

2SA2040 / 2SC5707



High Current Switching Applications

Applications

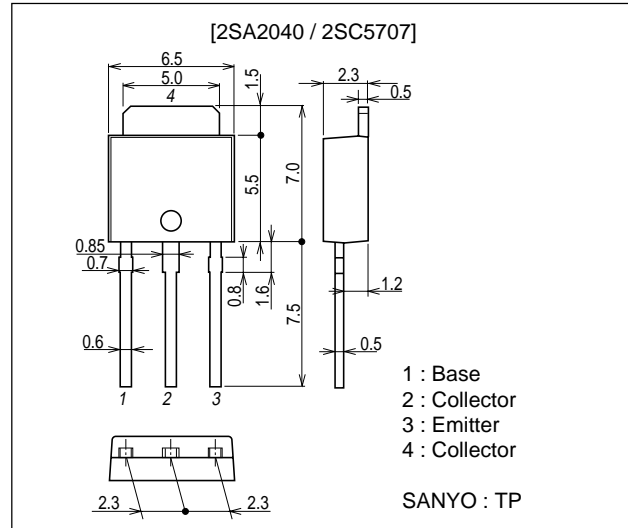
- DC-DC converter, relay drivers, lamp drivers, motor drivers, strobes.

Features

- Adoption of FBET, MBIT process.
- Large current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- High allowable power dissipation.

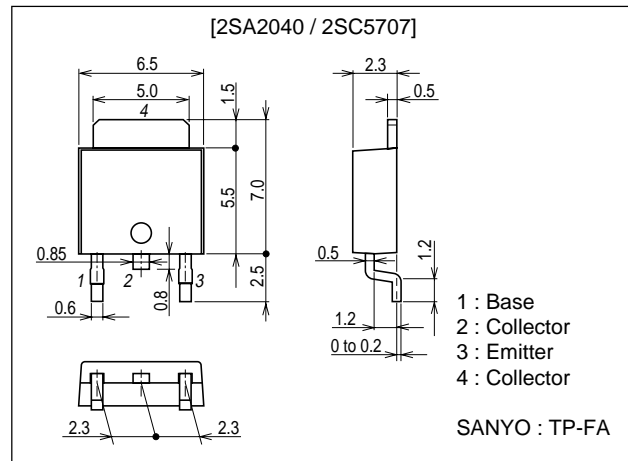
Package Dimensions

unit : mm
2045B



Package Dimensions

unit : mm
2044B



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Specifications

Note*() : 2SA2040

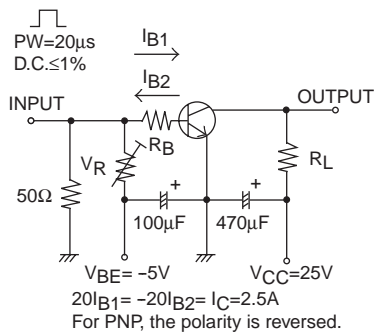
Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|----------------------|-------------|------|
| Collector-to-Base Voltage | V _{CB0} | | (-50)80 | V |
| Collector-to-Emitter Voltage | V _{CES} | | (-50)80 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | (-)50 | V |
| Emitter-to-Base Voltage | V _{EBO} | | (-)6 | V |
| Collector Current | I _C | | (-)8 | A |
| Collector Current (Pulse) | I _{CP} | | (-)11 | A |
| Base Current | I _B | | (-)2 | A |
| Collector Dissipation | P _C | | 1.0 | W |
| | | T _c =25°C | 15 | W |
| Junction Temperature | T _J | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |

