



SANYO Semiconductors

DATA SHEET

2SA2125 / 2SC5964 — PNP / NPN Epitaxial Planar Silicon Transistors

DC / DC Converter Applications

Applications

- DC / DC converter, relay drivers, lamp drivers, motor drivers, flash.

Features

- Adoption of MBIT process.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.

Specifications () : 2SA2125

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|---|-------------|------|
| Collector-to-Base Voltage | V _{CBO} | | (-50)100 | V |
| Collector-to-Emitter Voltage | V _{CES} | | (-50)100 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | (-)50 | V |
| Emitter-to-Base Voltage | V _{EBO} | | (-)6 | V |
| Collector Current | I _C | | (-)3 | A |
| Collector Current (Pulse) | I _{CP} | | (-)6 | A |
| Base Current | I _B | | (-)600 | mA |
| Collector Dissipation | P _C | Mounted on a ceramic board (250mm ² ×0.8m) | 1.3 | W |
| | | T _C =25°C | 3.5 | 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} =(-)40V, I _E =0 | | | (-)1 | μA |
| Emitter Cutoff Current | I _{EBO} | V _{EB} =(-)4V, I _C =0 | | | (-)1 | μA |
| DC Current Gain | h _{FE} | V _{CE} =(-)2V, I _C =(-)100mA | 200 | | 560 | |
| Gain-Bandwidth Product | f _T | V _{CE} =(-)10V, I _C =(-)500mA | | (390)380 | | MHz |
| Output Capacitance | C _{ob} | V _{CB} =(-)10V, f=1MHz | | (24)13 | | pF |

Continued on next page.

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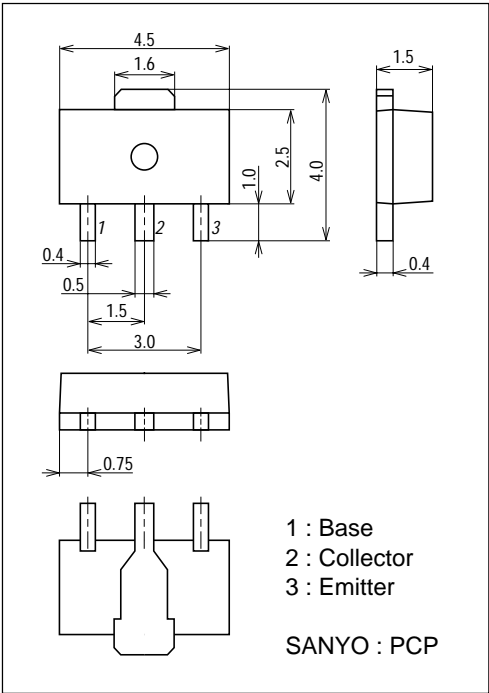
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|----------------|------------------------------|----------|-----------|-----------|------|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)1}$ | $I_C=(-)1A, I_B=(-)50mA$ | | (-125)100 | (-230)150 | mV |
| | $V_{CE(sat)2}$ | $I_C=(-)2A, I_B=(-)100mA$ | | (-250)190 | (-500)290 | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $V_{CE}=(-)2V, I_B=(-)100mA$ | | (-)0.94 | (-)1.2 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=(-)10\mu A, I_E=0$ | (-50)100 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CES}$ | $I_C=(-)100\mu A, R_{BE}=0$ | (-50)100 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=(-)1mA, R_{BE}=\infty$ | (-)50 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=(-)10\mu A, I_C=0$ | (-)6 | | | V |
| Turn-On Time | t_{on} | See specified test circuit. | | (30)35 | | ns |
| Storage Time | t_{stg} | See specified test circuit. | | (230)300 | | ns |
| Fall Time | t_f | See specified test circuit. | | (18)25 | | ns |

