

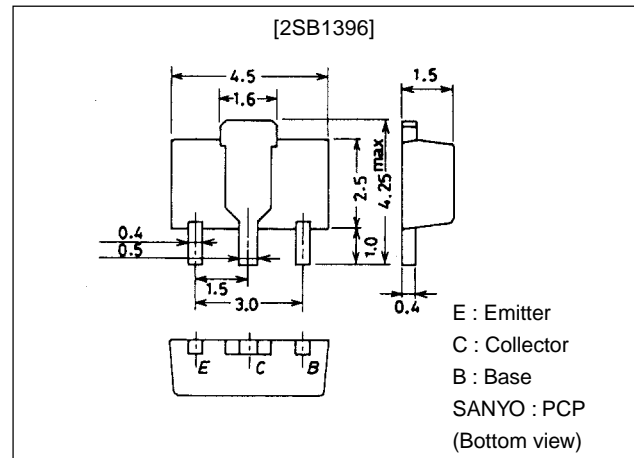
**2SB1396****DC-DC Converter, Motor Driver Applications****Features**

- Adoption of FBET, MBIT processes.
- Large current capacity.
- Low collector-to-emitter saturation voltage.
- Small size making it easy to provide high-density, small-sized hybrid ICs.

**Package Dimensions**

unit:mm

2038

**Specifications****Absolute Maximum Ratings at Ta = 25°C**

| Parameter                    | Symbol    | Conditions   | Ratings     | Unit |
|------------------------------|-----------|--|-------------|------|
| Collector-to-Base Voltage    | $V_{CBO}$ |  | -15         | V    |
| Collector-to-Emitter Voltage | $V_{CEO}$ |  | -10         | V    |
| Emitter-to-Base Voltage      | $V_{EBO}$ |  | -7          | V    |
| Collector Current            | $I_C$     |  | -3          | A    |
| Collector Current (Pulse)    | $I_{CP}$  |  | -5          | A    |
| Collector Dissipation        | $P_C$     | Mounted on ceramic PCB (250mm <sup>2</sup> ×0.8mm) | 1.3         | W    |
| Junction Temperature         | $T_J$     |  | 150         | °C   |
| Storage Temperature          | $T_{stg}$ |  | -55 to +150 | °C   |

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

| Parameter                | Symbol    | Conditions              | Ratings |     |      | Unit |
|--------------------------|-----------|-------------------------|---------|-----|------|------|
|                          |           |                         | min     | typ | max  |      |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}=-12V, I_E=0$    |         |     | -100 | nA   |
| Emitter Cutoff Current   | $I_{EBO}$ | $V_{EB}=-6V, I_C=0$     |         |     | -100 | nA   |
| DC Current Gain          | $h_{FE1}$ | $V_{CE}=-2V, I_C=-0.5A$ | 140*    |     | 560* |      |
|                          | $h_{FE2}$ | $V_{CE}=-2V, I_C=-3A$   | 70      |     |      |      |
| Gain-Bandwidth Product   | $f_T$     | $V_{CE}=-2V, I_C=-0.3A$ |         | 400 |      | MHz  |
| Output Capacitance       | $C_{ob}$  | $V_{CB}=-10V, f=1MHz$   |         | 26  |      | pF   |

\* : The 2SB1396 is classified by 0.5A  $h_{FE}$  as follows :

