

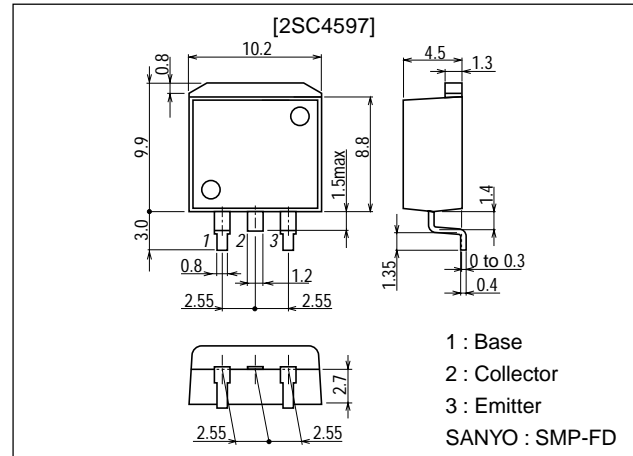
**2SC4597****Switching Regulator Applications****Features**

- Surface mount type device making the following possible.
- Reduction in the number of manufacturing processes for 2SC4597-applied equipment.
- High density surface mount applications.
- Small size of 2SC4597-applied equipment.
- High breakdown voltage, high reliability.
- Fast switching speed.
- Wide ASO.
- Adoption of MBIT process.

Package Dimensions

unit:mm

2069C

**Specifications****Absolute Maximum Ratings at Ta = 25°C**

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|---|-------------|------------|
| Collector-to-Base Voltage | V_{CBO} | | 500 | V |
| Collector-to-Emitter Voltage | V_{CEO} | | 400 | V |
| Emitter-to-Base Voltage | V_{EBO} | | 7 | V |
| Collector Current | I_C | | 4 | A |
| Collector Current (Pulse) | I_{CP} | $PW \leq 300\mu s$, duty cycle $\leq 10\%$ | 8 | A |
| Base Current | I_B | | 1.5 | A |
| Collector Dissipation | P_C | | 1.65 | W |
| | | $T_C = 25^\circ C$ | 40 | W |
| Junction Temperature | T_J | | 150 | $^\circ C$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ C$ |

Electrical Characteristics at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--------------------------|-----------|------------------------------|---------|-----|-----|---------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB} = 400V$, $I_E = 0$ | | | 10 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = 5V$, $I_C = 0$ | | | 10 | μA |
| DC Current Gain | h_{FE1} | $V_{CE} = 5V$, $I_C = 0.4A$ | 15* | | 50* | |
| | h_{FE2} | $V_{CE} = 5V$, $I_C = 2A$ | 10 | | | |
| | h_{FE3} | $V_{CE} = 5V$, $I_C = 10mA$ | 10 | | | |

* : For the h_{FE1} of the 2SC4597, specify two ranks or more in principle.

| | | | | | | | | |
|----|---|----|----|---|----|----|---|----|
| 15 | L | 30 | 20 | M | 40 | 30 | N | 50 |
|----|---|----|----|---|----|----|---|----|