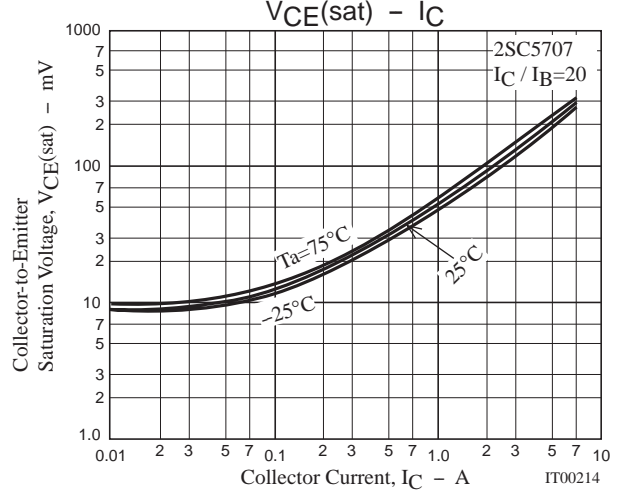
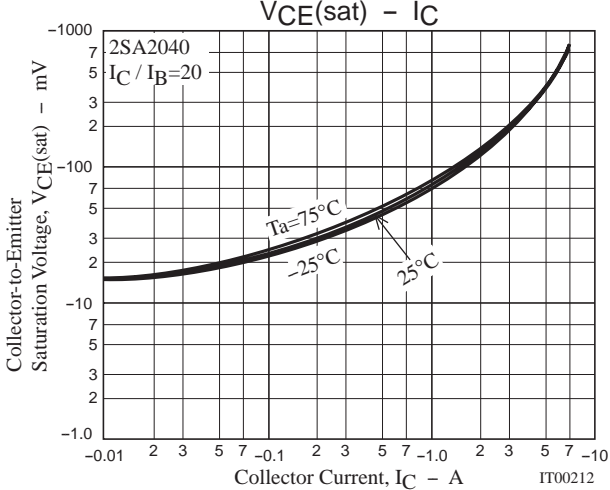
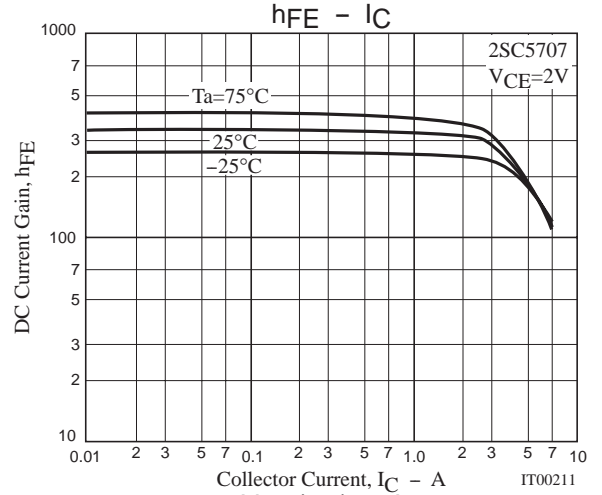
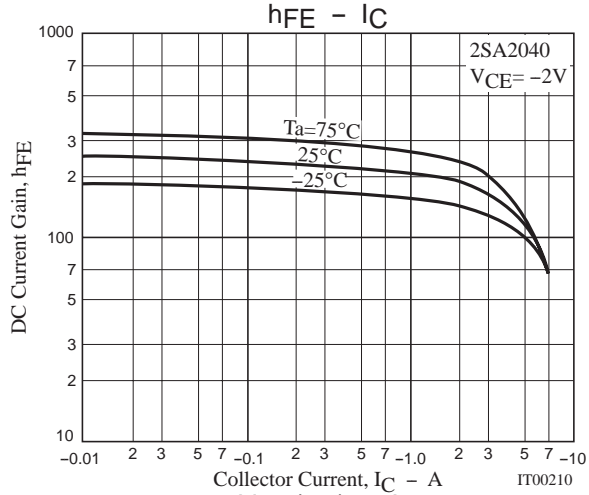
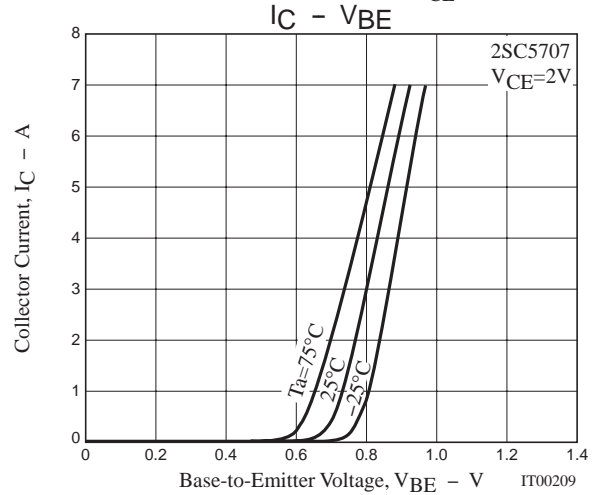
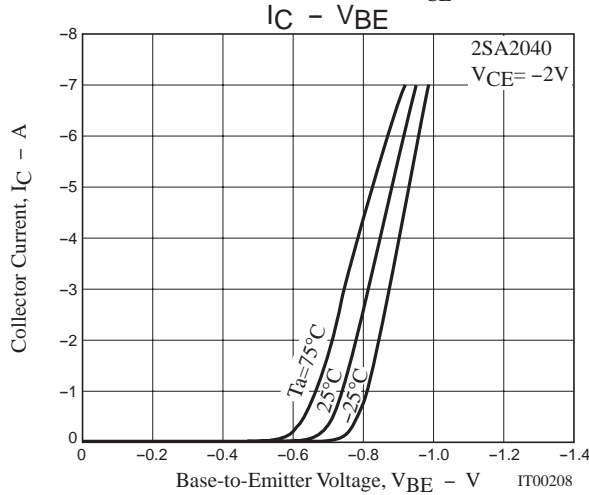
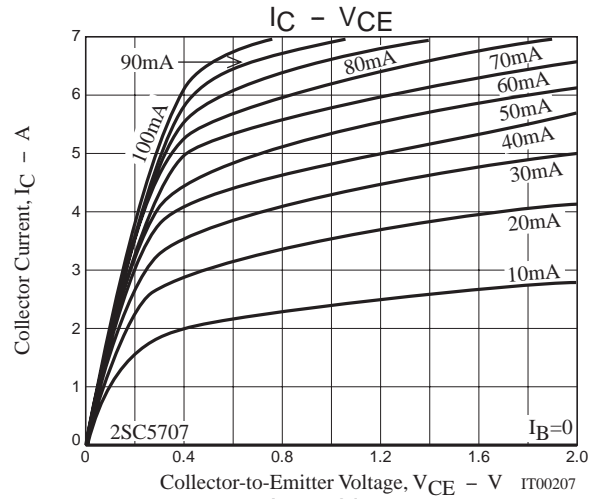
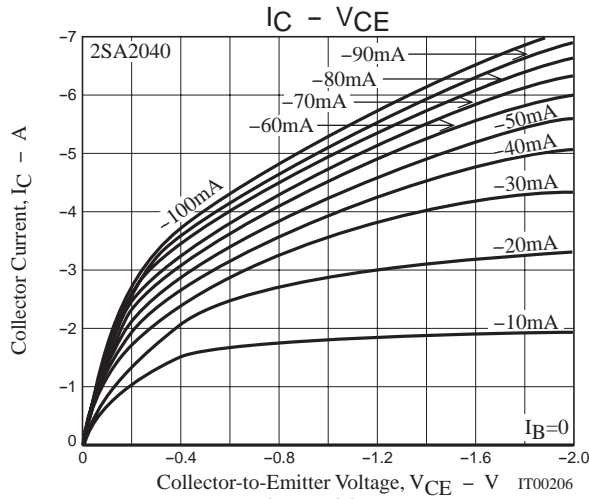
Electrical Characteristics at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|----------------------|---|---------|-----------|-----------|------|
| | | | min | typ | max | |
| Collector Cutoff Current | I _{CBO} | V _{CB} =(-)40V, I _E =0 | | | (-)0.1 | μA |
| Emitter Cutoff Current | I _{EBO} | V _{EB} =(-)4V, I _C =0 | | | (-)0.1 | μA |
| DC Current Gain | h _{FE} | V _{CE} =(-)2V, I _C =(-)500mA | 200 | | 560 | |
| Gain-Bandwidth Product | f _T | V _{CE} =(-)10V, I _C =(-)500mA | | (290)330 | | MHz |
| Output Capacitance | C _{ob} | V _{CB} =(-)10V, f=1MHz | | (50)28 | | pF |
