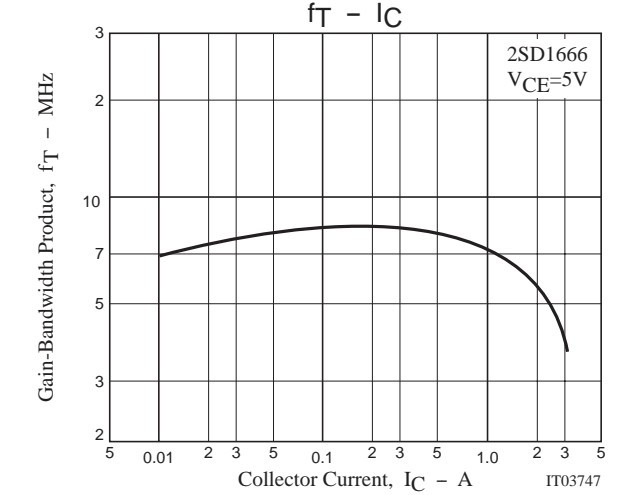
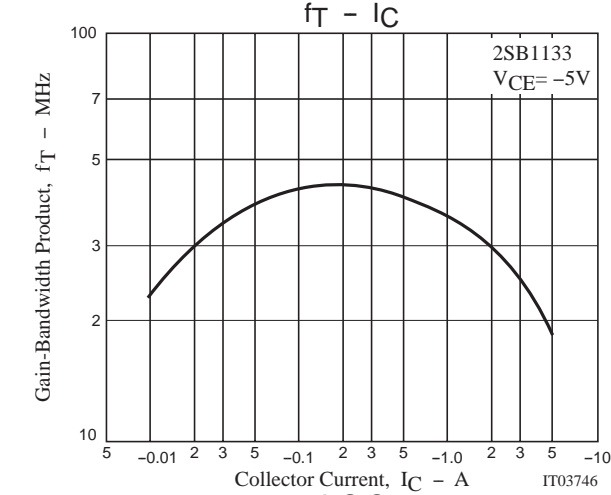
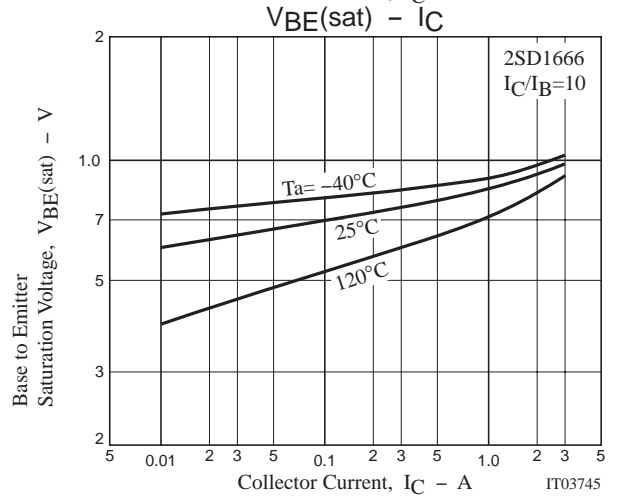
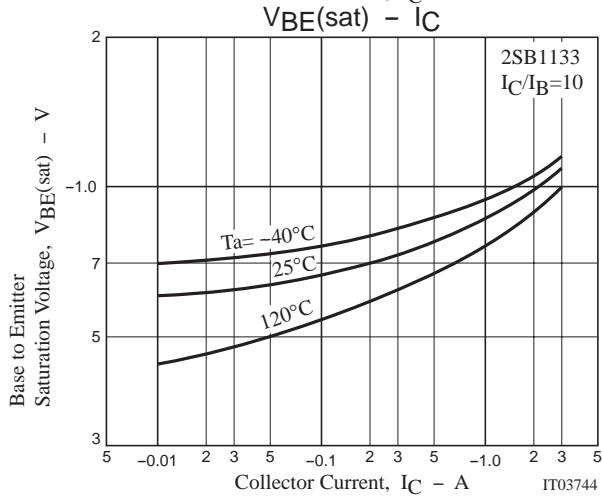
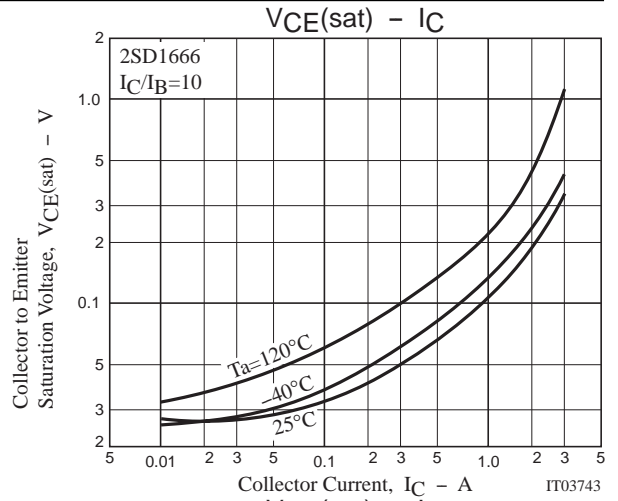
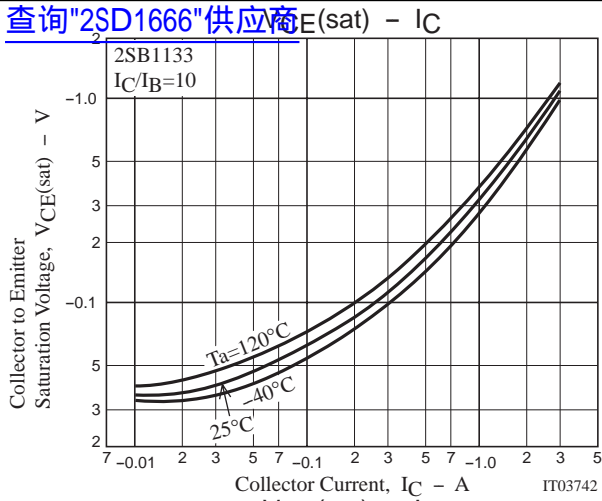
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| Parameter                               | Symbol        | Conditions                  | Ratings |         |      | Unit |
|---|---------------|-----------------------------|---------|---------|------|------|
|   |               |                             | min     | typ     | max  |      |
| Gain-Bandwidth Product                  | $f_T$         | $V_{CE}=(-)5V, I_C=(-)0.5A$ |         | (40)8   |      | MHz  |