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

Marking : BO

 $h_{FE}$  rank : S, T, U

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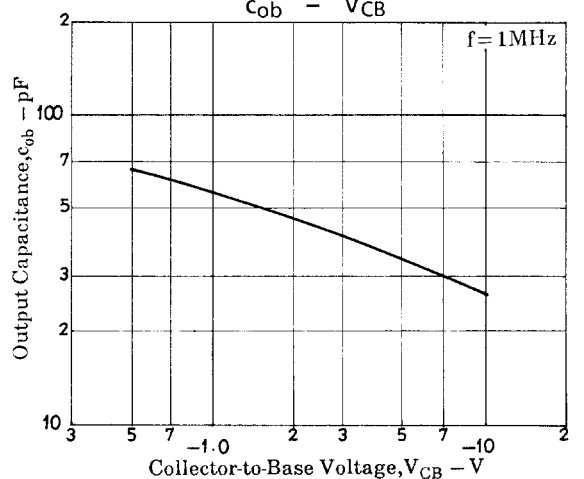
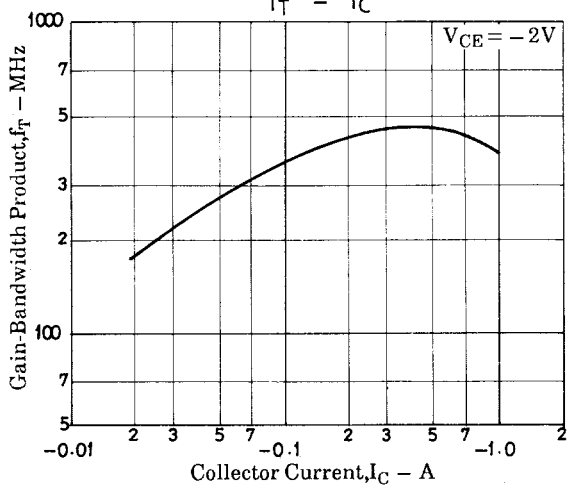
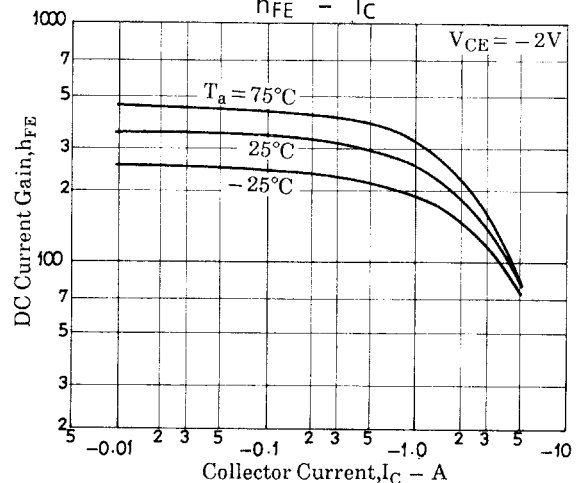
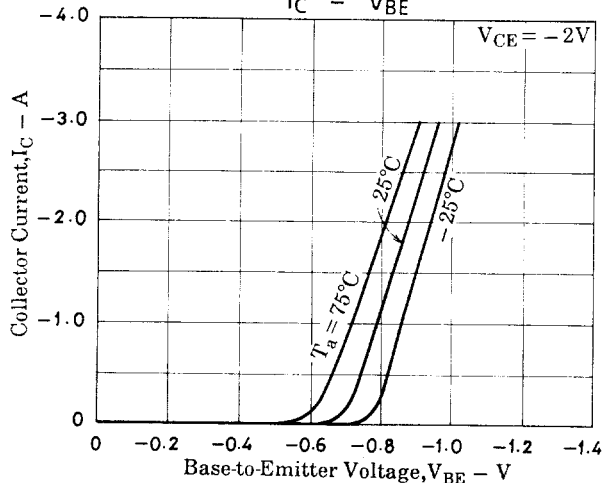
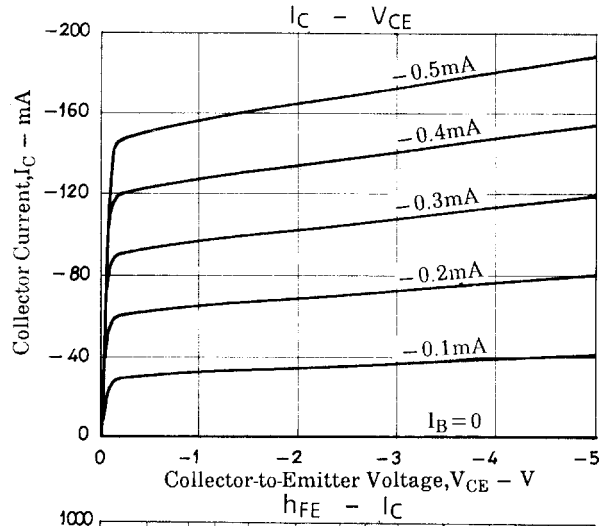
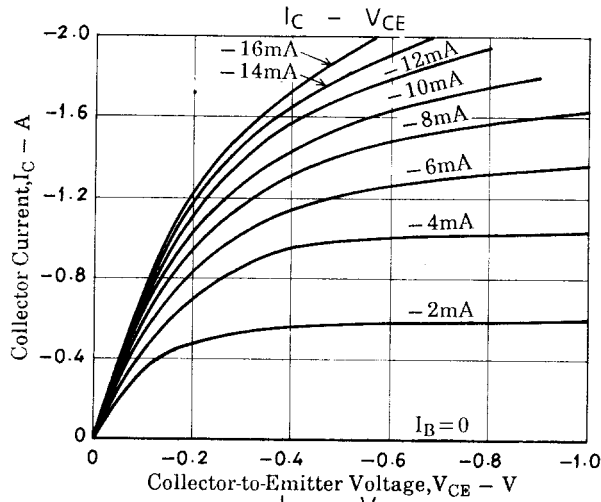
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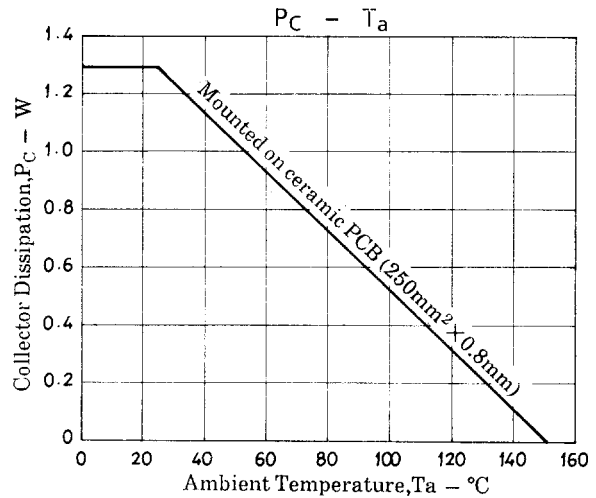
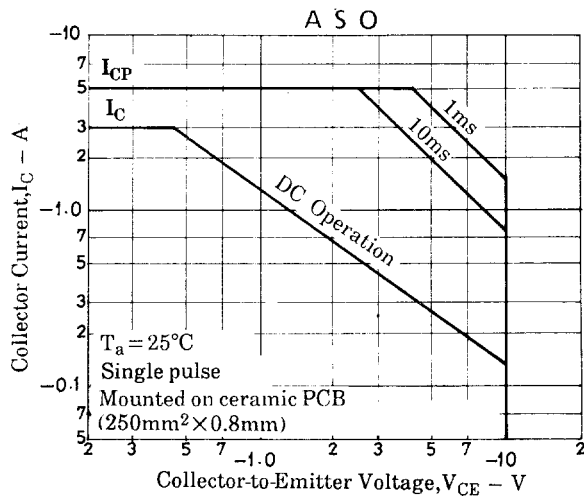
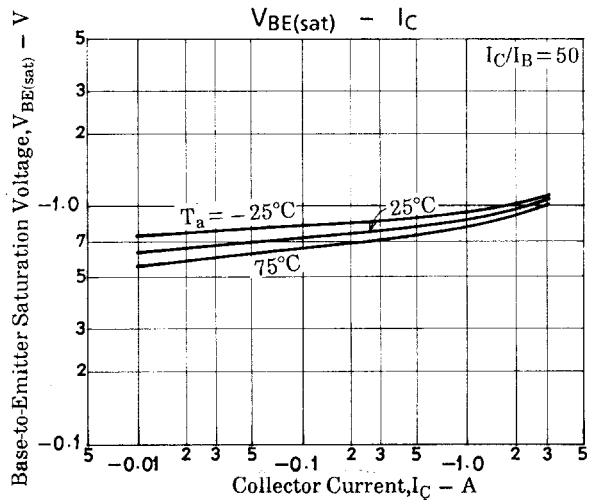
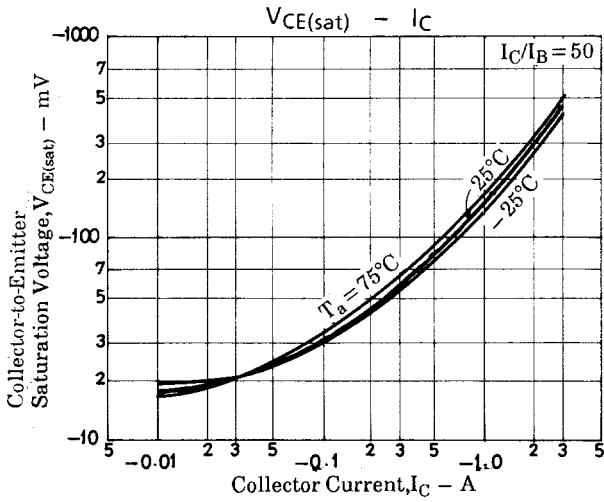
O1598HA (KT)/D168MO, TS No.2911-1/3

# 2SB1396

| Parameter                               | Symbol        | Conditions                    | Ratings |      |      | Unit |
|---|---------------|-------------------------------|---------|------|------|------|
|   |               |                               | min     | typ  | max  |      |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = -1.5A, I_B = -30mA$    |         | -220 | -400 | mV   |
| Base-to-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C = -1.5A, I_B = -30mA$    |         | -0.9 | -1.2 | V    |
| Collector-to-Base Breakdown Voltage     | $V_{(BR)CBO}$ | $I_C = -10\mu A, I_E = 0$     | -15     |      |      | V    |
| Collector-to-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C = -1mA, R_{BE} = \infty$ | -10     |      |      | V    |
| Emitter-to-Base Breakdown Voltage       | $V_{(BR)EBO}$ | $I_E = -10\mu A, I_C = 0$     | -7      |      |      | V    |



## 2SB1396



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