

NPN Triple Diffused Planar Silicon Darlington Transistor



**2SC4119**

**800V/15A Driver Applications**

**Applications**

- Induction cookers.
- High-voltage , high-power switching.

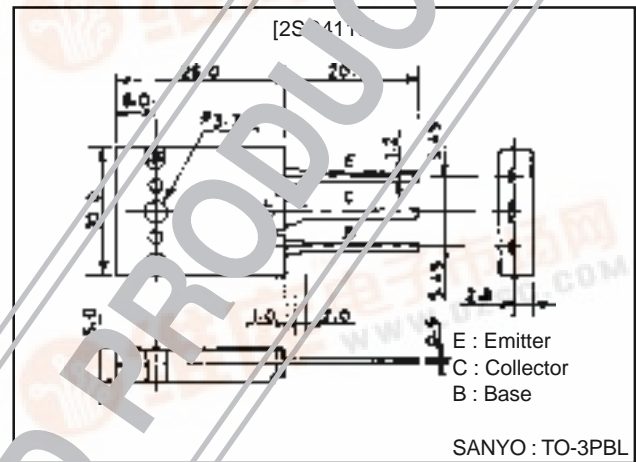
**Features**

- High speed (adoption of MBIT process).
- High breakdown voltage ( $V_{CBO}=1500V$ ).
- On-chip damper diode.
- High reliability.

**Package Dimensions**

unit:mm

2048A



**Specifications**

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

| Parameter                    | Symbol    | Conditions       | Ratings     | Unit       |
|------------------------------|-----------|------------------|-------------|------------|
| Collector-to-Base Voltage    | $V_{CBO}$ |                  | 1500        | V          |
| Collector-to-Emitter Voltage | $V_{CEO}$ |                  | 800         | V          |
| Emitter-to-Base Voltage      | $V_{EBO}$ |                  | 5           | V          |
| Collector Current            | $I_C$     |                  | 15          | A          |
| Collector Current (Pulse)    | $I_{CP}$  |                  | 30          | A          |
| Base Current                 | $I_B$     |                  | 3           | A          |
| Collector Dissipation        | $P_C$     | $T_c=25^\circ C$ | 3.5         | W          |
| Junction Temperature         | $T_J$     |                  | 150         | $^\circ C$ |
| Storage Temperature          | $T_{stg}$ |                  | -55 to +150 | $^\circ C$ |

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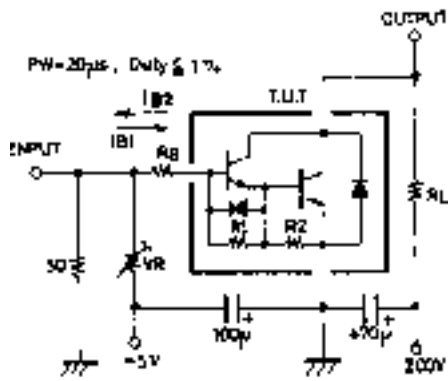