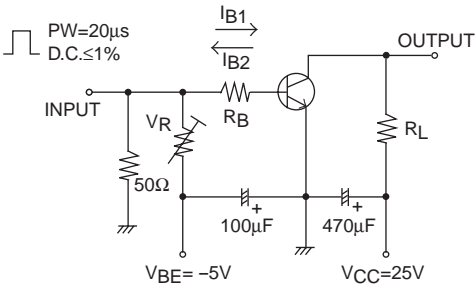
Package Dimensions

unit : mm

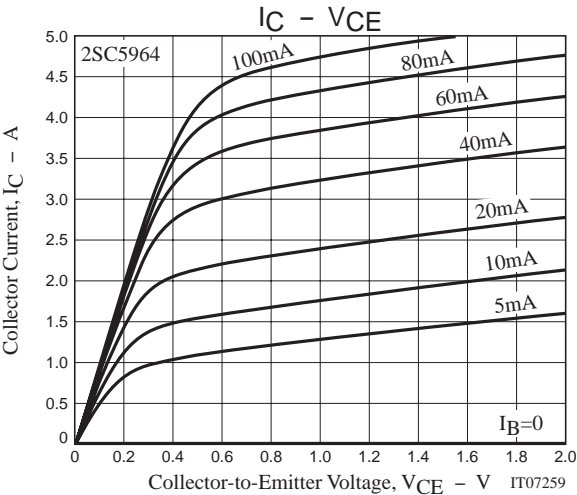
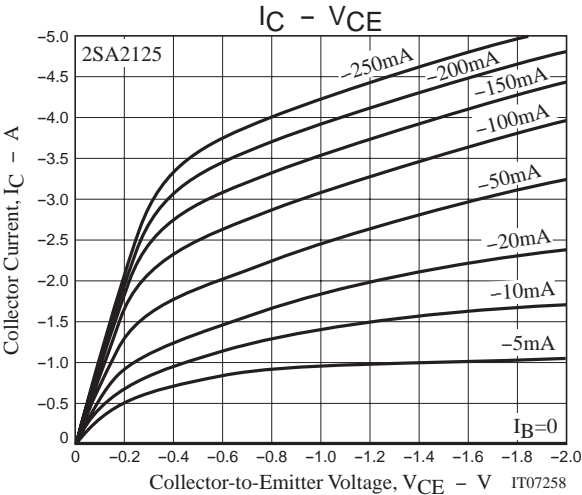
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