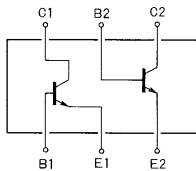


**FC140**

NPN Epitaxial Planar Silicon Composite Transistor

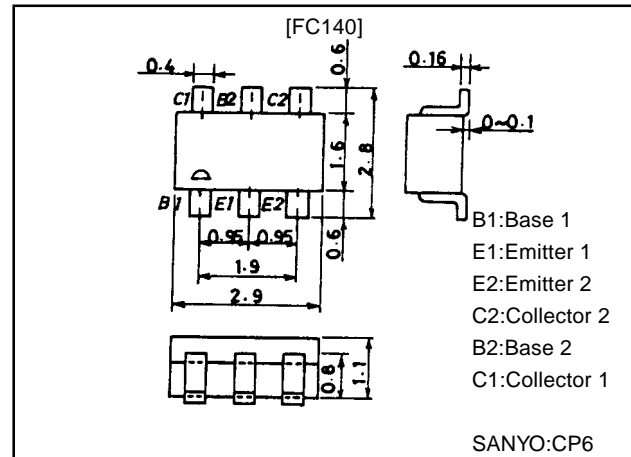
High-Speed Switching Applications**Features**

- Composite type with 2 transistors contained in the CP package currently in use, improving the mounting efficiency greatly.
- Small output capacitance, high gain-bandwidth product.
- The FC140 is formed with two chips, being equivalent to the 2SC4452, placed in one package.

Electrical Connection**Package Dimensions**

unit:mm

2074

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

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|------------|-------------|------|
| Collector-to-Base Voltage | V_{CB0} | | 40 | V |
| Collector-to-Emitter Voltage | V_{CES} | | 40 | V |
| Collector-to-Emitter Voltage | V_{CEO} | | 15 | V |
| Emitter-to-Base Voltage | V_{EBO} | | 5 | V |
| Collector Current | I_C | | 200 | mA |
| Collector Current (Pulse) | I_{CP} | | 500 | mA |
| Base Current | I_B | | 40 | mA |
| Collector Dissipation | P_C | 1 unit | 200 | mW |
| Total Power Dissipation | P_T | | 300 | mW |
| Junction Temperature | T_j | | 150 | °C |
| Storage Temperature | T_{stg} | | -55 to +150 | °C |

Electrical Characteristics at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--------------------------|------------------------------|-----------------------------|---------|------|-----|---------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=20V, I_E=0$ | | | 0.1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=3V, I_C=0$ | | | 0.1 | μA |
| DC Current Gain | h_{FE} | $V_{CE}=1V, I_C=10mA$ | 90 | | 240 | |
| DC Current Gain Ratio | $h_{FE}(\text{small/large})$ | $V_{CE}=1V, I_C=10mA$ | 0.6 | 0.98 | | |
| Gain-Bandwidth Product | f_T | $V_{CE}=10V, I_C=10mA$ | 450 | 750 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=5V, f=1MHz$ | | 1.4 | 4.0 | pF |
| C-E Saturation Voltage | $V_{CE(sat)}$ | $I_C=10mA, I_B=1mA$ | 0.13 | 0.25 | | V |
| B-E Saturation Voltage | $V_{BE(sat)}$ | $I_C=10mA, I_B=1mA$ | 0.80 | 0.85 | | V |
| C-B Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=10\mu A, I_E=0$ | 40 | | | V |
| C-E Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=1mA, R_{BE}=\infty$ | 15 | | | V |
| E-B Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=10\mu A, I_C=0$ | 5 | | | V |
| Turn-ON Time | t_{on} | See specified Test Circuit. | | 8.0 | | ns |
| Storage Time | t_{stg} | See specified Test Circuit. | | 6.0 | | ns |
| Turn-OFF Time | t_{off} | See specified Test Circuit. | | 12 | | ns |

