

| | | |
|--------------|----------|---|
| SANYO | No.2511A | 2SA1593/2SC4135 |
| | | PNP/NPN Epitaxial Planar Silicon Transistors High-Voltage Switching Applications |

Applications

- Power supplies, relay drivers, lamp drivers

Features

- Adoption of FBET, MBIT processes
- High breakdown voltage and large current capacity
- Fast switching speed
- Small and slim package permitting 2SA1593/2SC4135-applied sets to be made more compact

(): 2SA1593

Absolute Maximum Ratings at Ta=25°C

| | | | | |
|------------------------------|-----------|-------------|----|------------------|
| Collector to Base Voltage | V_{CB0} | (-)120 | V | unit |
| Collector to Emitter Voltage | V_{CE0} | (-)100 | V | |
| Emitter to Base Voltage | V_{EBO} | (-)6 | V | |
| Collector Current | I_C | (-)2 | A | |
| Collector Current(Pulse) | I_{CP} | (-)3 | A | |
| Collector Dissipation | P_C | 1 | W | |
| | | 15 | W | $T_c=25^\circ C$ |
| Junction Temperature | T_j | 150 | °C | |
| Storage Temperature | T_{stg} | -55 to +150 | °C | |

Electrical Characteristics at Ta=25°C

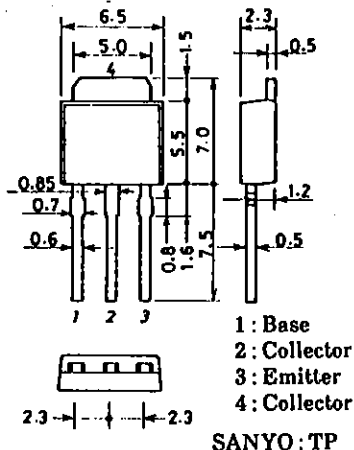
| | | | min | typ | max | unit |
|--------------------------|-----------|-------------------------------|------|------|--------|------|
| Collector Cutoff Current | I_{CBO} | $V_{CB}=(-)100V, I_E=0$ | | | (-)100 | nA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=(-)4V, I_C=0$ | | | (-)100 | nA |
| DC Current Gain | h_{FE} | $V_{CE}=(-)5V, I_C=(-)100mA$ | 100* | | 400* | |
| Gain-Bandwidth Product | f_T | $V_{CE}=(-)10V, I_C=(-)100mA$ | | 120 | | MHz |
| Output Capacitance | c_{ob} | $V_{CB}=(-)10V, f=1MHz$ | | (25) | | pF |
| | | | | 16 | | pF |

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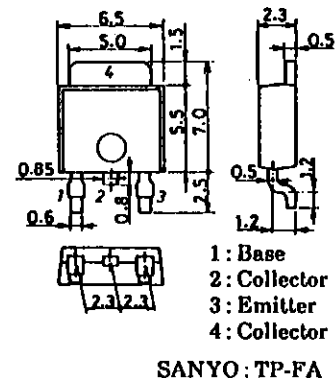
*: The 2SA1593/2SC4135 are classified by 100mA h_{FE} as follows:

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

Package Dimensions 2045B
(unit:mm)



Package Dimensions 2044B
(unit:mm)

