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| SANYO | No.2042A | 2SD1685 |
| | NPN Epitaxial Planar Type Silicon Transistor HIGH-CURRENT SWITCHING APPLICATIONS | |

Applications

- . Strobes, voltage regulators, relay drivers, lamp drivers

Features

- . Low saturation voltage
- . Large current capacity
- . Fast switching time
- . No insulator required when mounting because the leadframe of the chip is covered with plastic

Absolute Maximum Ratings at Ta=25°C

| | | | unit |
|------------------------------|------------------|-------------|------|
| Collector-to-Base Voltage | V _{CBO} | 60 | V |
| Collector-to-Emitter Voltage | V _{CEO} | 20 | V |
| Emitter-to-Base Voltage | V _{EBO} | 6 | V |
| Collector Current | I _C | 5 | A |
| Peak Collector Current | i _{cp} | 8 | A |
| Collector Dissipation | P _C | 1.5 | W |
| | | Tc=25°C | |
| Junction Temperature | T _j | 150 | °C |
| Storage Temperature | T _{stg} | -55 to +150 | °C |

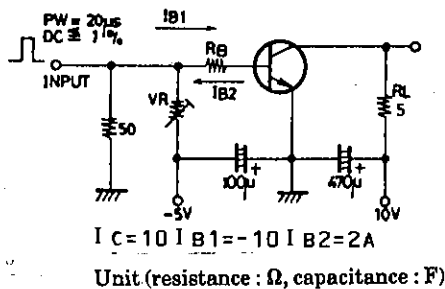
Electrical Characteristics at Ta=25°C

| | | | min | typ | max | unit |
|--------------------------|----------------------|--|------|-----|------|------|
| Collector Cutoff Current | I _{CBO} | V _{CB} =50V, I _E =0 | | | 100 | nA |
| Emitter Cutoff Current | I _{EBO} | V _{EB} =5V, I _C =0 | | | 100 | nA |
| DC Current Gain | h _{FE} (1) | V _{CE} =2V, I _C =500mA | 120* | | 560* | |
| | h _{FE} (2) | V _{CE} =2V, I _C =3A | 95 | | | |
| Gain-Bandwidth Product | f _T | V _{CE} =10V, I _C =50mA | | 120 | | MHz |
| Output Capacitance | c _{ob} | V _{CB} =10V, f=1MHz | | 45 | | pF |
| C-E Saturation Voltage | V _{CE(sat)} | I _C =3A, I _B =60mA | | 220 | 500 | mV |
| B-E Saturation Voltage | V _{BE(sat)} | I _C =3A, I _B =60mA | | | 1.5 | V |
| C-B Breakdown Voltage | V _{(BR)CBO} | I _C =10μA, I _E =0 | 60 | | | V |
| C-E Breakdown Voltage | V _{(BR)CEO} | I _C =1mA, R _{BE} =∞ | 20 | | | V |
| E-B Breakdown Voltage | V _{(BR)EBO} | I _E =10μA, I _C =0 | 6 | | | V |
| Turn-on Time | t _{on} | See specified Test Circuit. | | 30 | | ns |
| Storage Time | t _{stg} | " | | 300 | | ns |
| Fall Time | t _f | " | | 40 | | ns |

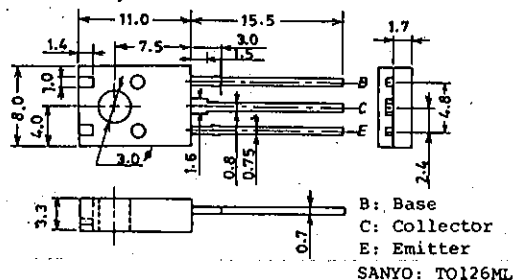
*: The 2SD1685 is classified by 500mA h_{FE} as follows:

