



2SA1825/2SC4729

50V/8A Switching Applications

Applications

- Relay drivers, high-speed inverters, converters, and other general high-current switching applications.

Features

- Low collector-to-emitter saturation voltage.
- High Gain-Bandwidth Product.
- Excellent linearity of DC Current Gain.
- Fast switching speed.

() : 2SA1825

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|------------|-------------|------------------|
| Collector-to-Base Voltage | V_{CB0} | | (-)-60 | 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} | | (-)-12 | A |
| Base Current | I_B | | (-)-2 | A |
| Collector Dissipation | P_C | | 1.5 | W |
| Junction Temperature | T_j | | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ\text{C}$ |

Electrical Characteristics at $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--------------------------|-----------|---|---------|--------|-------|---------------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=(-)40\text{V}, I_E=0$ | | | (-)-1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=(-)4\text{V}, I_C=0$ | | | (-)-1 | μA |
| DC Current Gain | h_{FE1} | $V_{CE}=(-)2\text{V}, I_C=(-)0.5\text{A}$ | 100* | | 400* | |
| | h_{FE2} | $V_{CE}=(-)2\text{V}, I_C=(-)6\text{A}$ | 35 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE}=(-)5\text{V}, I_C=(-)1\text{A}$ | | (130) | | MHz |
| | | | | 180 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=(-)10\text{V}, f=1\text{MHz}$ | | (95)65 | | pF |

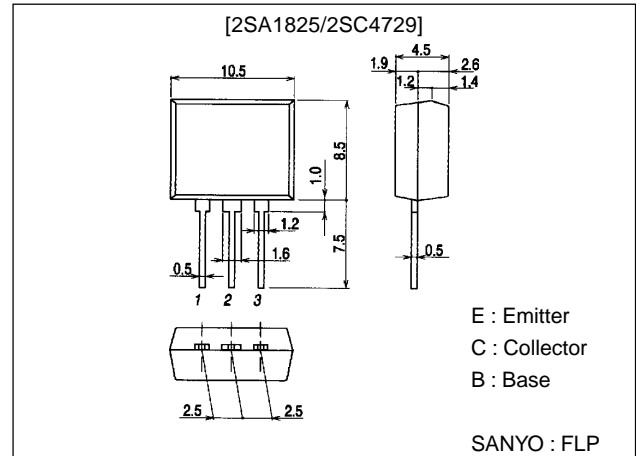
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Package Dimensions

