



No.3147

2SC4601
 NPN Triple Diffused Planar Silicon Transistor
 Switching Regulator Applications

Features

- Surface mount type device making the following possible
 - Reduction in the number of manufacturing processes for 2SC4601-applied equipment
 - High density surface mount applications
 - Small size of 2SC4601-applied equipment
- High breakdown voltage, high reliability
- Fast switching speed
- Wide ASO
- Adoption of MBIT process

Absolute Maximum Ratings at Ta = 25°C

| Parameter | Symbol | Condition | Value | unit |
|------------------------------|------------------|------------------------------|-------------|------|
| Collector to Base Voltage | V _{CB0} | | 1100 | V |
| Collector to Emitter Voltage | V _{CEO} | | 800 | V |
| Emitter to Base Voltage | V _{EBO} | | 7 | V |
| Collector Current | I _C | | 1.5 | A |
| Collector Current(Pulse) | I _{CP} | PW ≤ 300μs, duty cycle ≤ 10% | 5 | A |
| Base Current | I _B | | 0.8 | A |
| Collector Dissipation | P _C | | 1.65 | W |
| | | T _c = 25°C | 40 | W |
| Junction Temperature | T _j | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |

Electrical Characteristics at Ta = 25°C

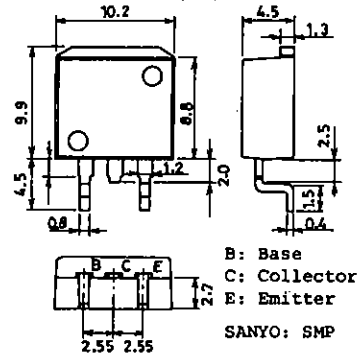
| Parameter | Symbol | Condition | min | typ | max | unit |
|--------------------------|----------------------|--|-----|-----|-----|------|
| Collector Cutoff Current | I _{CBO} | V _{CB} = 800V, I _E = 0 | | | 10 | μA |
| Emitter Cutoff Current | I _{EBO} | V _{EB} = 5V, I _C = 0 | | | 10 | μA |
| DC Current Gain | h _{FE} (1) | V _{CE} = 5V, I _C = 0.1A | 10* | | 40* | |
| | h _{FE} (2) | V _{CE} = 5V, I _C = 0.5A | 8 | | | |
| Gain-Bandwidth Product | f _T | V _{CE} = 10V, I _C = 0.1A | | 15 | | MHz |
| Output Capacitance | c _{ob} | V _{CB} = 10V, f = 1MHz | | 35 | | pF |
| C-E Saturation Voltage | V _{CE(sat)} | I _C = 0.75A, I _B = 0.15A | | | 2.0 | V |
| B-E Saturation Voltage | V _{BE(sat)} | I _C = 0.75A, I _B = 0.15A | | | 1.5 | V |

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* : For the h_{FE}(1) of the 2SC4601, specify two ranks or more in principle.

| | | | | | | | | |
|----|---|----|----|---|----|----|---|----|
| 10 | K | 20 | 15 | L | 30 | 20 | M | 40 |
|----|---|----|----|---|----|----|---|----|

Package Dimensions 2069
(unit: mm)