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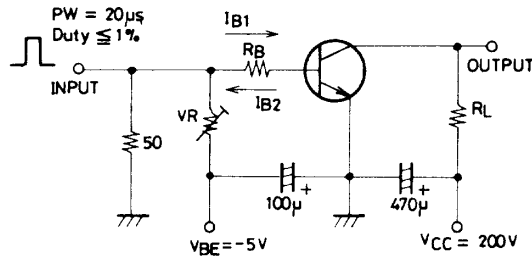
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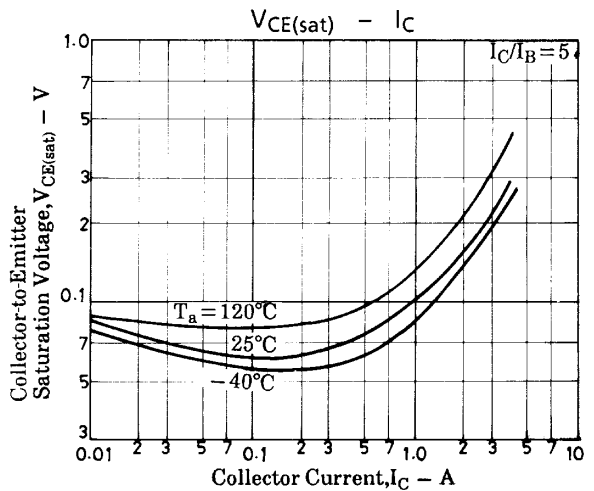
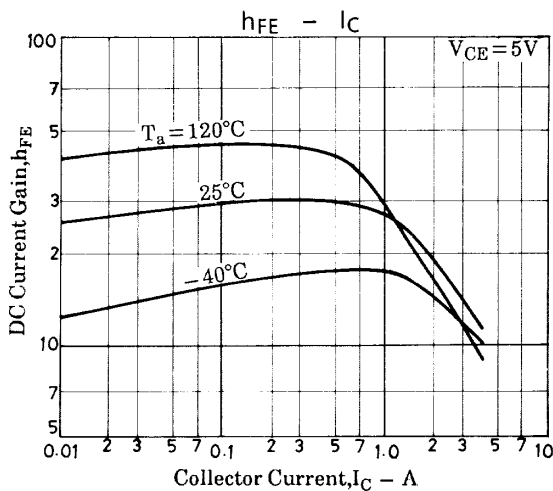
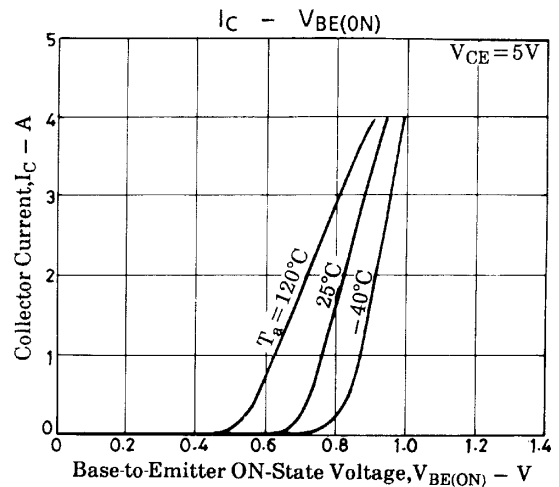
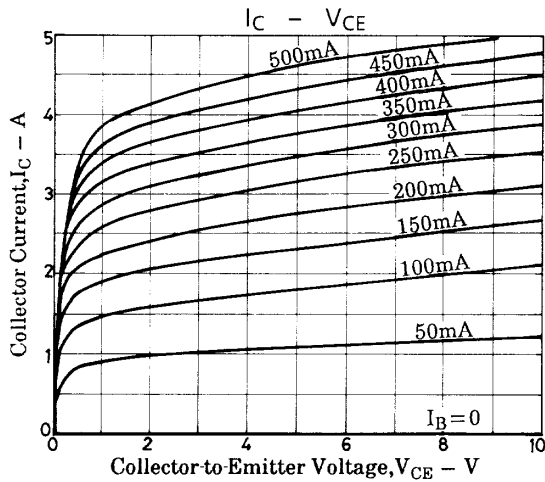
2SC4597