| Collector-to-Emitter Saturation Voltage | V _{CE(sat)} | I _C =(-)3.5A, I _B =(-)175mA | | (-230)160 | (-390)240 | mV |
| | | I _C =(-)2A, I _B =(-)40mA | | (-240)110 | (-400)170 | mV |
| Base-to-Emitter Saturation Voltage | V _{BE(sat)} | I _C =(-)2A, I _B =(-)40mA | | (-)0.83 | (-)1.2 | V |
| Collector-to-Base Breakdown Voltage | V _{(BR)CBO} | I _C =(-)10μA, I _E =0 | (-50)80 | | | V |
| Collector-to-Emitter Breakdown Voltage | V _{(BR)CES} | I _C =(-)100μA, R _{BE} =∞ | 80 | | | V |
| Collector-to-Emitter Breakdown Voltage | V _{(BR)CEO} | I _C =(-)1mA, R _{BE} =∞ | (-)50 | | | V |
| Emitter-to-Base Breakdown Voltage | V _{(BR)EBO} | I _E =(-)10μA, I _C =0 | (-)6 | | | V |
| Turn-On Time | t _{on} | See specified test circuit. | | (40)30 | | ns |
| Storage Time | t _{stg} | See specified test circuit. | | (225)420 | | ns |
| Fall Time | t _f | See specified test circuit. | | 25 | | ns |