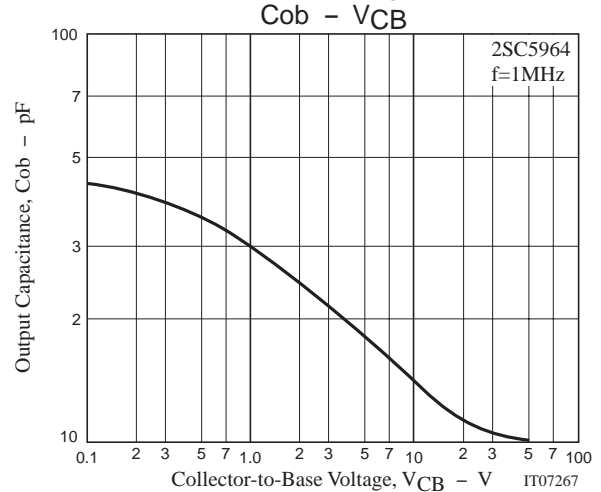
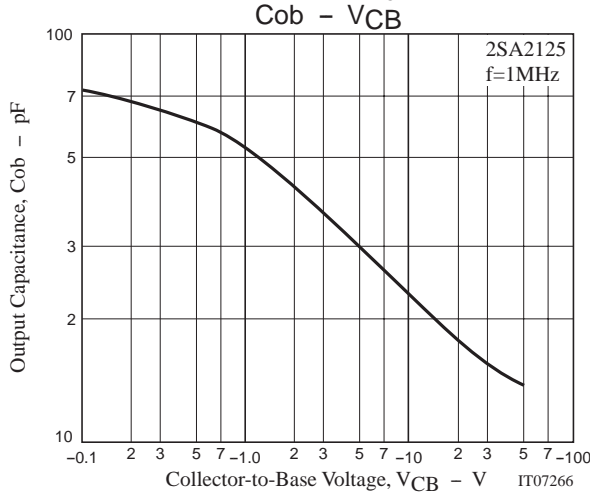
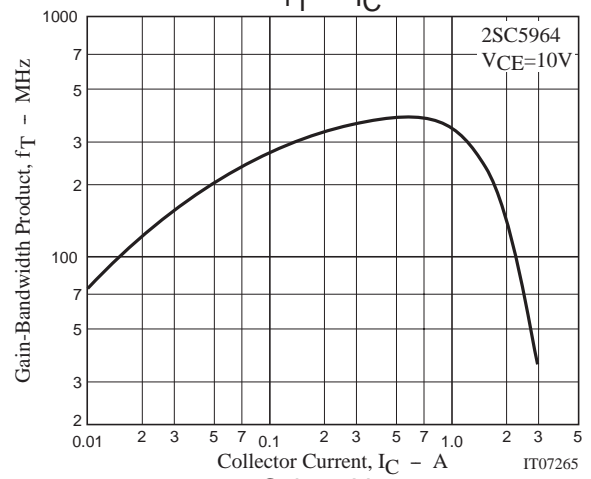
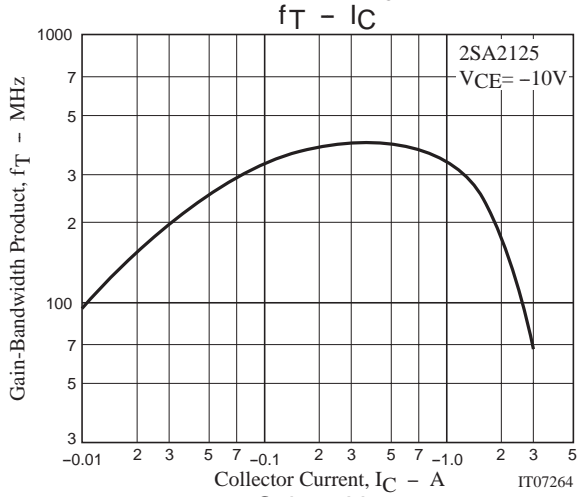