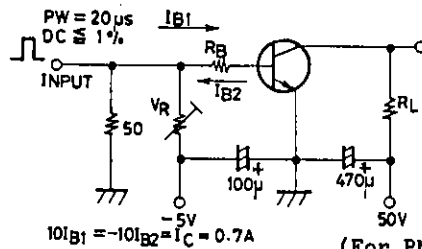


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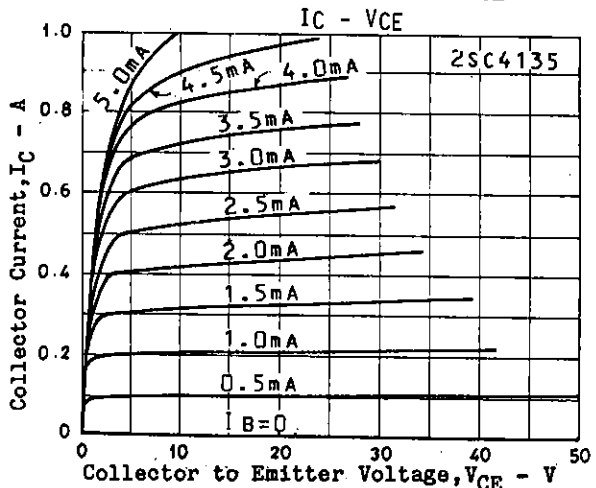
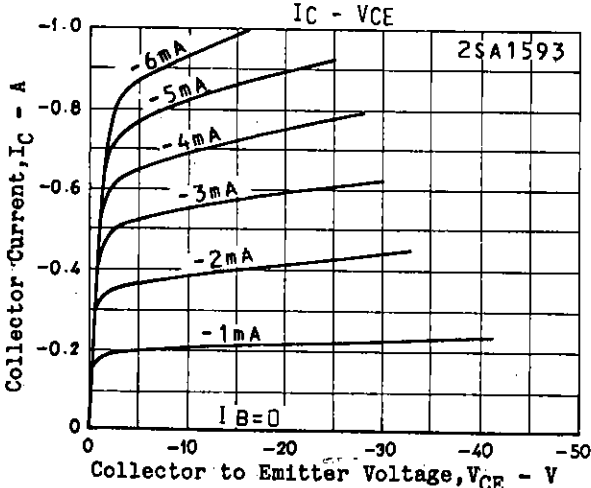
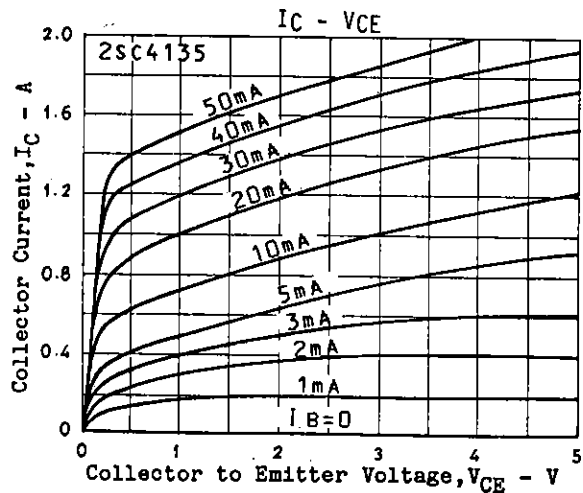
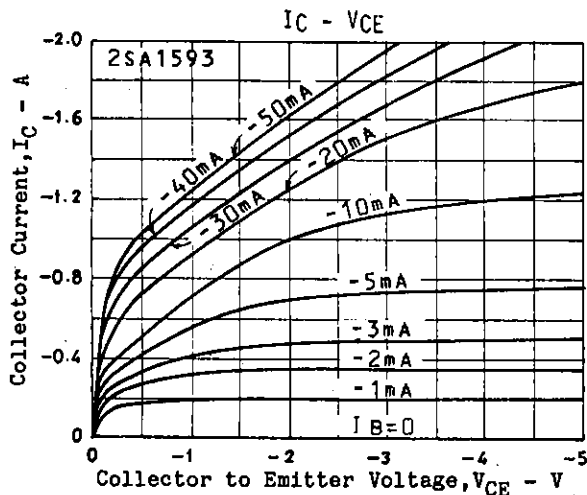
| | | | min | typ | max | unit |
|------------------------|---------------|---------------------------------|--------|---------|--------|------|
| C-E Saturation Voltage | $V_{CE(sat)}$ | $I_C = (-)1A, I_B = (-)100mA$ | | (-0.22) | (-0.6) | V |
| | | | | 0.13 | 0.4 | V |
| B-E Saturation Voltage | $V_{BE(sat)}$ | $I_C = (-)1A, I_B = (-)100mA$ | | (-)0.85 | (-)1.2 | V |
| C-B Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = (-)10\mu A, I_E = 0$ | (-)120 | | | V |
| C-E Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = (-)1mA, R_{BE} = \infty$ | (-)100 | | | V |
| E-B Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = (-)10\mu A, I_C = 0$ | (-)6 | | | V |
| Turn-on Time | t_{on} | See specified Test Circuit. | | (80) | | ns |
| | | | | " | 80 | ns |
| Storage Time | t_{stg} | | | (750) | | ns |
| | | | | " | 1000 | ns |
| Fall Time | t_f | | | (40) | | ns |
| | | | | " | 50 | ns |