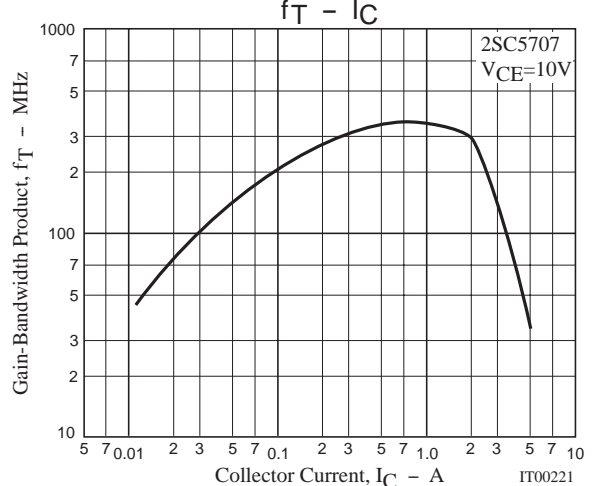
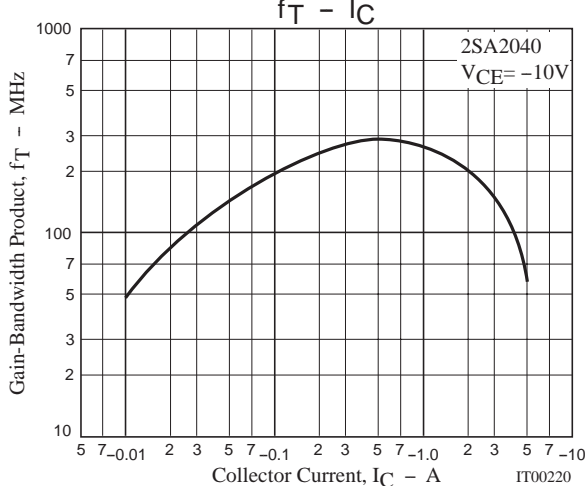
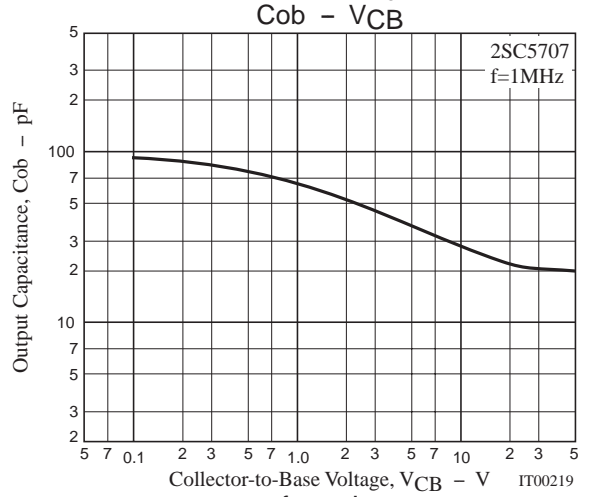
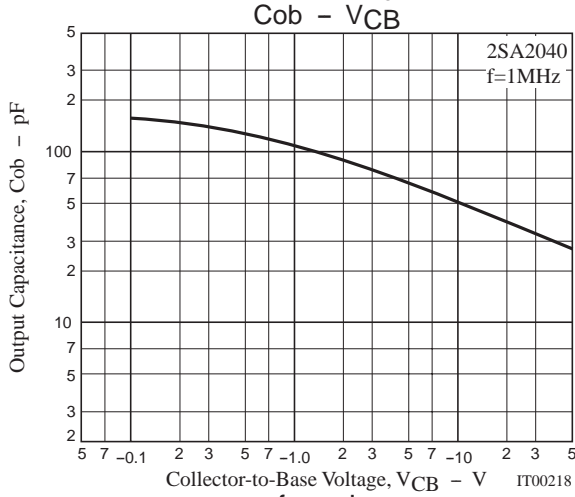
