

SANYO

No.997B

2SC3040

NPN Triple Diffused Planar Silicon Transistor
FOR SWITCHING REGULATORS

Features

- High breakdown voltage ($V_{CB0} \geq 500V$)
- Fast switching speed.
- Wide ASO.

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

| | | | unit |
|------------------------------|-----------|--|------------|
| Collector-to-Base Voltage | V_{CB0} | 500 | V |
| Collector-to-Emitter Voltage | V_{CEO} | 400 | V |
| Emitter-to-Base Voltage | V_{EBO} | 7 | V |
| Collector Current | I_C | 8 | A |
| Peak Collector Current | i_{cp} | 16 | A |
| | | PW $\leq 300\mu s$, Duty Cycle $\leq 10\%$ | |
| Base Current | I_B | 3 | A |
| Collector Dissipation | P_C | 2.5 | W |
| | | $T_c = 25^\circ C$ | |
| Junction Temperature | T_j | 150 | $^\circ C$ |
| Storage Temperature | T_{stg} | -55 to +150 | $^\circ C$ |

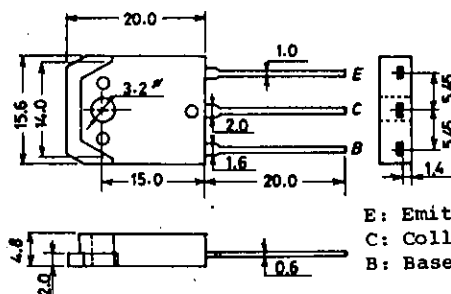
Electrical Characteristics at $T_a = 25^\circ C$

| | | | min | typ | max | unit |
|--------------------------|----------------|---|-----|-----|-----|---------|
| 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 | $h_{FE}(1)$ | $V_{CE} = 5V, I_C = 0.8A$ | 15* | | 50* | |
| | $h_{FE}(2)$ | $V_{CE} = 5V, I_C = 4A$ | 8 | | | |
| C-E Saturation Voltage | $V_{CE(sat)}$ | $I_C = 4A, I_B = 0.8A$ | | | 1.0 | V |
| B-E Saturation Voltage | $V_{BE(sat)}$ | $I_C = 4A, I_B = 0.8A$ | | | 1.5 | V |
| Gain Bandwidth Product | f_T | $V_{CE} = 10V, I_C = 0.8A$ | | 20 | | MHz |
| Output Capacitance | c_{ob} | $V_{CB} = 10V, f = 1MHz$ | | 80 | | pF |
| C-B Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = 1mA, I_E = 0$ | | 500 | | V |
| C-E Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = 10mA, R_{BE} = \infty$ | | 400 | | V |
| E-B Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = 1mA, I_C = 0$ | | 7 | | V |
| C-E Sustain Voltage | $V_{CEO(sus)}$ | $I_C = 8A, I_B = 1.6A, L = 50\mu H$ | | 400 | | V |
| C-E Sustain Voltage | $V_{CEX(sus)}$ | $I_C = 8A, I_{B1} = 1.6A, L = 200\mu H,$ $I_{B2} = -1.6A, \text{clamped}$ | | 400 | | V |
| C-E Sustain Voltage | $V_{CEX(sus)}$ | $I_C = 1.5A, I_{B1} = 0.3A, L = 200\mu H$ $I_{B2} = -0.3A, \text{clamped}$ | | 450 | | V |

*: The $h_{FE}(1)$ of the 2SC3040 is classified as follows. When specifying the $h_{FE}(1)$ rank, specify two ranks or more in principle.

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

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Package Dimensions 2022
(unit:mm)