unit:mm

2084



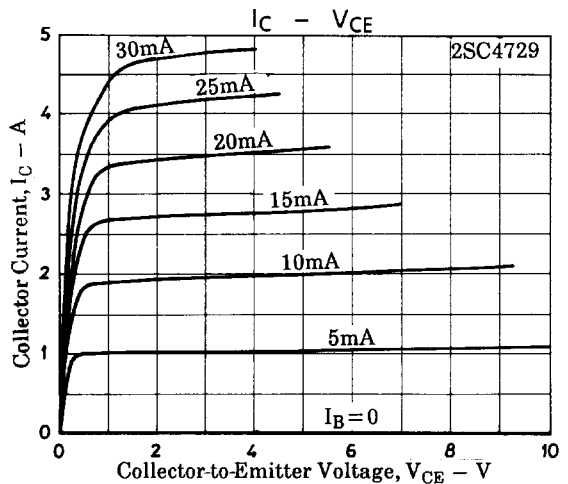
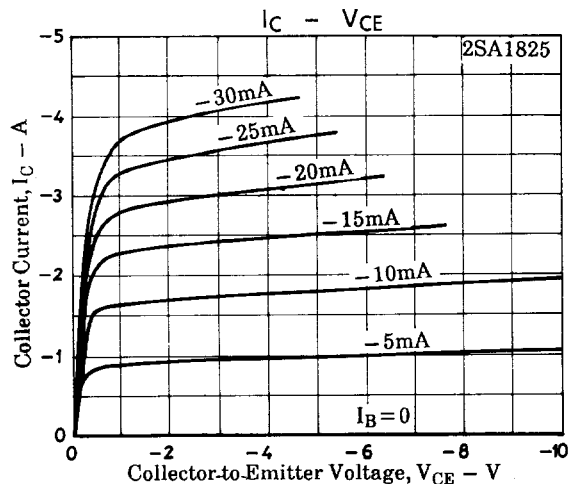
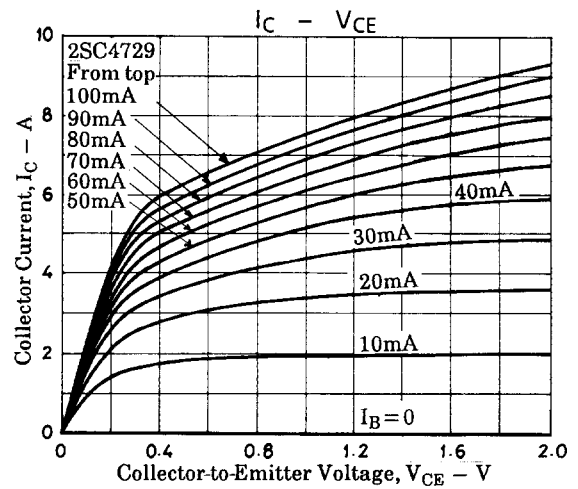
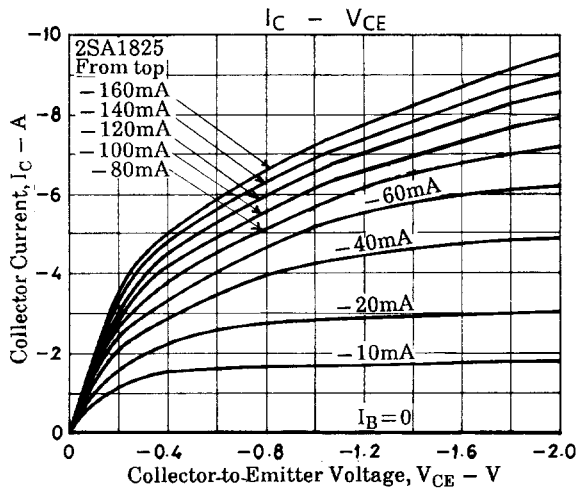
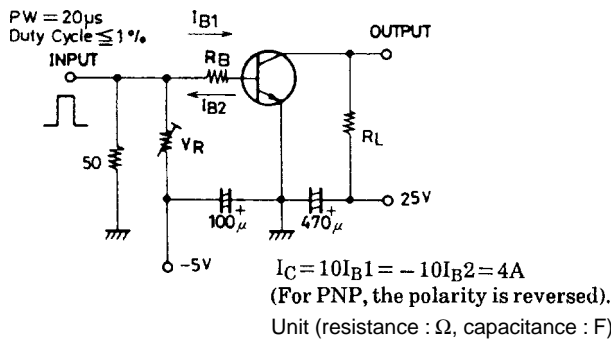
2SA1825/2SC4729

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|-----------------------------|---------|---------|--------|------|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)4A, I_B=(-)0.2A$ | | (-250) | (-500) | mV |
| | | | | 200 | 400 | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=(-)4mA, I_B=(-)0.2A$ | | (-)0.95 | (-)1.3 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=(-)10\mu A, I_E=0$ | (-)60 | | | 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 | | 50 | | ns |
| Storage Time | t_{stg} | See specified Test Circuit | | (450) | | ns |
| | | | | 500 | | ns |
| Fall Time | t_f | See specified Test Circuit | | 20 | | ns |