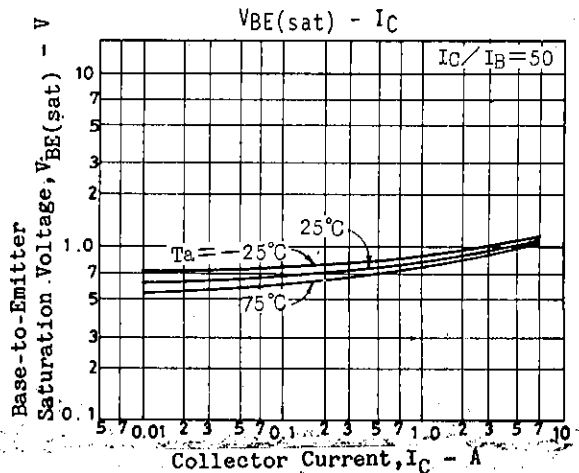
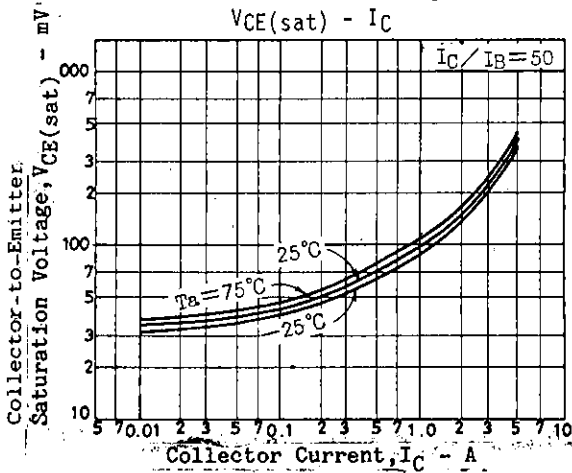
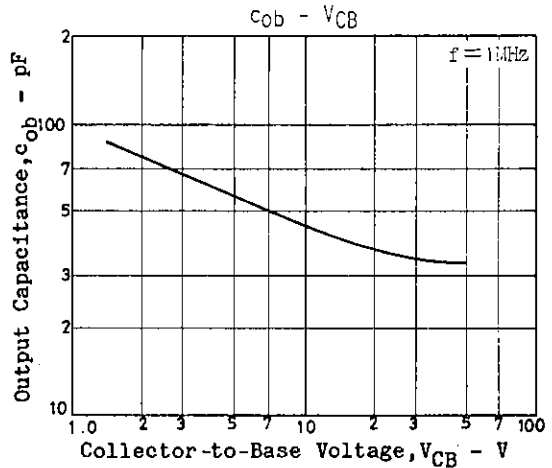
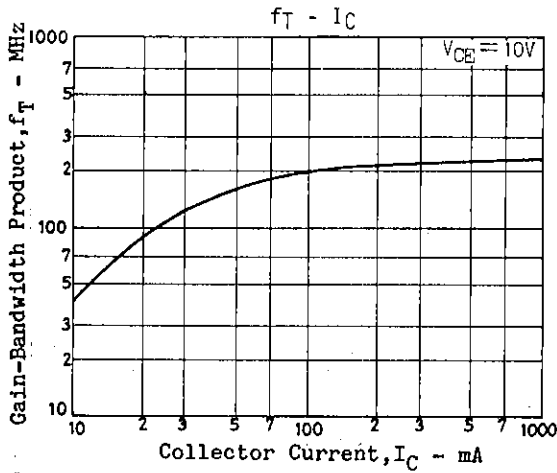
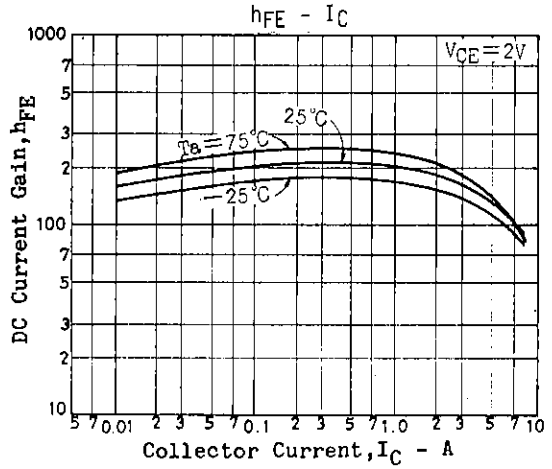
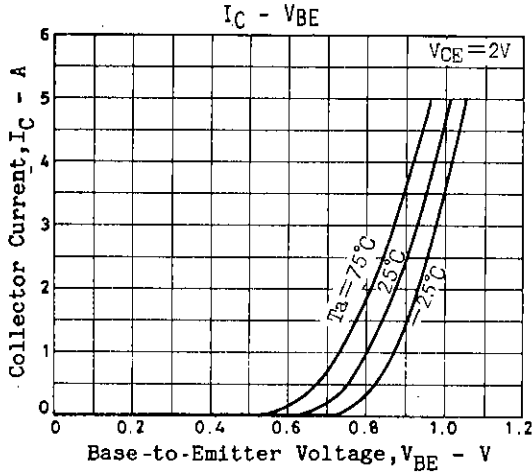
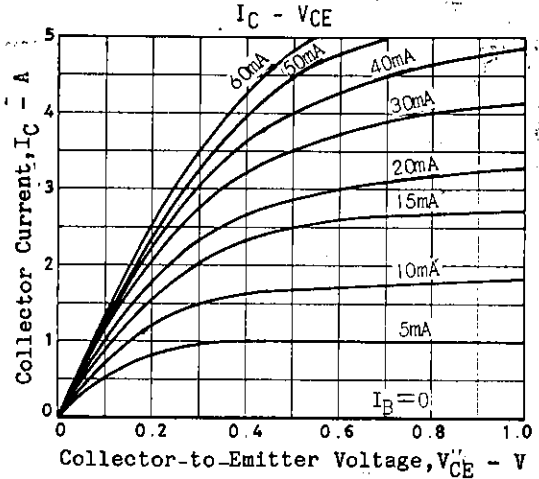
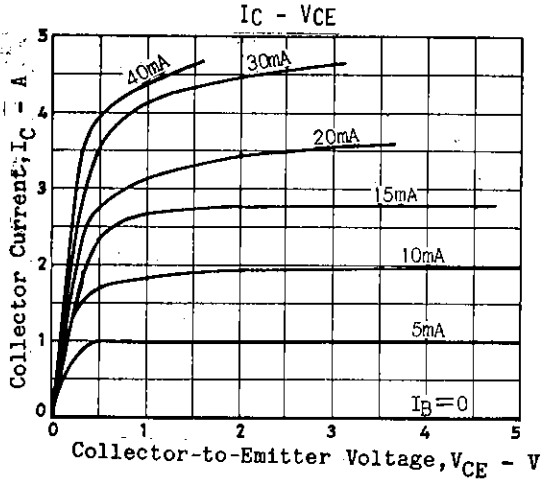
| | | |
|-----------|-----------|-----------|
| 120 E 200 | 160 F 320 | 280 G 560 |
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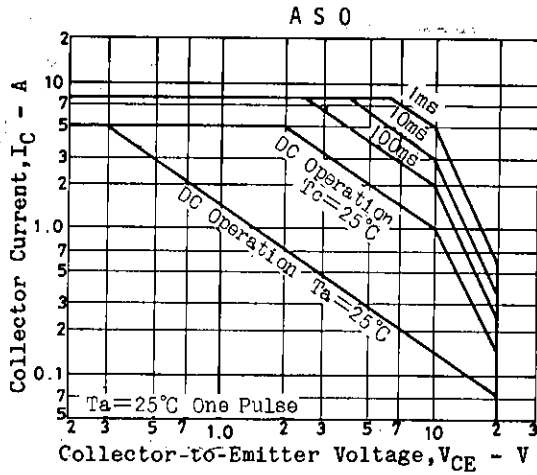
Switching Time Test Circuit



Package Dimensions 2042A (unit:mm)







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