E: Emitter
C: Collector
B: Base

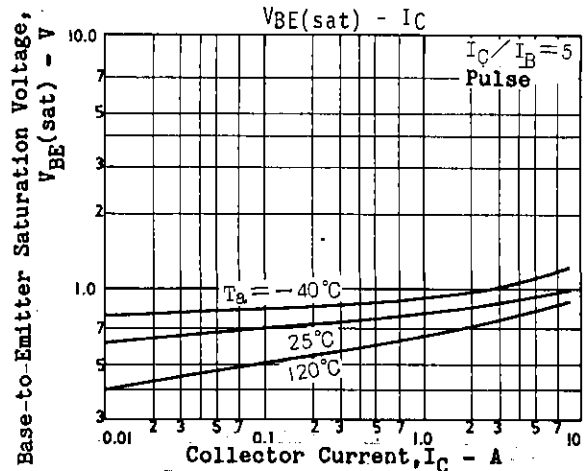
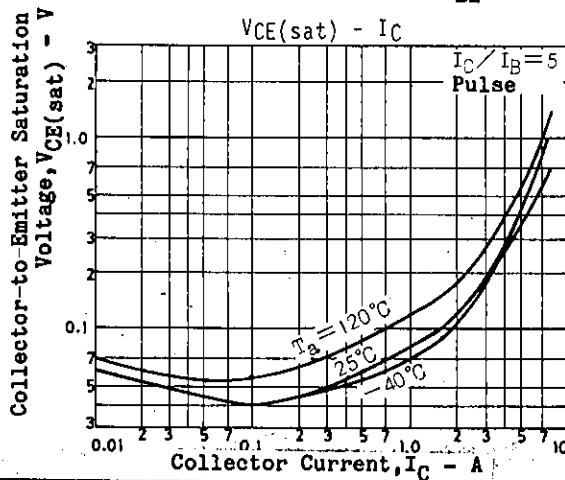
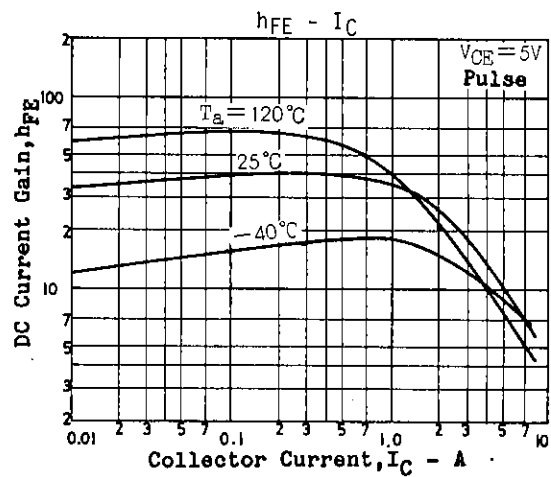
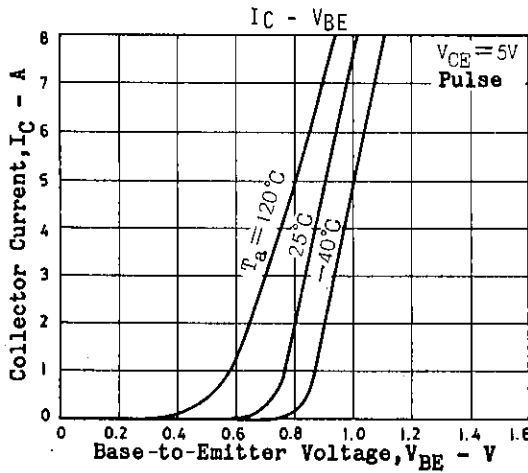
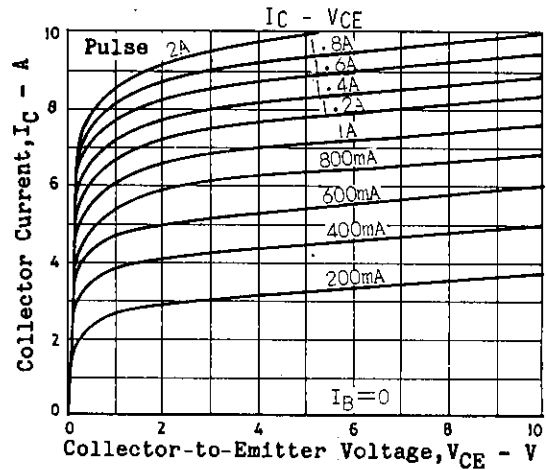
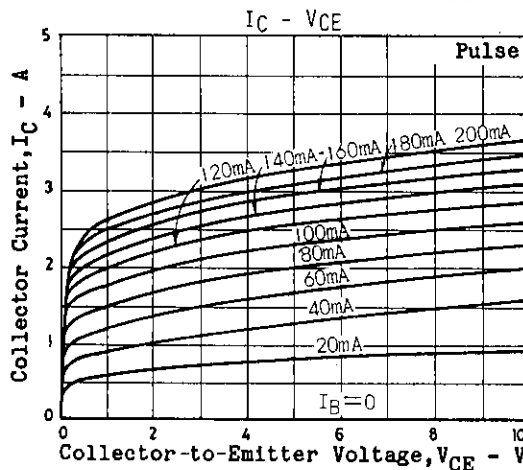
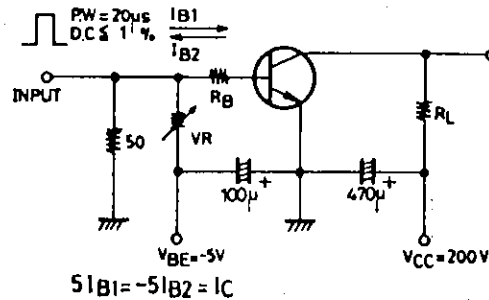
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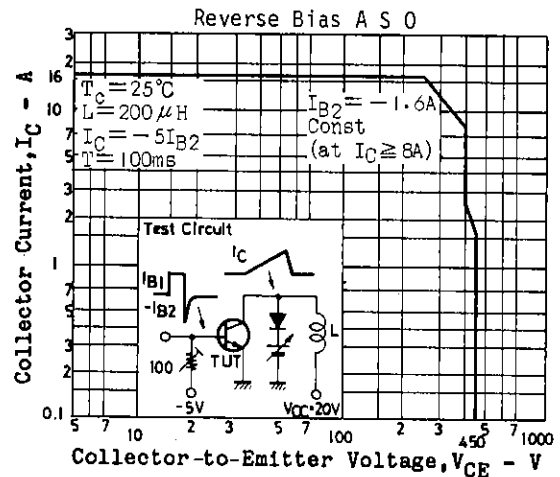
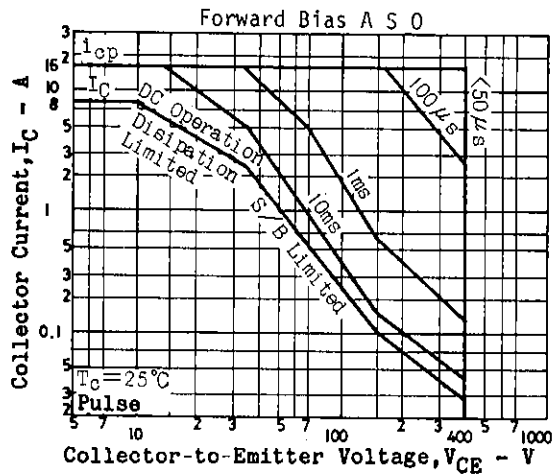
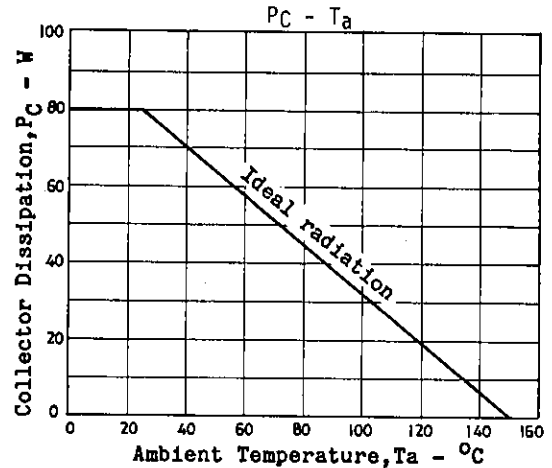
