

| | | |
|-----------------------------------------|-------------------------------------------------------|----------------|
| SANYO | No.2481 | 2SC4160 |
| | NPN Triple Diffused Planar Type Silicon Transistor | |
| SWITCHING REGULATOR APPLICATIONS | | |

Features

- . High breakdown voltage, high reliability
- . Fast switching speed ($t_f=0.1\mu s$ typ)
- . Wide ASO
- . Adoption of MBIT process
- . Micaless package facilitating mounting

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

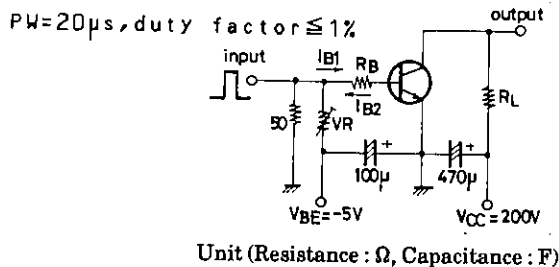
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|------------------------------|-----------|-------------------------------------------------|------------|
| | | | unit |
| Collector-to-Base Voltage | V_{CB0} | 500 | V |
| Collector-to-Emitter Voltage | V_{CEO} | 400 | V |
| Emitter-to-Base Voltage | V_{EBO} | 7 | V |
| Collector Current | I_C | 4 | A |
| Peak Collector Current | i_{cp} | $PW \leq 300\mu s, \text{duty cycle} \leq 10\%$ | 8 A |
| Base Current | I_B | 1.5 | A |
| Collector Dissipation | P_C | 2 | W |
| | | $T_c=25^\circ C$ | 25 W |
| Junction Temperature | T_j | 150 | $^\circ C$ |
| Storage Temperature | T_{stg} | -55 to +150 | $^\circ C$ |

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

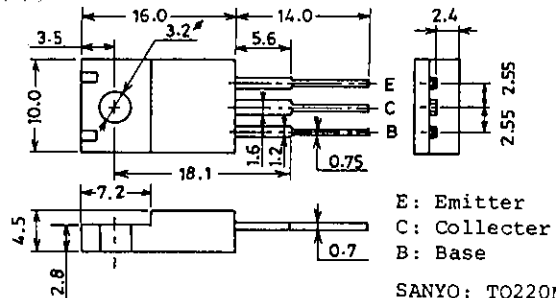
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|--------------------------|---------------|--------------------------|-----|-----|------------|
| | | | | | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=400V, I_E=0$ | min | typ | max unit |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=5V, I_C=0$ | | | 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 | |
| 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 |
| C-E Saturation Voltage | $V_{CE(sat)}$ | $I_C=2A, I_B=0.4A$ | | | 0.8 V |
| B-E Saturation Voltage | $V_{BE(sat)}$ | $I_C=2A, I_B=0.4A$ | | | 1.5 V |
| C-B Breakdown Voltage | $V(BR)_{CBO}$ | $I_C=1mA, I_E=0$ | 500 | | V |
| C-E Breakdown Voltage | $V(BR)_{CEO}$ | $I_C=5mA, R_{BE}=\infty$ | 400 | | V |
| E-B Breakdown Voltage | $V(BR)_{EBO}$ | $I_E=1mA, I_C=0$ | 7 | | V |

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Switching Time Test Circuit



Package Dimensions 2041 (unit: mm)