Switching Time Test Circuit

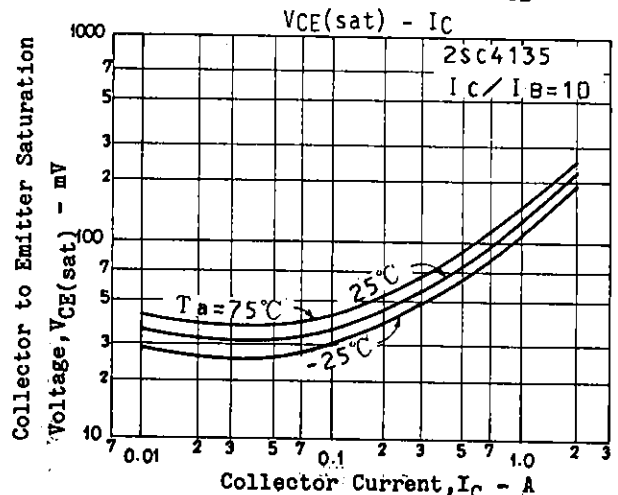
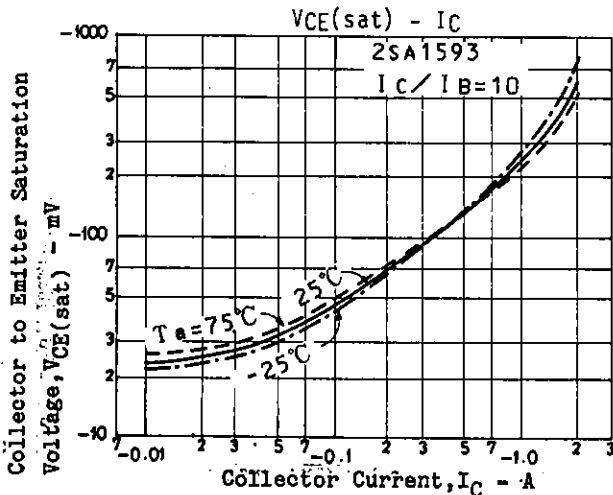
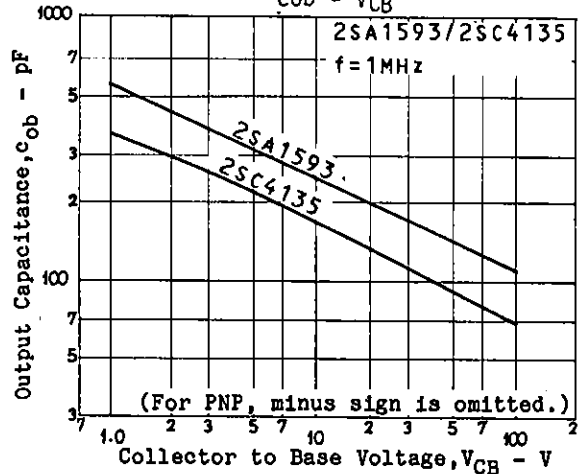
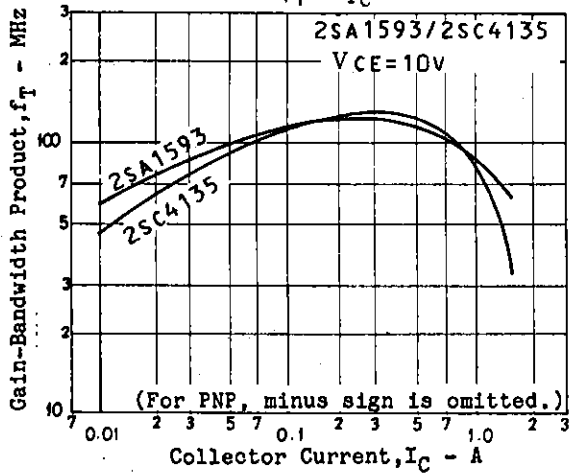