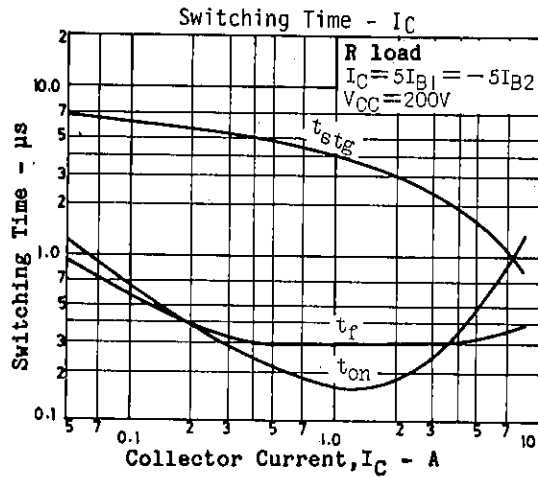
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| | | | min | typ | max | unit |
|--------------|-----------|---|-----|-----|-----|---------|
| Turn-ON Time | t_{on} | $I_C=5A, I_{B1}=1A, I_{B2}=-1A,$ $R_L=40\Omega, V_{CC}=200V$ | | | 1.0 | μs |
| Storage Time | t_{stg} | " | | | 2.5 | μs |
| Fall Time | t_f | " | | | 1.0 | μs |

Switching Time Test Circuit





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