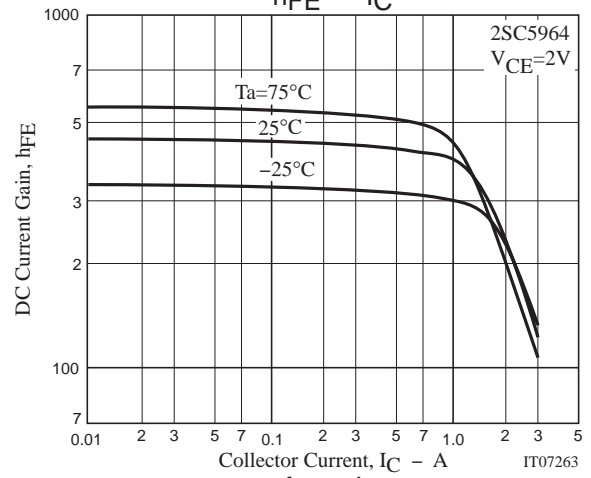
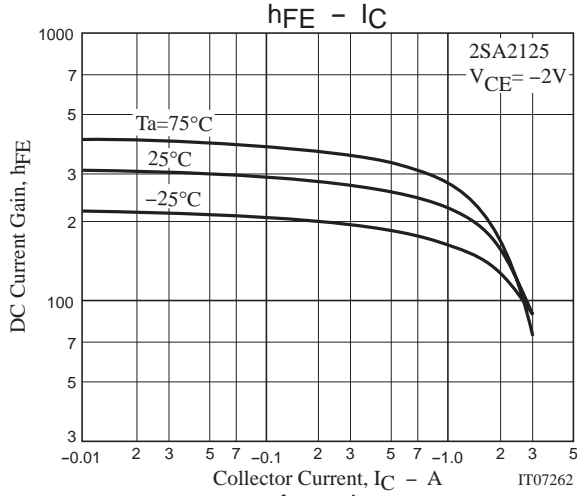
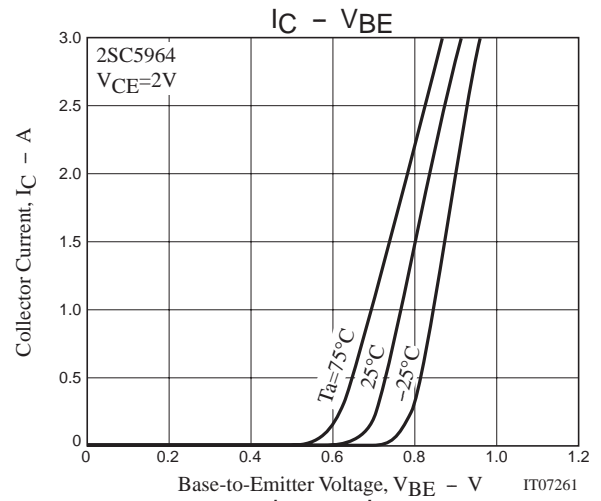
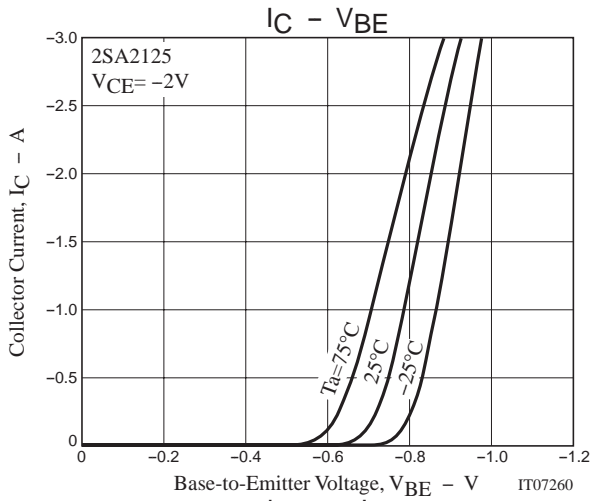
Switching Time Test Circuit