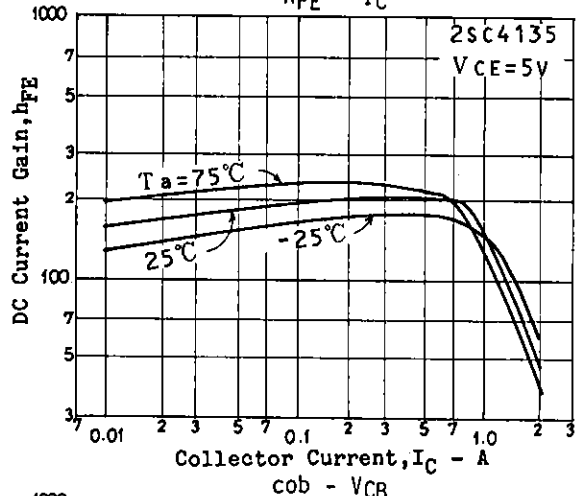
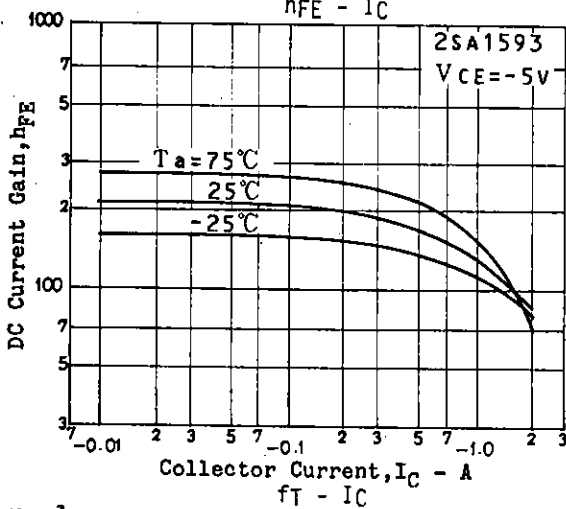
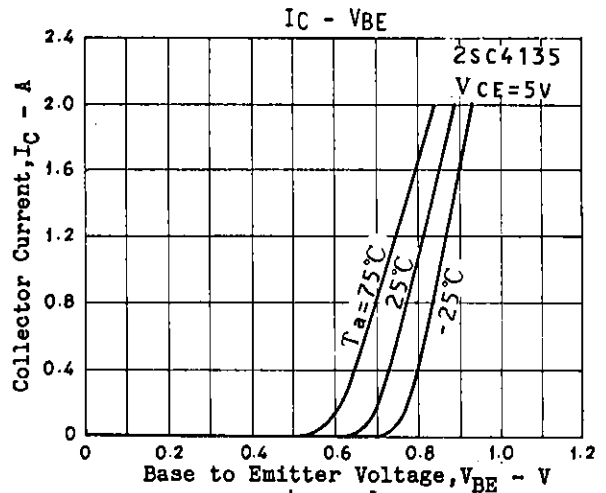
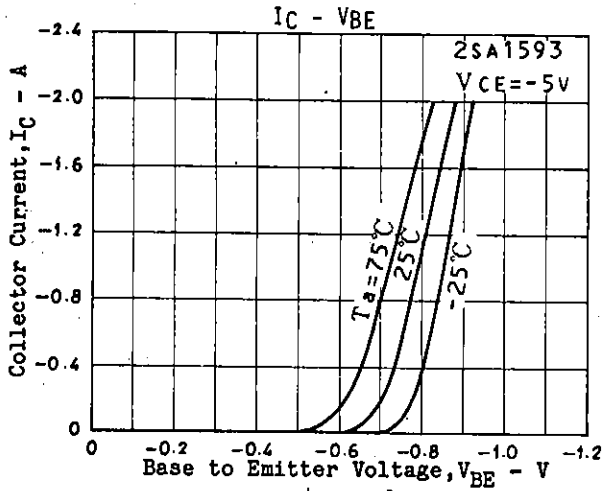