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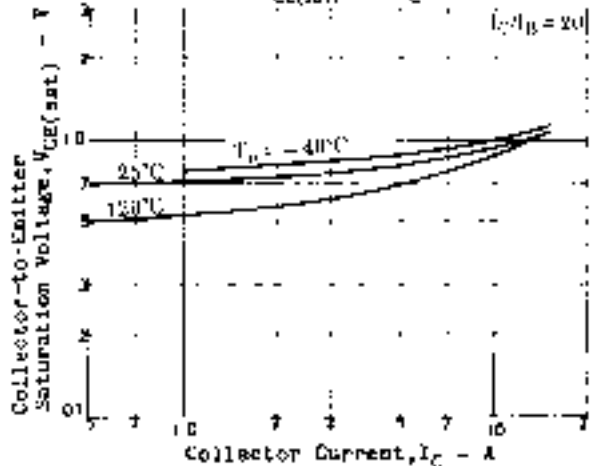
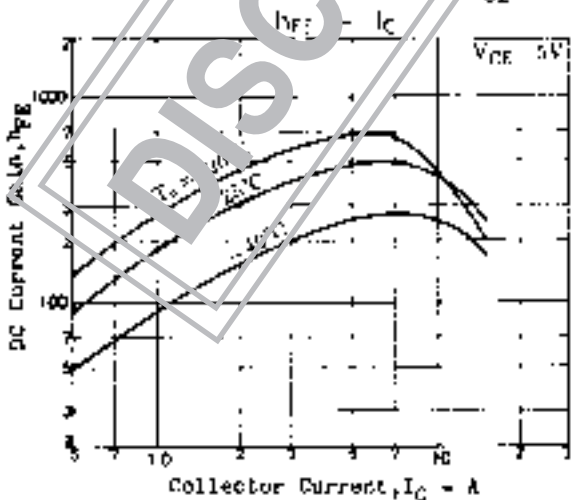
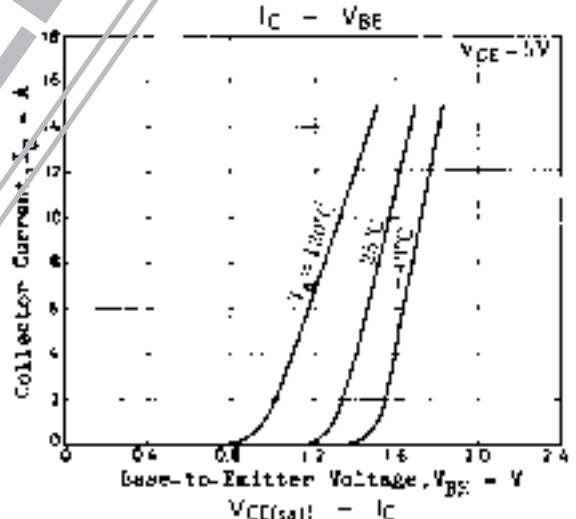
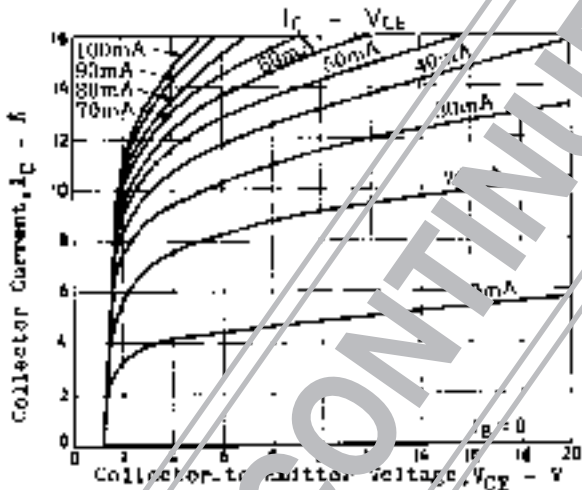
Electrical Characteristics at  $T_a = 25^\circ\text{C}$

| Parameter                               | Symbol         | Conditions  | Ratings |     |     | Unit          |
|---|----------------|---|---------|-----|-----|---------------|
|   |                |   | min     | typ | max |               |
| Collector Cutoff Current                | $I_{CBO}$      | $V_{CB}=800\text{V}, I_E=0$   |         |     | 0.1 | mA            |
| Emitter Cutoff Current                  | $I_{EBO}$      | $V_{EB}=5\text{V}, I_C=0$   |         |     | 600 | mA            |
| DC Current Gain                         | $h_{FE}$       | $V_{CE}=5\text{V}, I_C=15\text{A}$  |         | 25  |     |               |
| Collector Sustain Voltage               | $V_{CEO(sus)}$ | $I_C=100\text{mA}, I_B=0$   | 800     |     |     | V             |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$  | $I_C=15\text{A}, I_B=0.75\text{A}$  |         |     | 3.0 | V             |
| Base-to-Emitter Saturation Voltage      | $V_{BE(sat)}$  | $I_C=15\text{A}, I_B=0.75\text{A}$  |         |     | 2.5 | V             |
| Collector-to-Base Breakdown Voltage     | $V_{(BR)CBO}$  | $I_C=5\text{mA}, I_E=0$   | 1000    |     |     | V             |
| Diode Forward Voltage                   | $V_F$          | $I_{EC}=15\text{A}$   |         |     | 2.0 | V             |
| Fall Time                               | $t_f$          | $I_C=15\text{A}, I_{B1}=1\text{A}, I_{B2}=-5\text{A}, V_{CC}=200\text{V}, R_L=73.3\Omega$ |         |     | 2.0 | $\mu\text{s}$ |