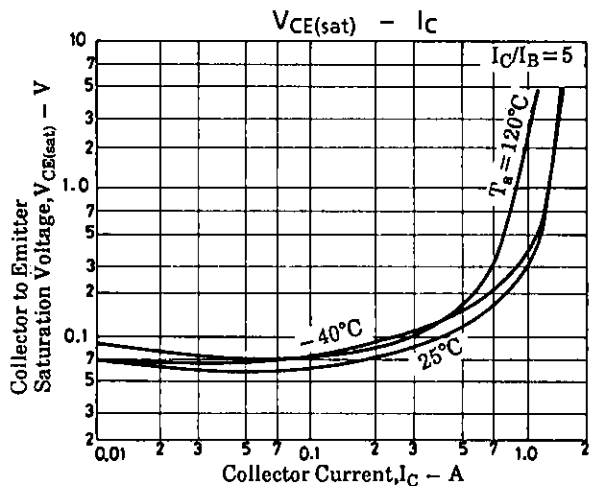
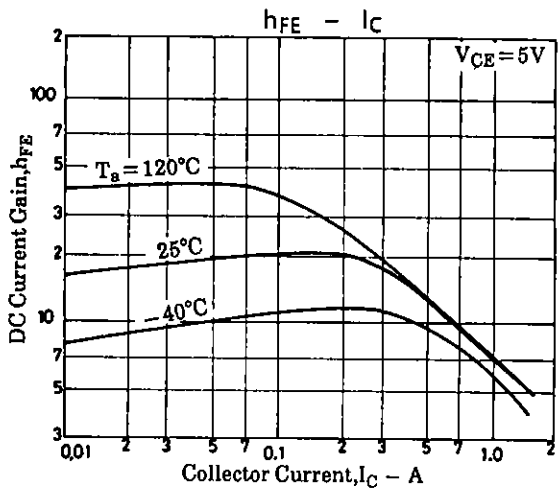
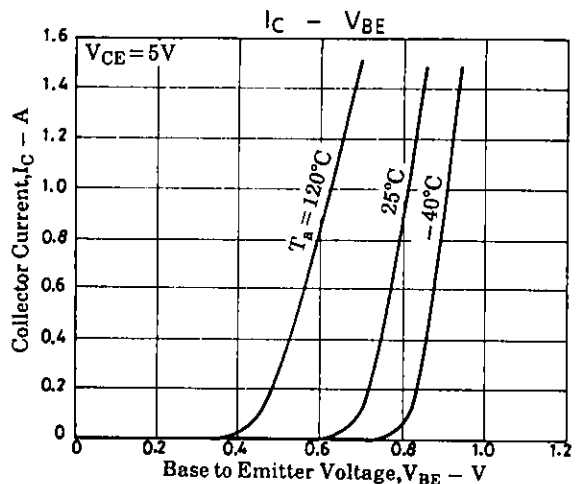
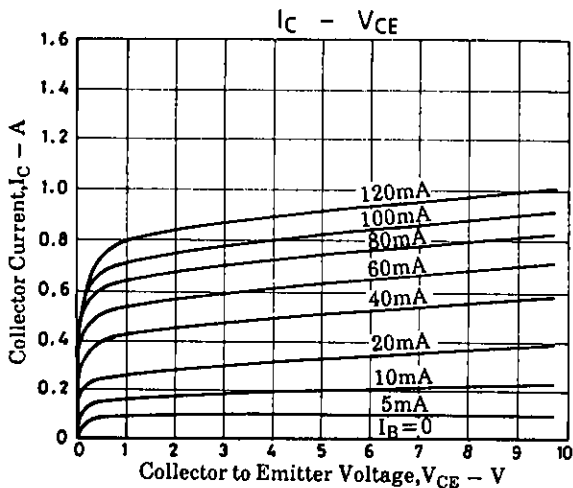
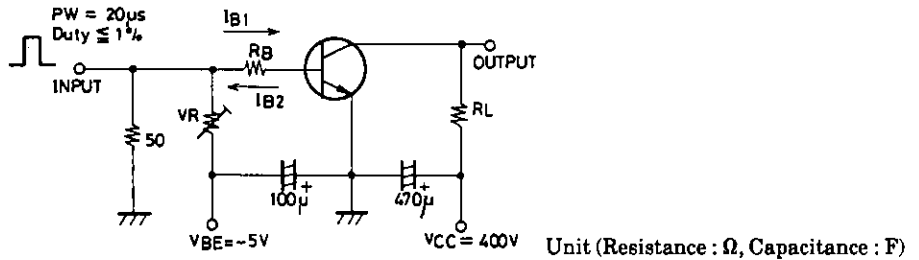