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|----------------|--|---------|-----|-----|---------|
| | | | min | typ | max | |
| Gain-Bandwidth Product | f_T | $V_{CE}=10V, I_C=0.4A$ | | 20 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=10V, f=1MHz$ | | 50 | | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=2A, I_B=0.4A$ | | | 0.8 | V |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=2A, I_B=0.4A$ | | | 1.5 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=1mA, I_E=0$ | 500 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=5mA, R_{BE}=\infty$ | 400 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=1mA, I_C=0$ | 7 | | | V |
| Collector-to-Emitter Sustain Voltage | $V_{CEX(sus)}$ | $I_C=2A, I_{B1}=0.2A, L=1mH, I_{B2}=-0.8A, \text{clamped}$ | 400 | | | V |
| Turn-ON Time | t_{on} | $I_C=3A, I_{B1}=0.6A, I_{B2}=-1.2A, R_L=66.6\Omega, V_{CC}=200V$ | | | 0.5 | μs |
| Storage Time | t_{stg} | $I_C=3A, I_{B1}=0.6A, I_{B2}=-1.2A, R_L=66.6\Omega, V_{CC}=200V$ | | | 2.5 | μs |
| Fall Time | t_f | $I_C=3A, I_{B1}=0.6A, I_{B2}=-1.2A, R_L=66.6\Omega, V_{CC}=200V$ | | | 0.3 | μs |