| Output Capacitance                      | $C_{ob}$      | $V_{CB}=(-)10V, f=1MHz$     |         | (110)60 |      | pF   |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)2A, I_B=(-)0.2A$    |         | (-)0.6  | (-)1 | V    |
| Base-to-Emitter Saturation Voltage      | $V_{BE}$      | $V_{CE}=(-)5V, I_C=(-)0.5A$ |         | (-)0.7  | (-)1 | V    |
| Collector-to-Base Breakdown Voltage     | $V_{(BR)CBO}$ | $I_C=(-)1mA, I_E=0$         | (-)60   |         |      | V    |
| Collector-to-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C=(-)5mA, R_{BE}=\infty$ | (-)60   |         |      | V    |
| Emitter-to-Base Breakdown Voltage       | $V_{(BR)EBO}$ | $I_E=(-)1mA, I_C=0$         | (-)6    |         |      | V    |

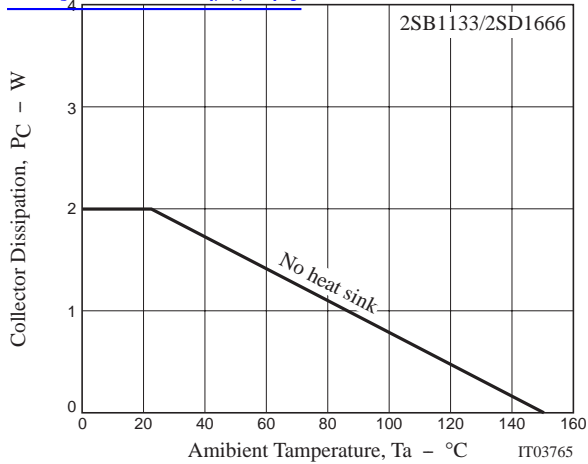


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