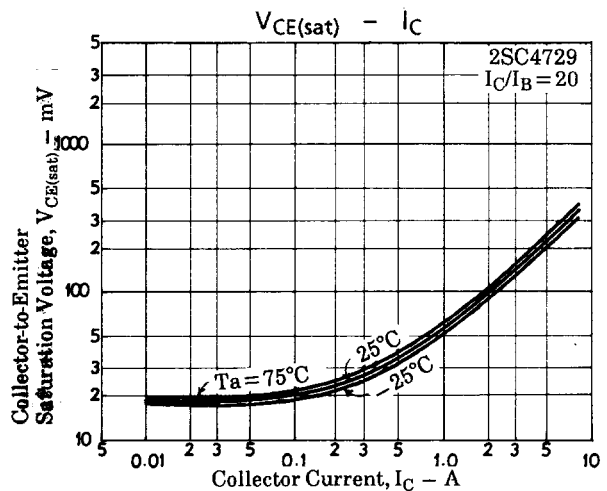
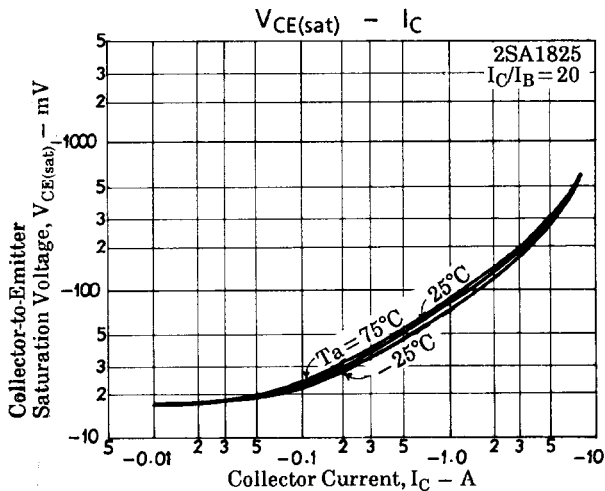
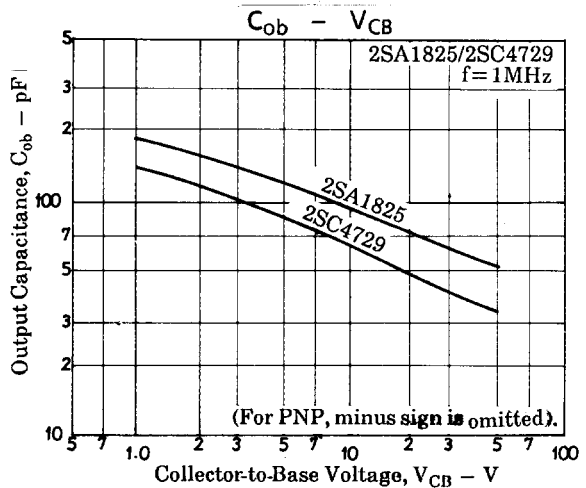
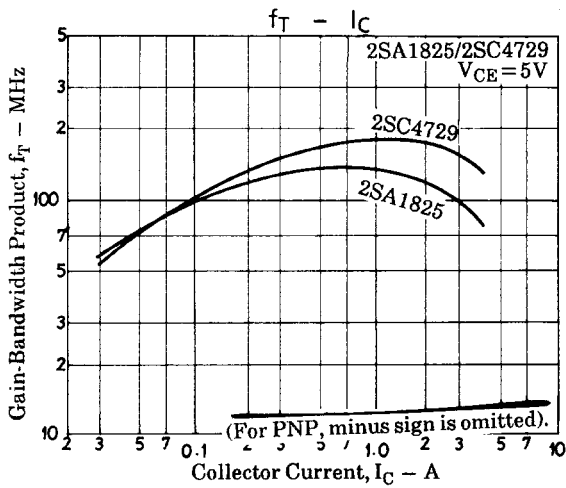
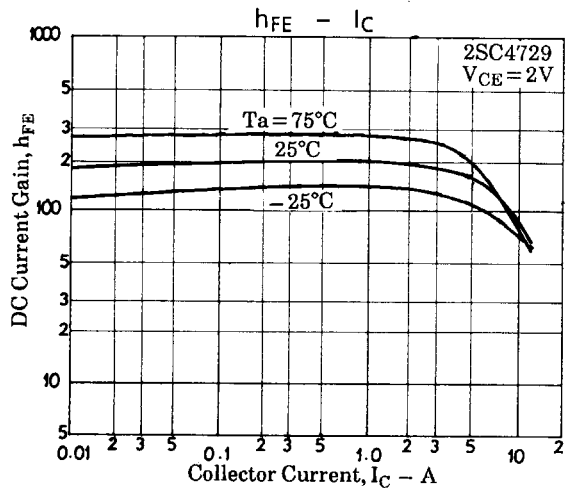