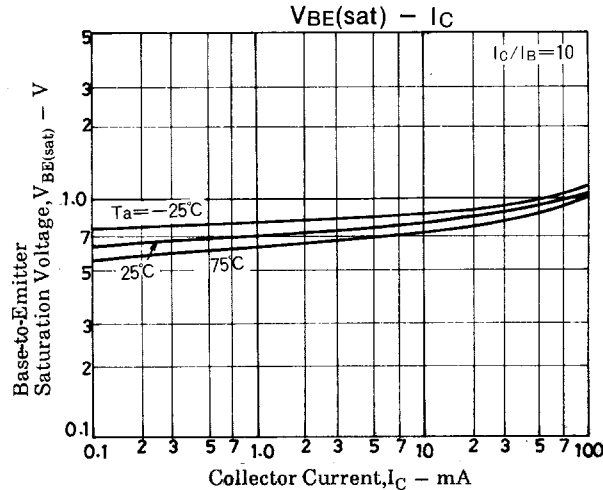
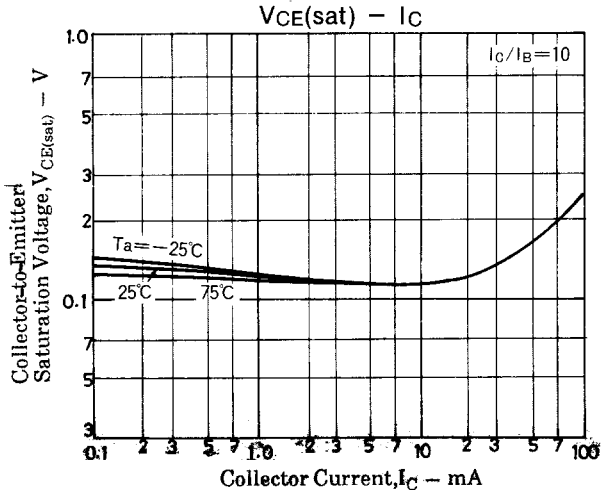
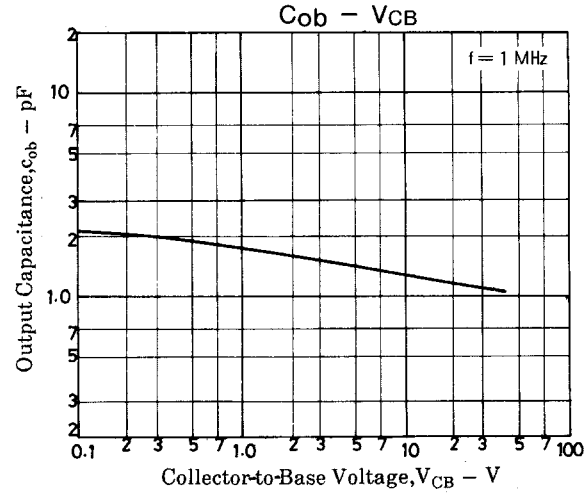
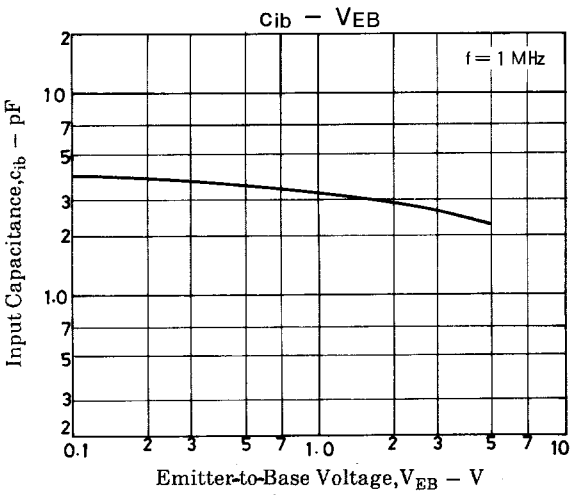
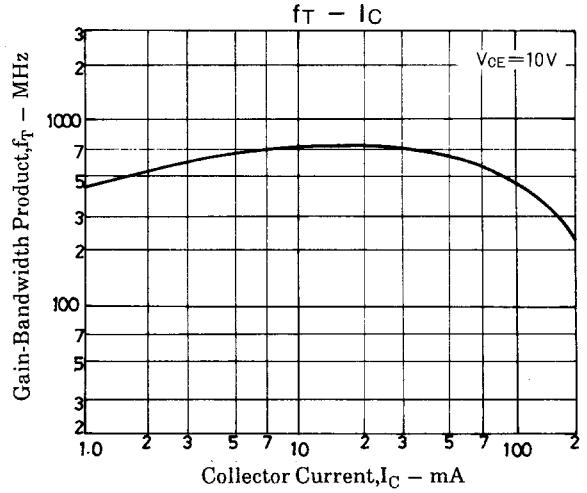
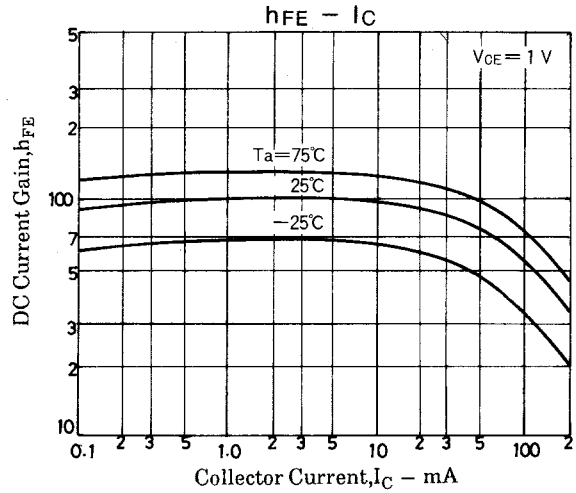
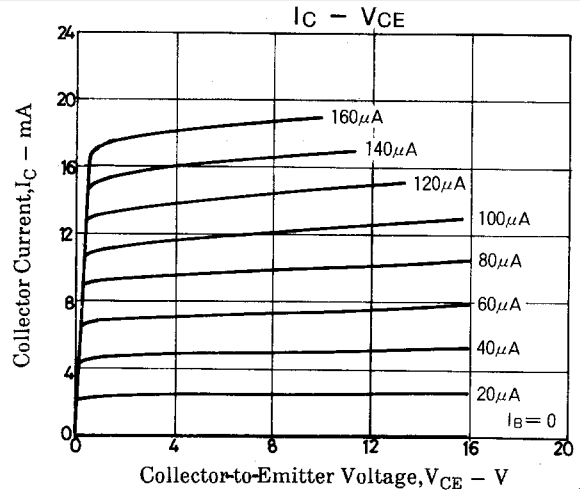
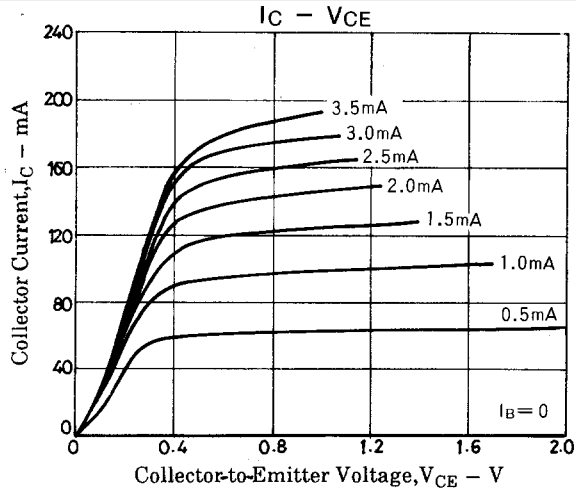
Note:The specifications shown above are for each individual transistor.