Unit (Resistance : Ω , Capacitance : F)

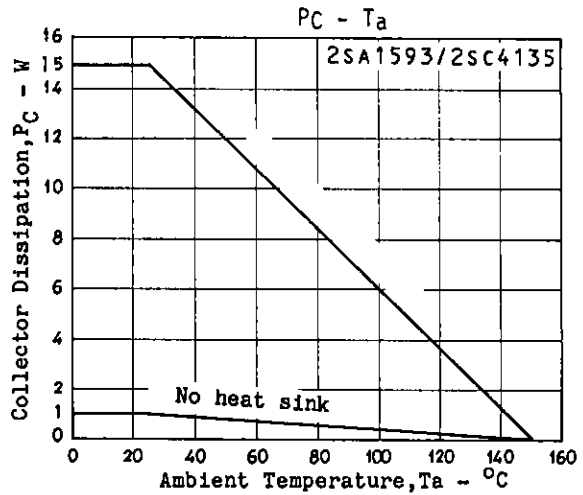
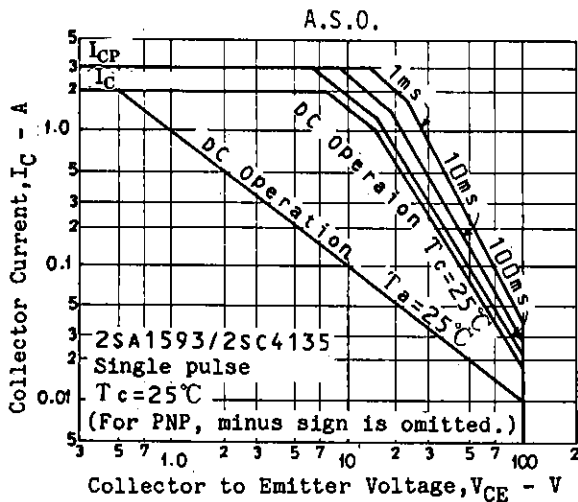
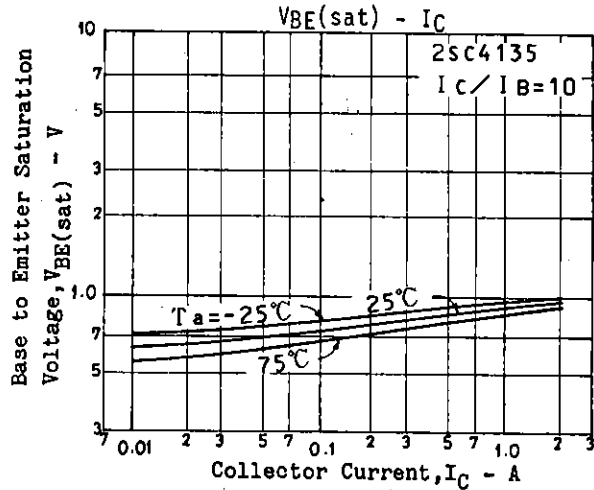
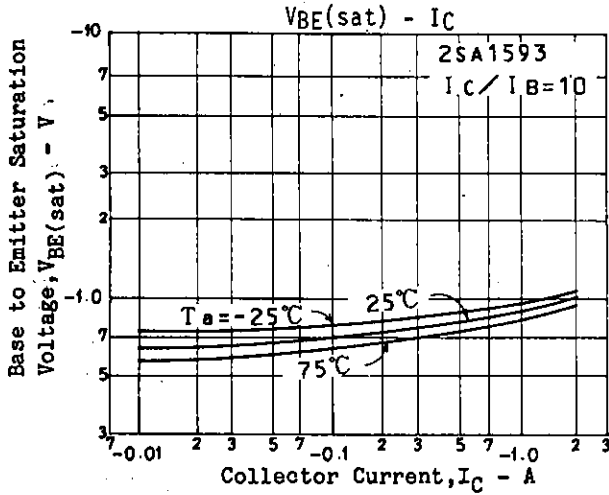
(For PNP, the polarity is reversed.)



2SA1593/2SC4135



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