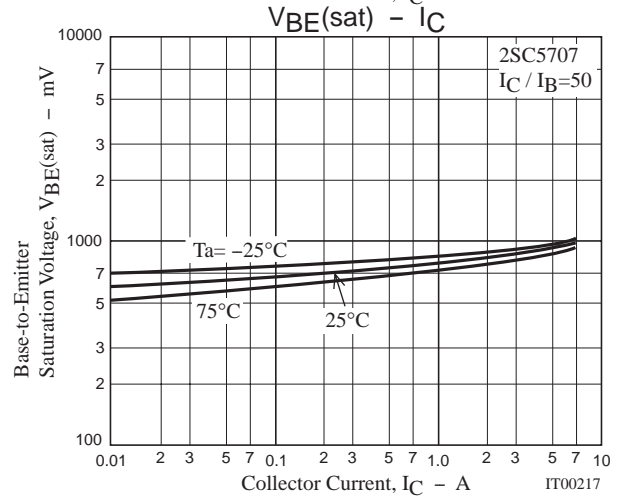
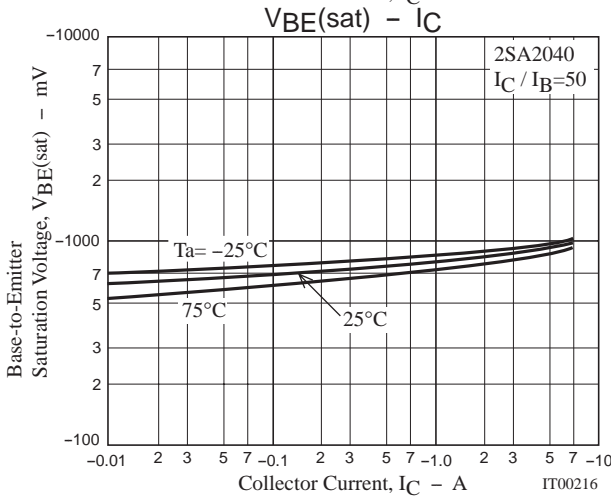
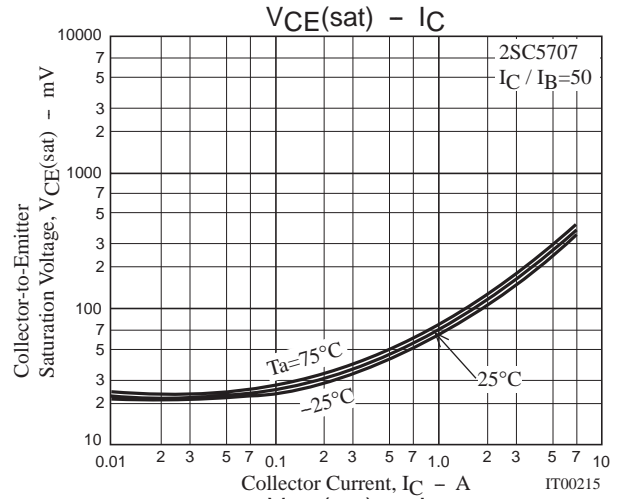
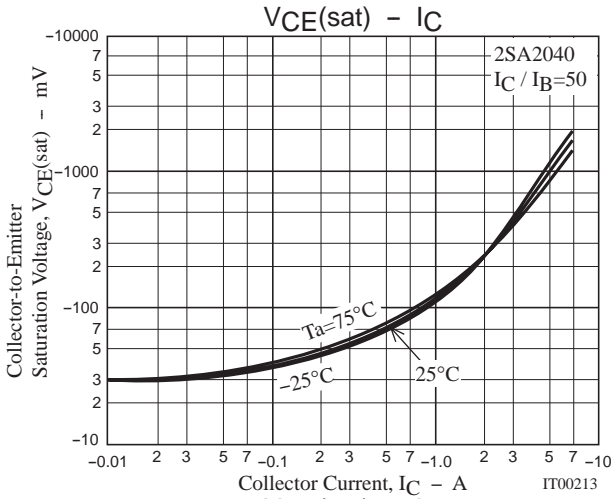
Swiching Time Test Circuit