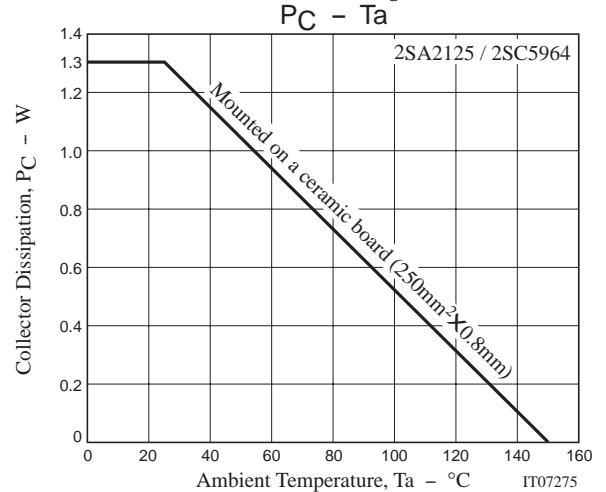
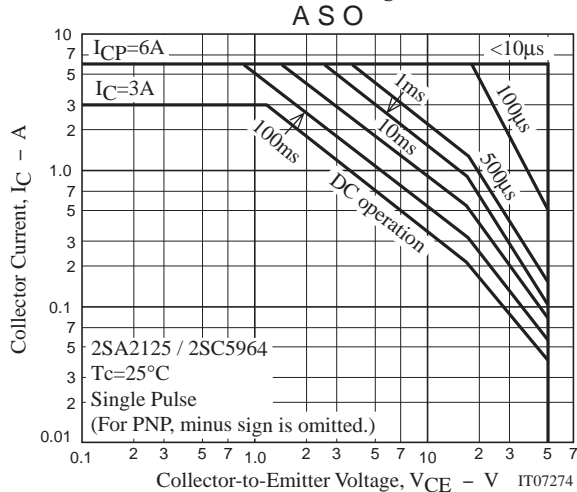
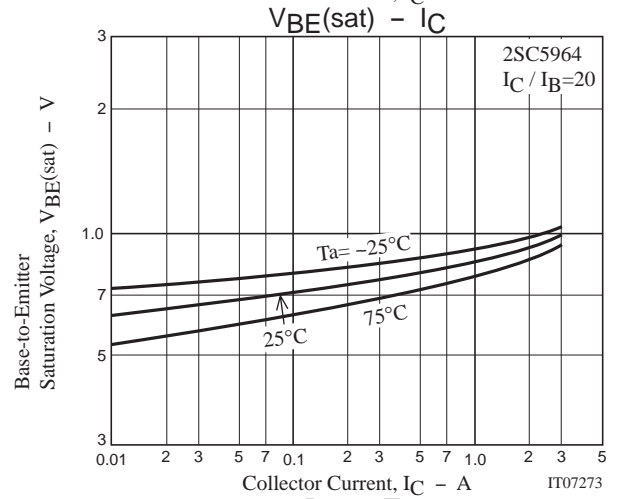
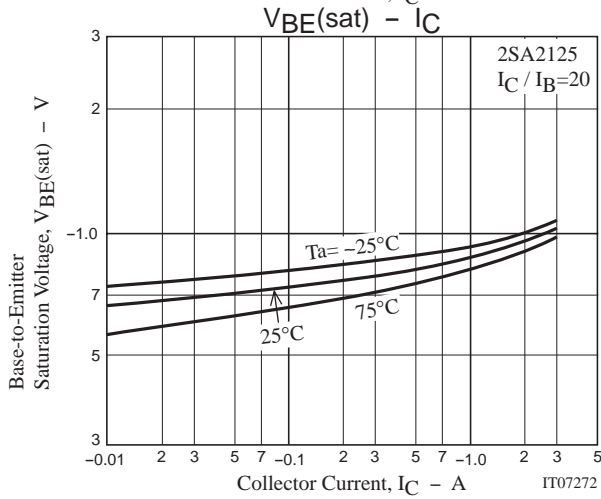
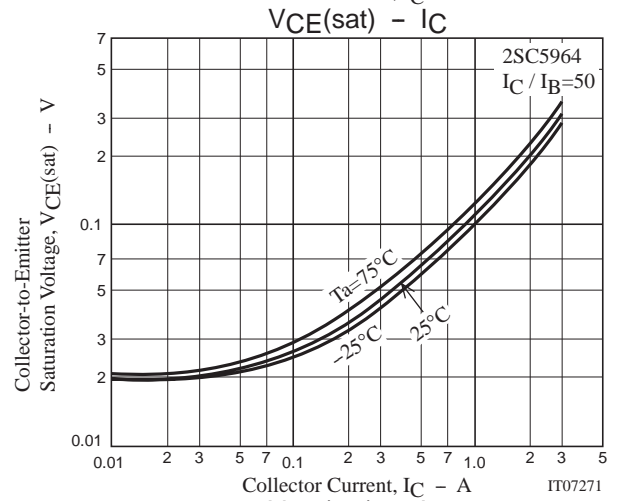
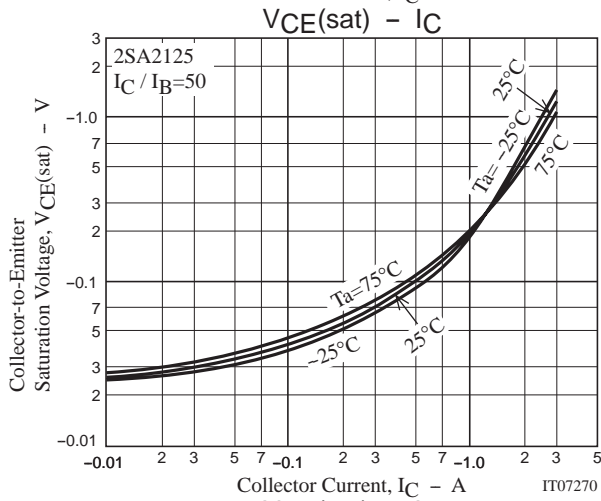