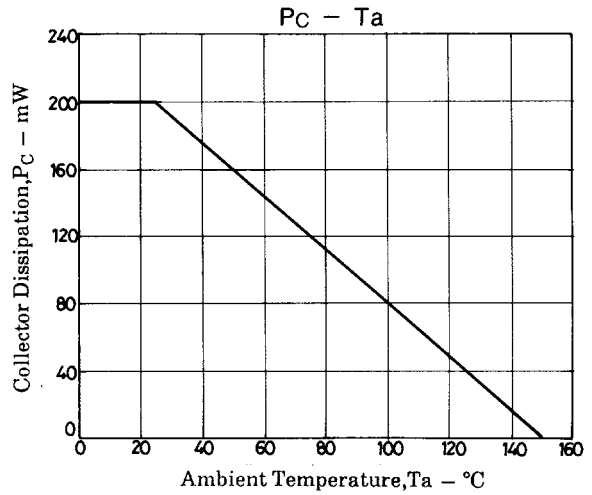
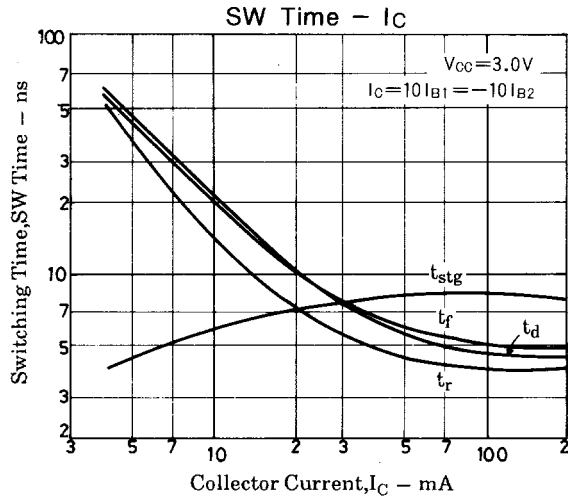
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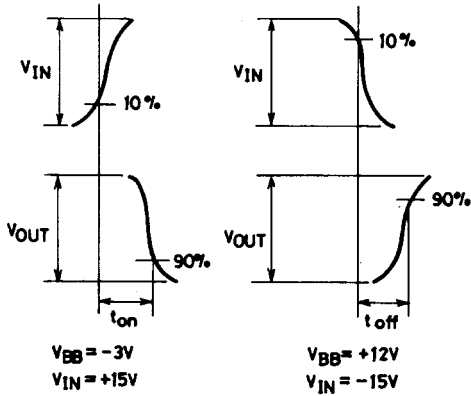
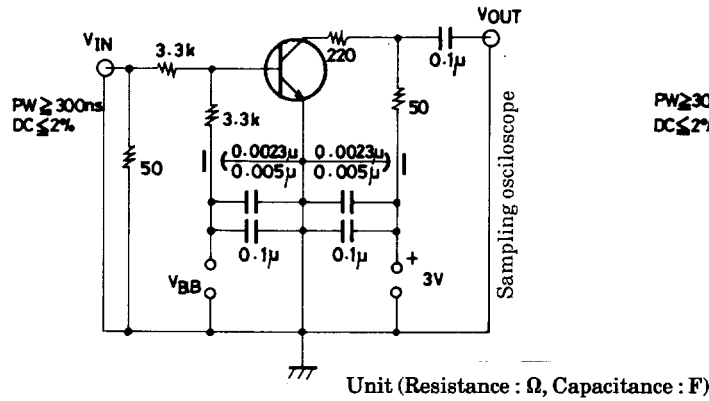
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FC140