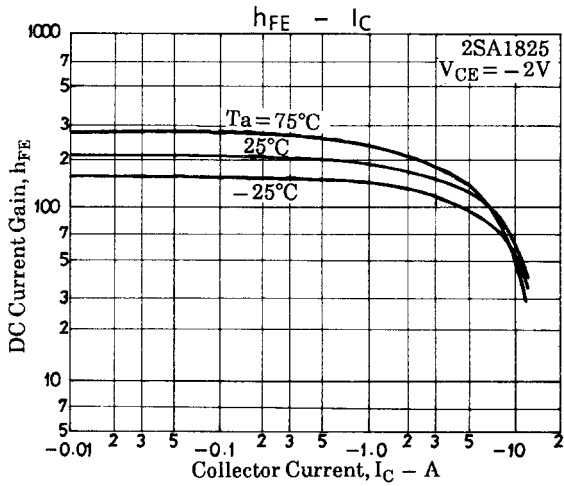
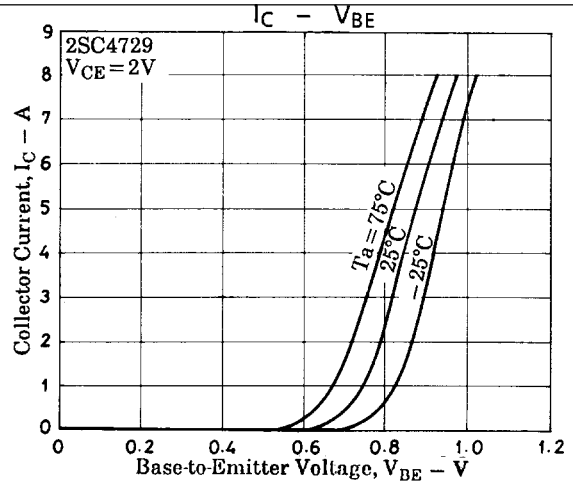
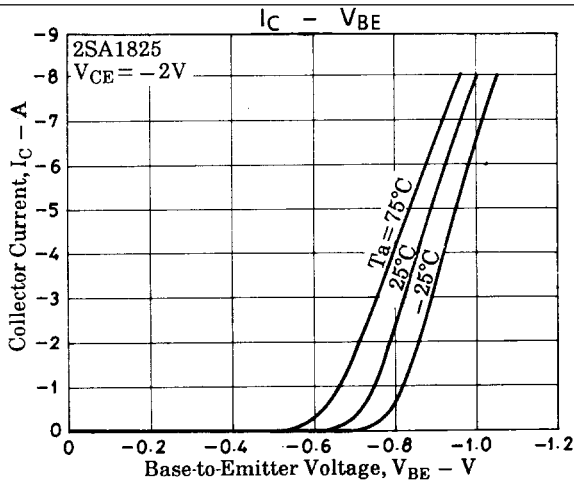
* ; 2SA1825/2SC4729 are classified by 500mA h_{FE} as follows :