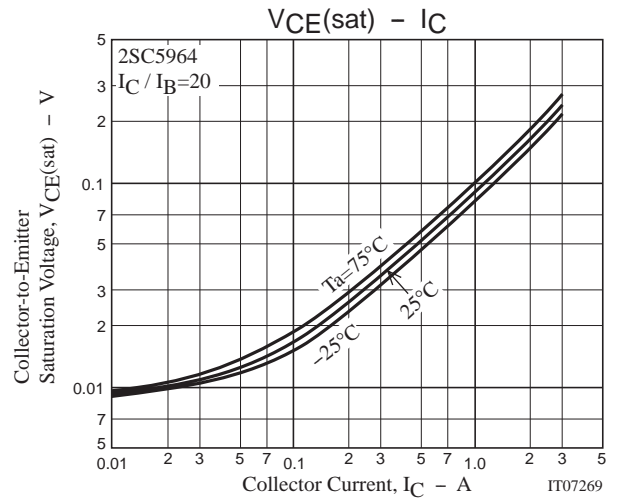
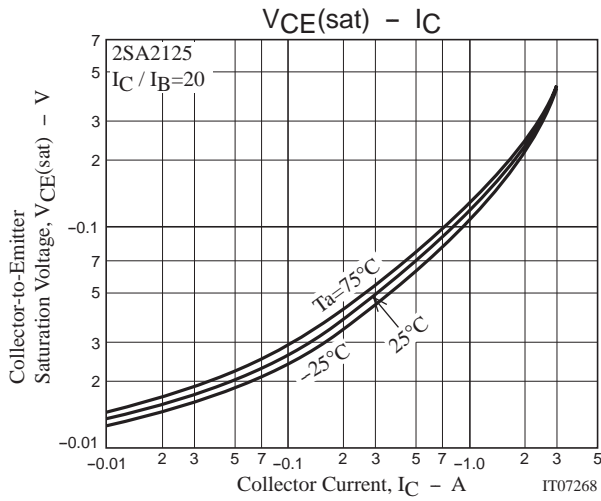
$I_C=10I_{B1}=-10I_{B2}=1A$
For PNP, the polarity is reversed.

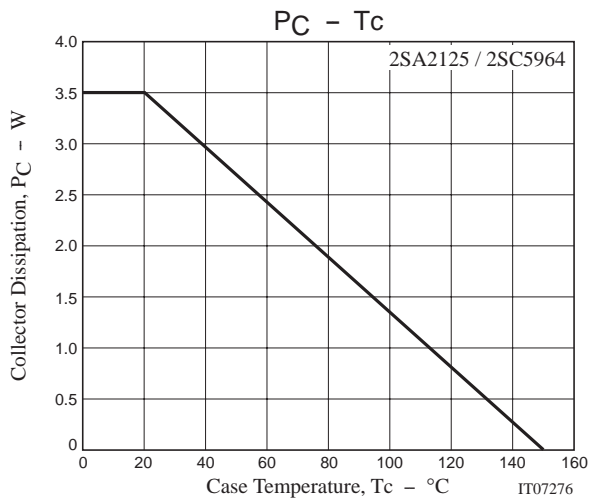


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