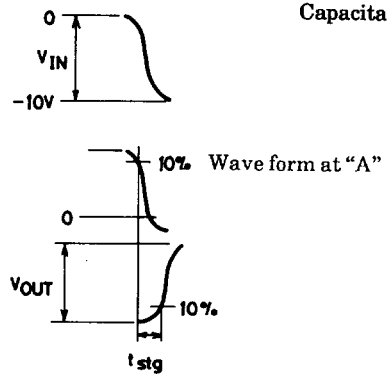
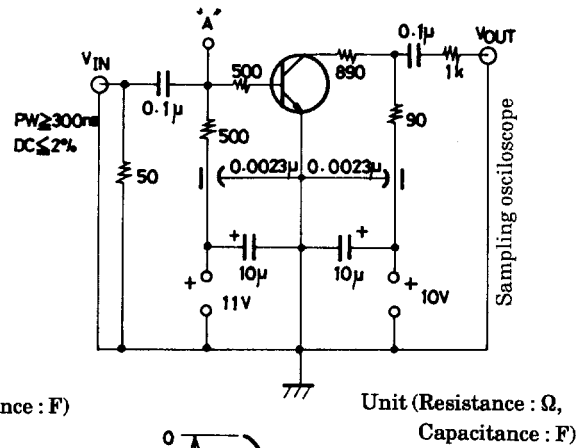




ton, toff Test Current



tstg Test Circuit



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