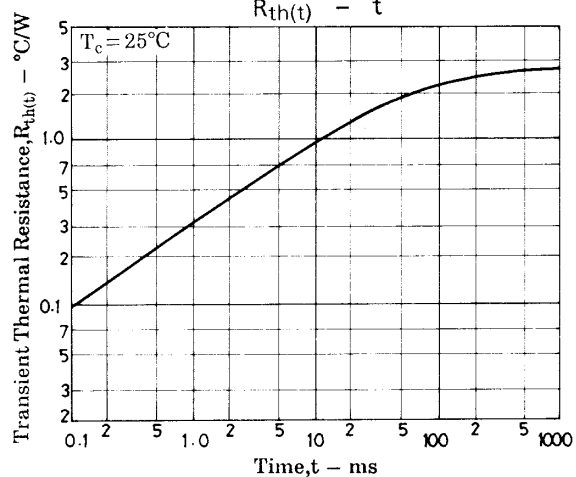
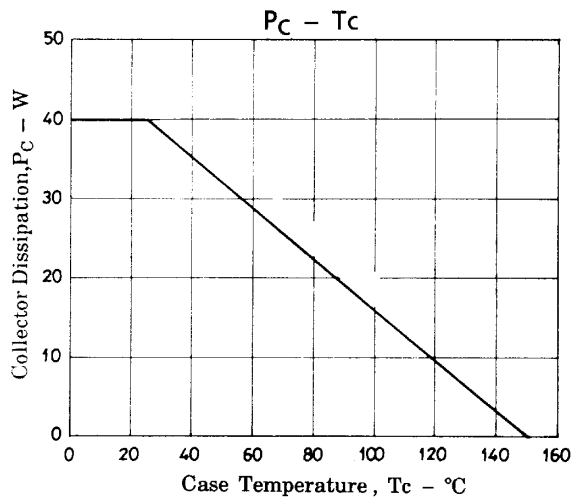
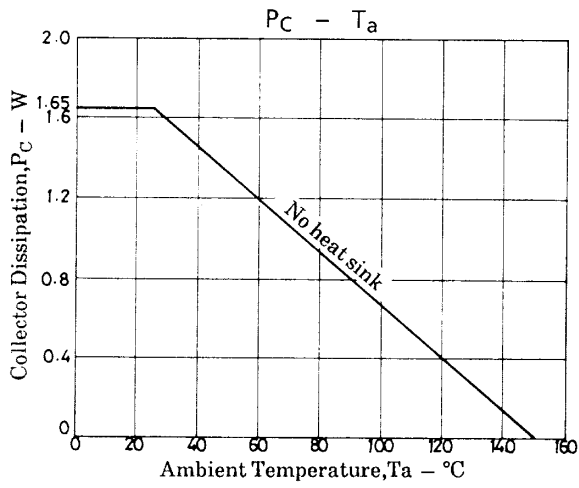
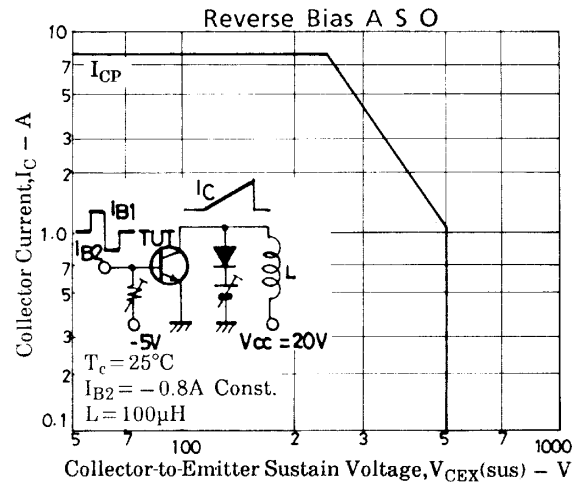
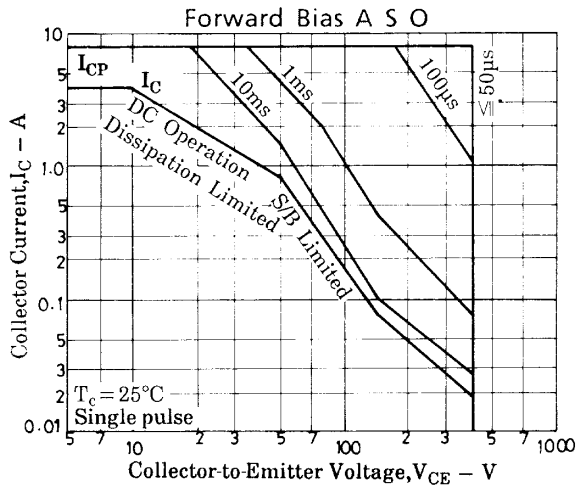
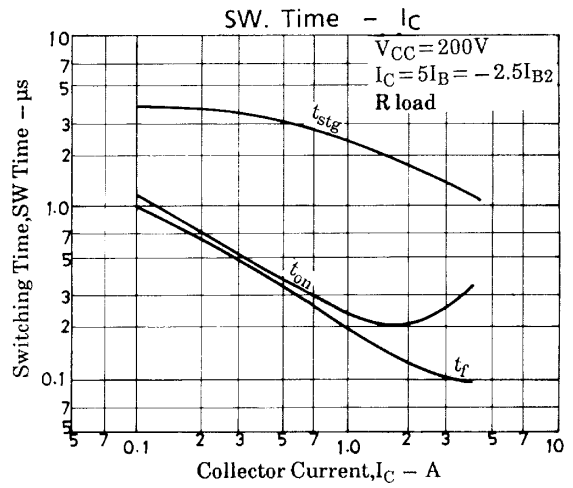
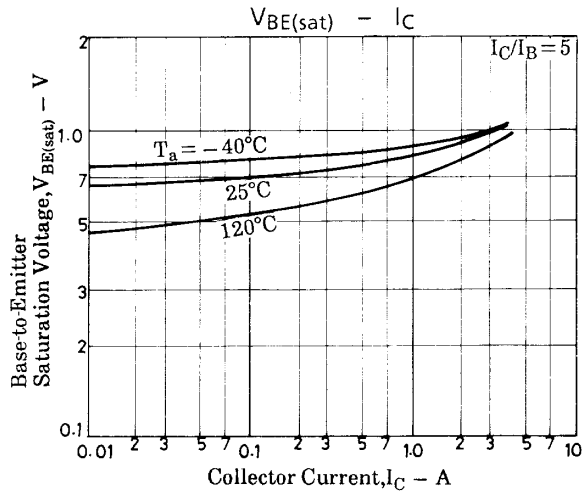
Switching Time Test Circuit



Unit (resistance : Ω , capacitance : F)



2SC4597



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