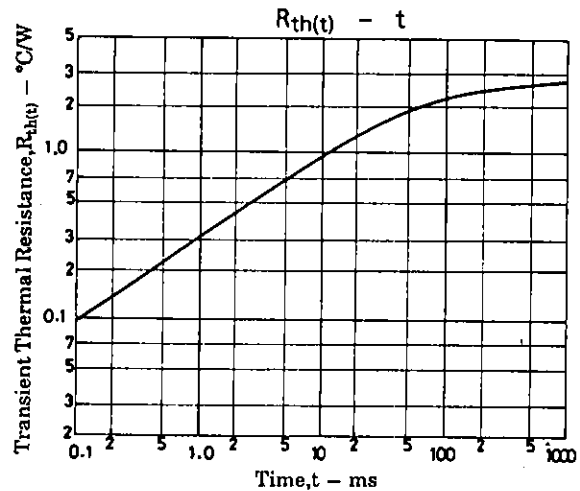
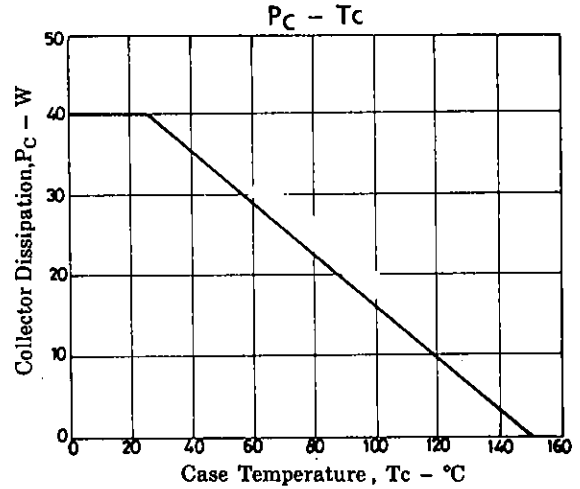
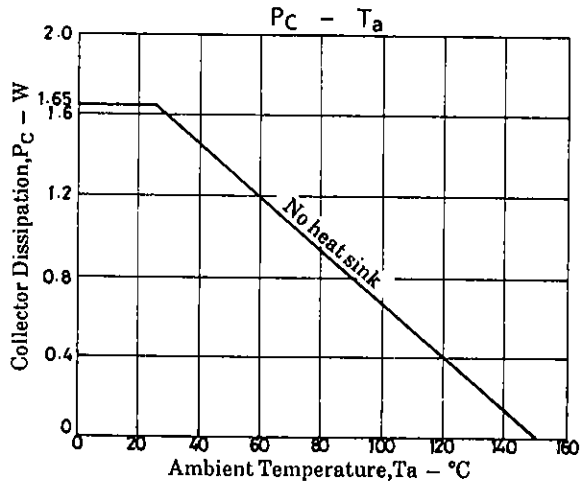
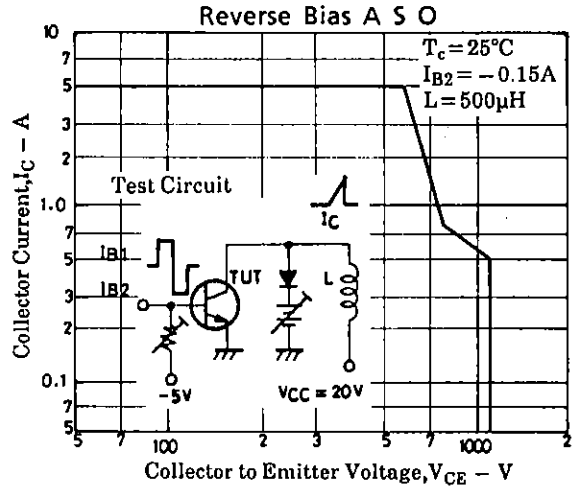
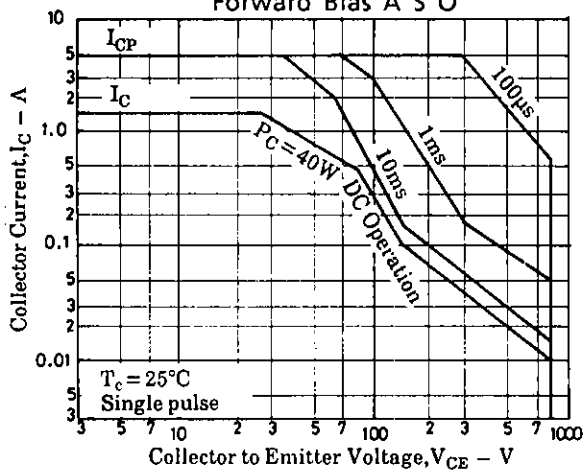
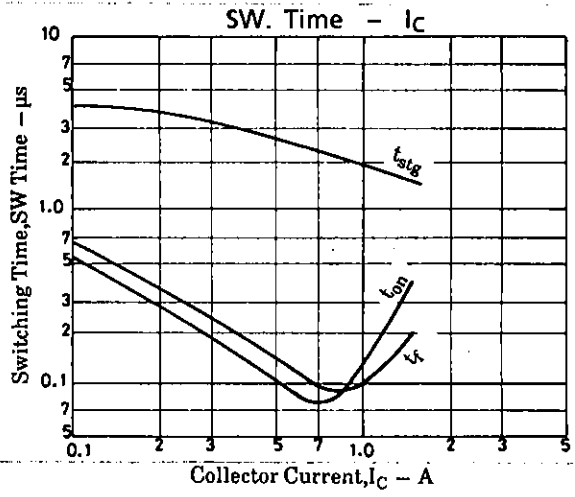
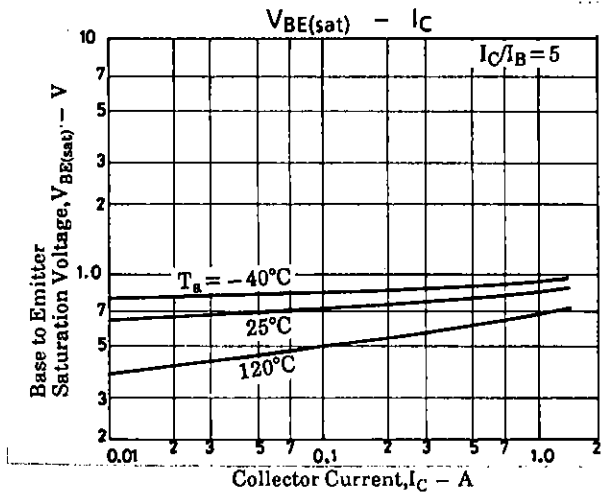
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| | | | min | typ | max | unit |
|-----------------------|----------------|---|------|-----|-----|---------|
| C-B Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = 1mA, I_E = 0$ | 1100 | | | V |
| C-E Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = 5mA, R_{BE} = \infty$ | 800 | | | V |
| E-B Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = 1mA, I_C = 0$ | 7 | | | V |
| C-E Sustain Voltage | $V_{CEX(sus)}$ | $I_C = 0.75A, I_{B1} = -I_{B2} = 0.15A,$ $L = 5mH, \text{clamped}$ | 800 | | | V |
| Turn-ON Time | t_{on} | $I_C = 1A, I_{B1} = 0.2A,$ $I_{B2} = -0.4A, R_L = 400\Omega,$ $V_{CC} = 400V$ | | 0.5 | | μs |
| Storage Time | t_{stg} | | | 3.0 | | μs |
| Fall Time | t_f | | | 0.3 | | μs |

Switching Time Test Circuit





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