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

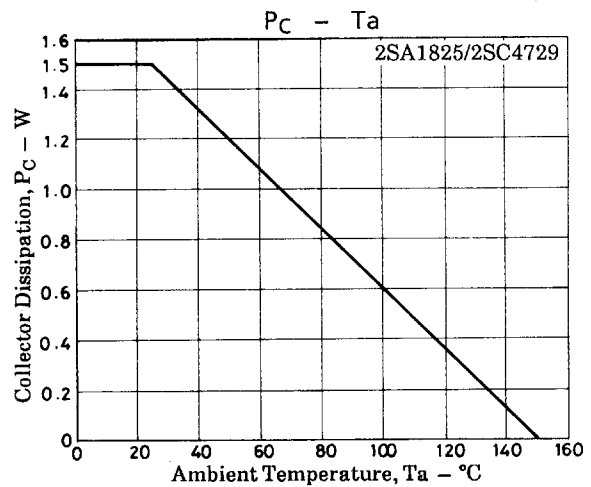
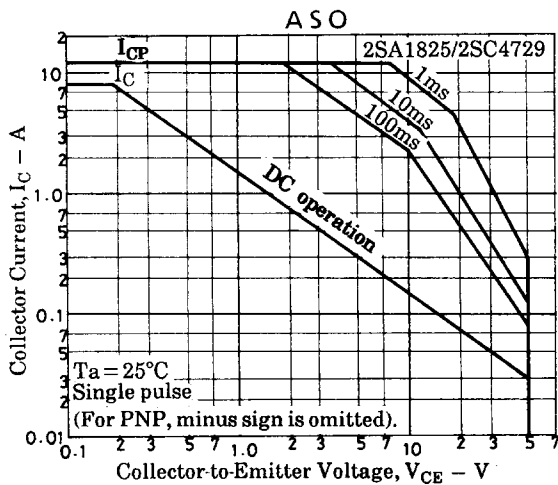
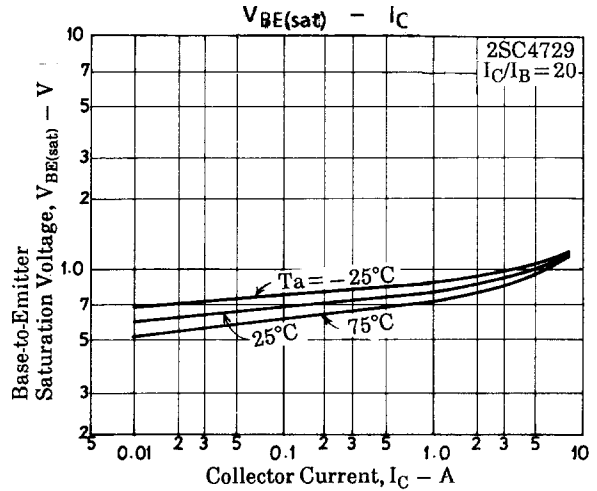
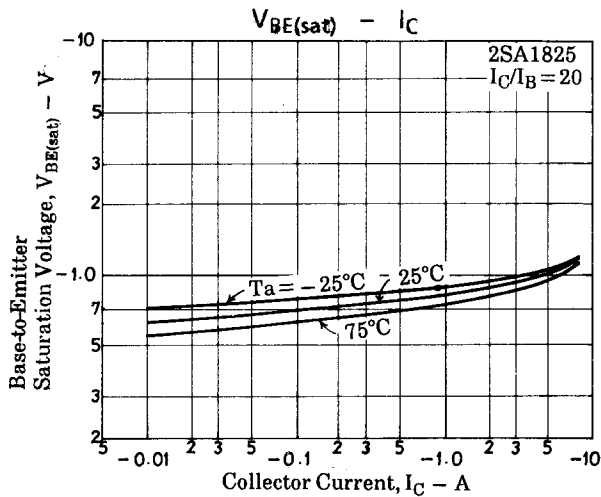
Switching Time Test Circuit



2SA1825/2SC4729



2SA1825/2SC4729



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