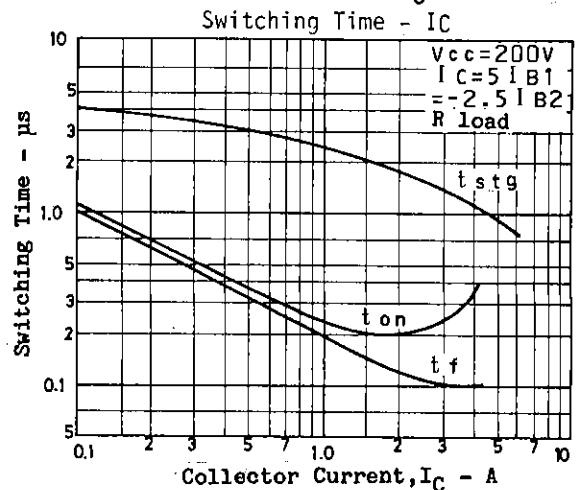
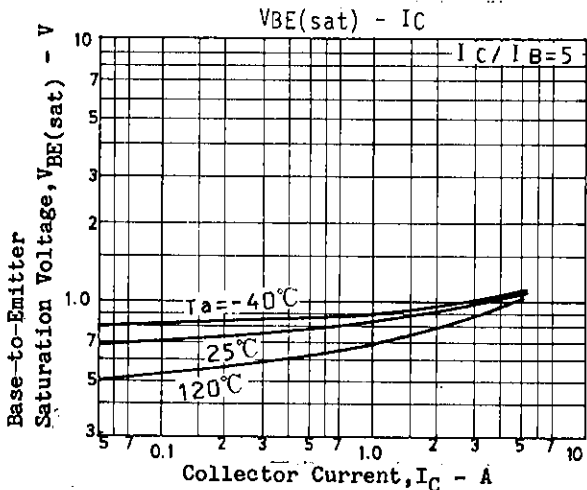
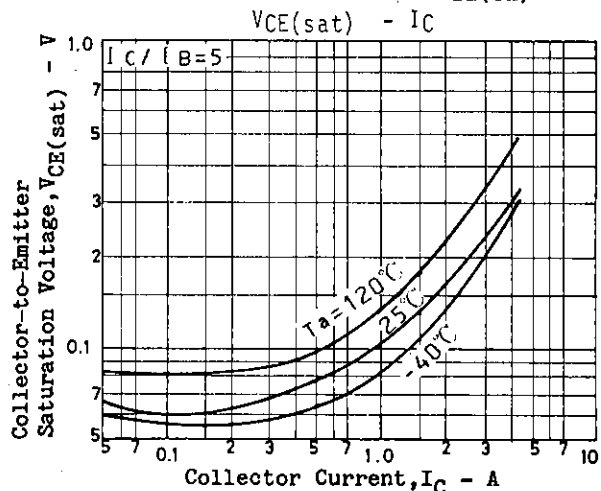
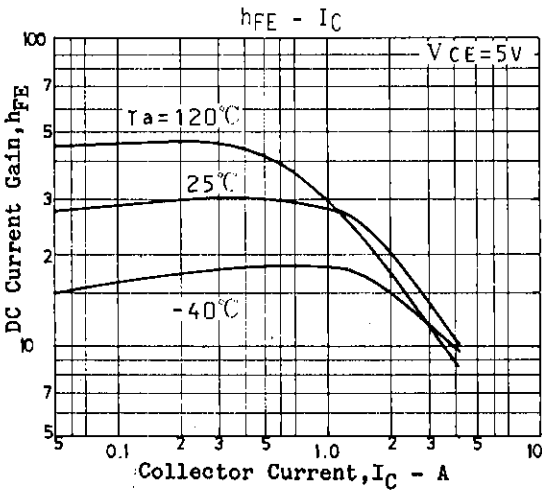
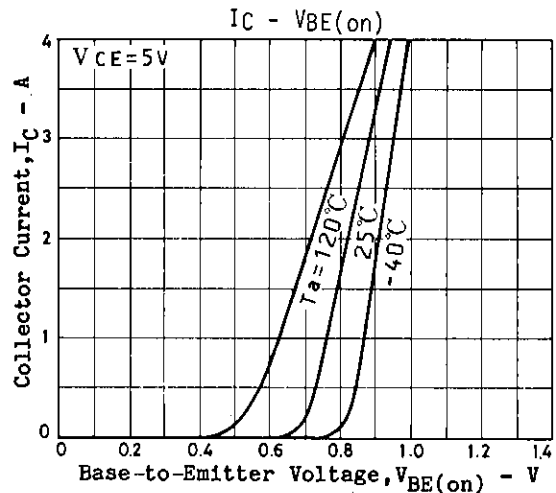
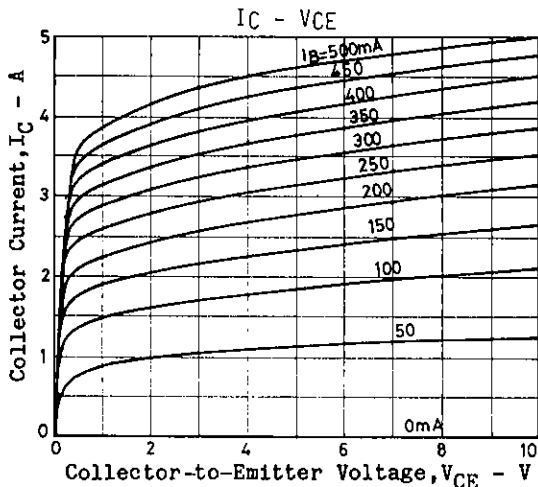
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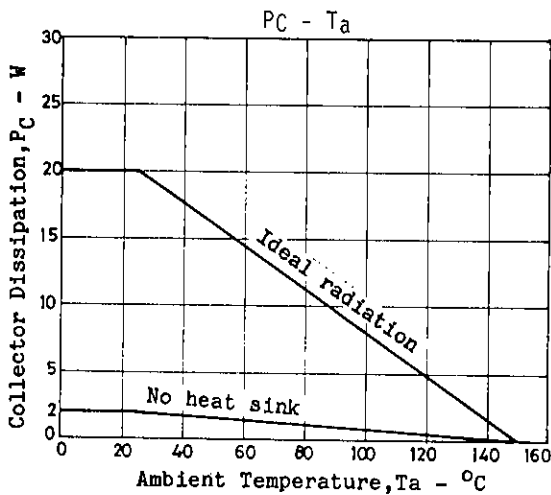
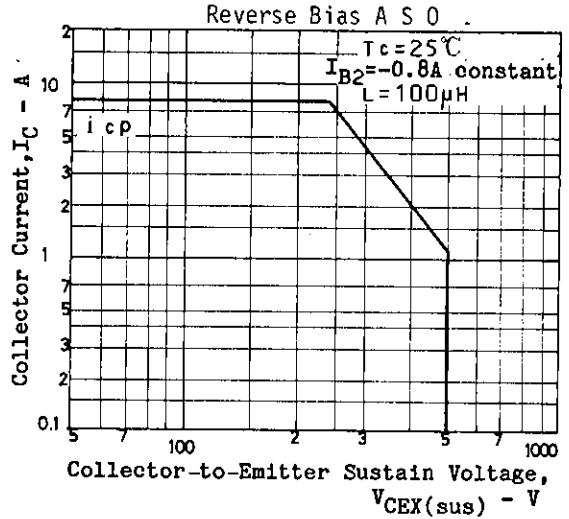
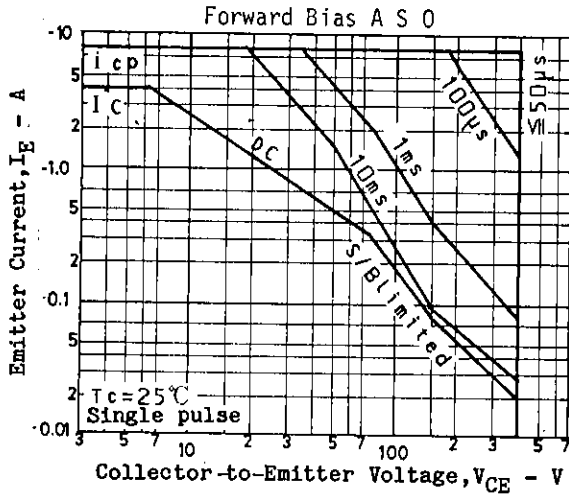
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| | | | min | typ | max | unit |
|---------------------|----------------|-----------------------------------------------------------------------|-----|-----|-----|---------|
| C-E Sustain Voltage | $V_{CEX(sus)}$ | $I_C=2A, I_{B1}=0.2A,$ $I_{B2}=-0.8A, L=1mH, \text{clamped}$ | 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} | " " | | | 2.5 | μs |
| Fall Time | t_f | " " | | | 0.3 | μs |

*: The h_{FE1} of the 2SC4160 is classified as follows. When specifying the h_{FE1} rank, specify two ranks or more in principle.

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





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