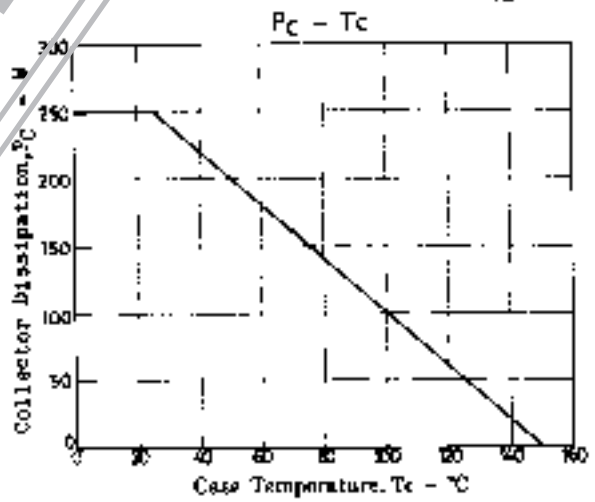
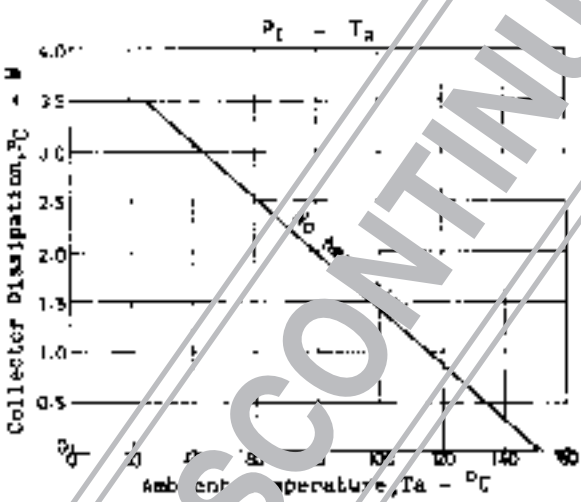
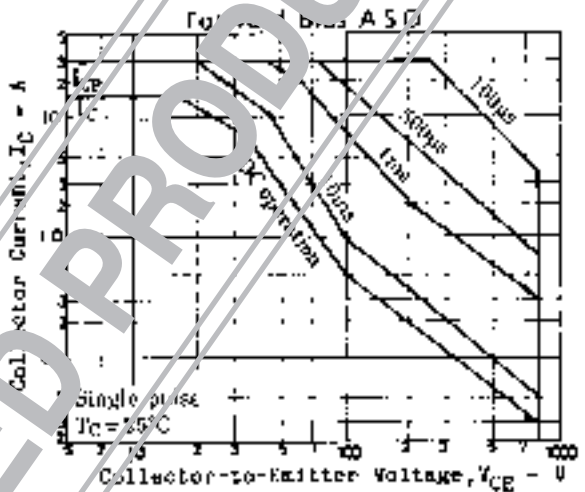
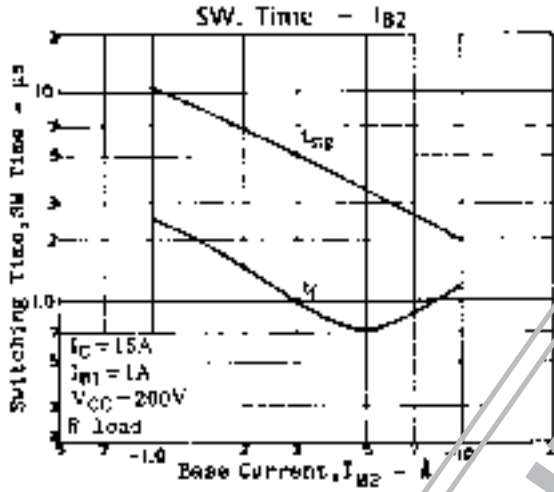
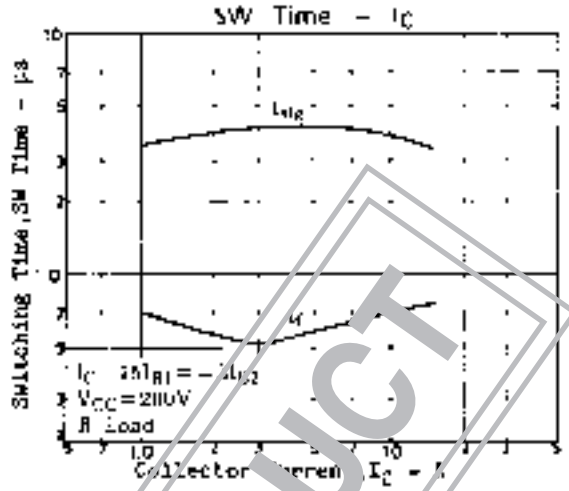
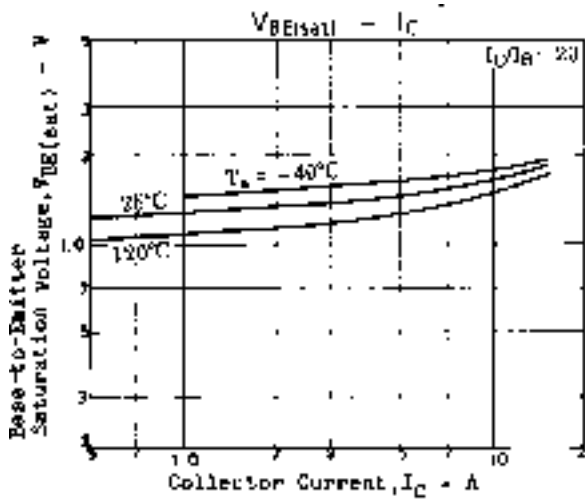
### Switching Time Test Circuit