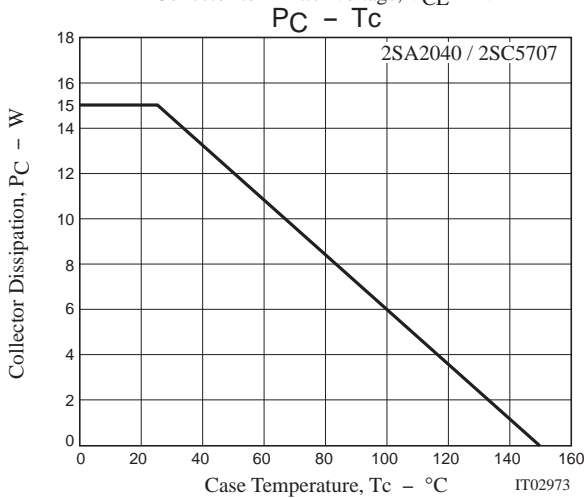
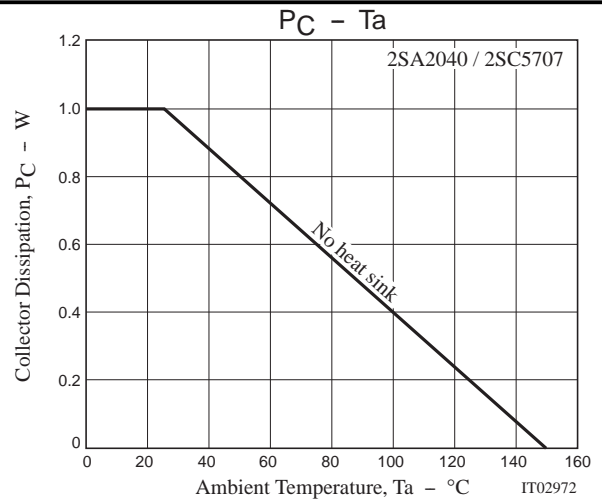
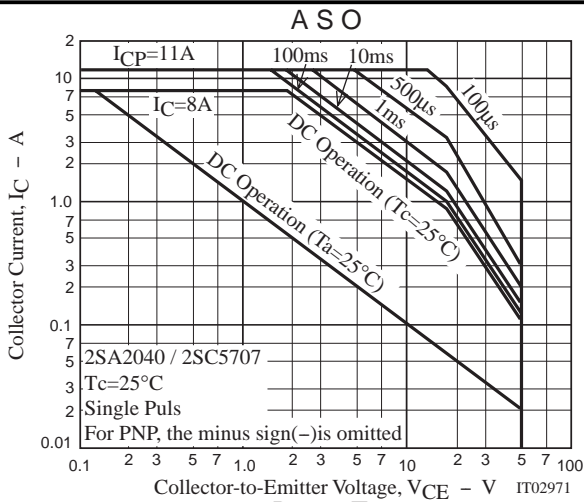
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