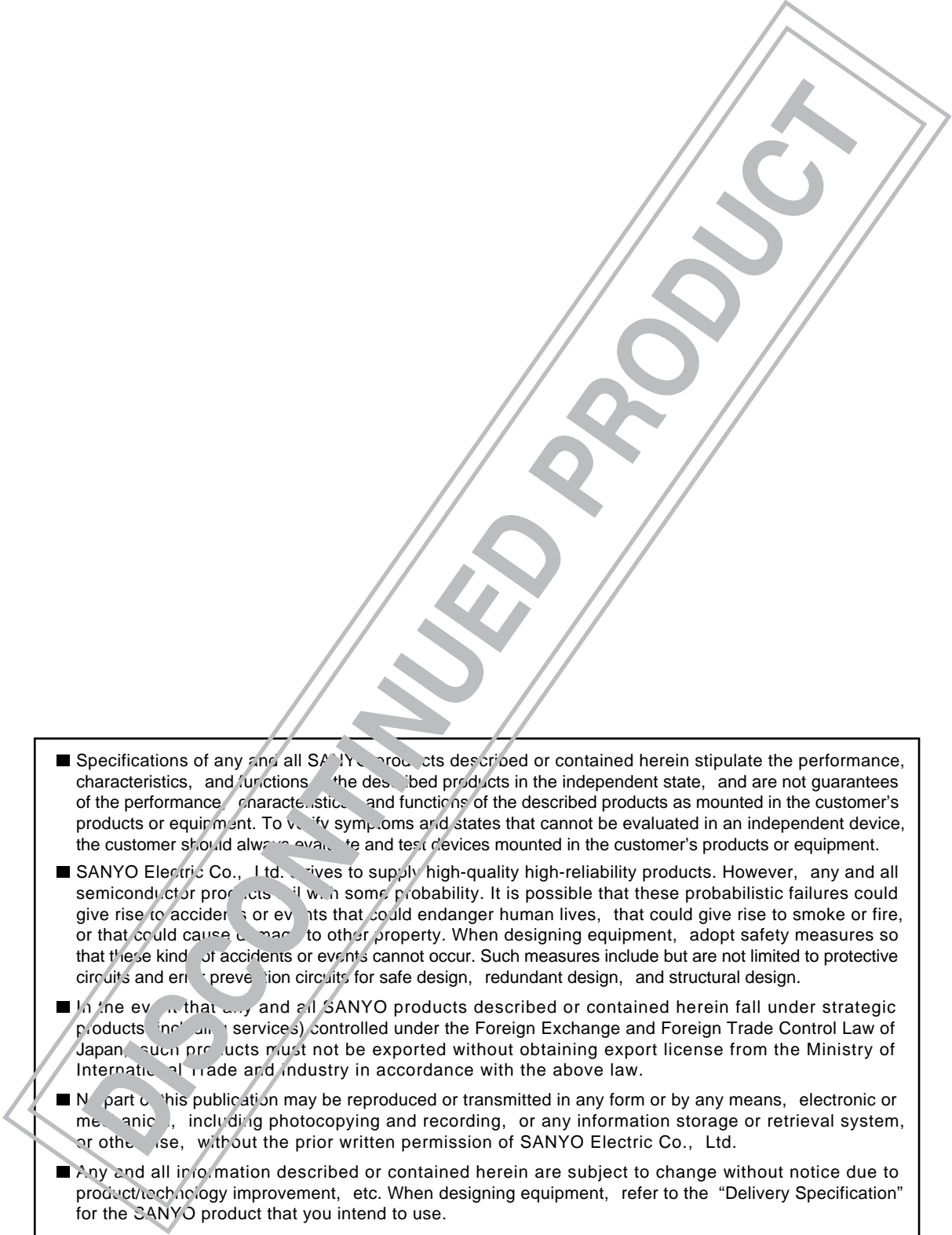
Unit (resistance :  $\Omega$ , capacitance : F)



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