

**2SD1395****Driver Applications****Applications**

- Suitable for use in switching of L load (motor drivers, printer hammer drivers, relay drivers).

**Features**

- High DC current gain.
- Large current capacity
- Wide ASO.
- On-chip Zener diode of  $60\pm 10\text{V}$  between collector and base.
- Uniformity in collector-to-base breakdown voltage due to adoption of accurate impurity diffusion process.
- High inductive load handling capability.

**Specifications****Absolute Maximum Ratings** at  $T_a = 25^\circ\text{C}$ 

| Parameter                    | Symbol    | Conditions             | Ratings     | Unit             |
|------------------------------|-----------|------------------------|-------------|------------------|
| Collector-to-Base Voltage    | $V_{CB0}$ |                        | 50*         | V                |
| Collector-to-Emitter Voltage | $V_{CEO}$ |                        | 50*         | V                |
| Emitter-to-Base Voltage      | $V_{EBO}$ |                        | 6           | V                |
| Collector Current            | $I_C$     |                        | 5           | A                |
| Collector Current (Pulse)    | $I_{CP}$  |                        | 8           | A                |
| Base Current                 | $I_B$     |                        | 0.5         | A                |
| Collector Dissipation        | $P_C$     | $T_c=25^\circ\text{C}$ | 40          | W                |
| Junction Temperature         | $T_j$     |                        | 150         | $^\circ\text{C}$ |
| Storage Temperature          | $T_{stg}$ |                        | -55 to +150 | $^\circ\text{C}$ |

\* : With Zener diode of  $(60\pm 10\text{V})$ .**Electrical Characteristics** at  $T_a = 25^\circ\text{C}$ 

| Parameter                               | Symbol        | Conditions                          | Ratings |      |     | Unit          |
|-----------------------------------------|---------------|-------------------------------------|---------|------|-----|---------------|
|                                         |               |                                     | min     | typ  | max |               |
| Collector Cutoff Current                | $I_{CBO}$     | $V_{CB}=40\text{V}, I_E=0$          |         |      | 100 | $\mu\text{A}$ |
| Emitter Cutoff Current                  | $I_{EBO}$     | $V_{EB}=5\text{V}, I_C=0$           |         |      | 3   | mA            |
| DC Current Gain                         | $h_{FE}$      | $V_{CE}=3\text{V}, I_C=2.5\text{A}$ | 1000    | 4000 |     |               |
| Gain-Bandwidth Product                  | $f_T$         | $V_{CE}=5\text{V}, I_C=2.5\text{A}$ |         | 20   |     | MHz           |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=2.5\text{A}, I_B=5\text{mA}$   |         | 0.9  | 1.5 | V             |
| Base-to-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C=2.5\text{A}, I_B=5\text{mA}$   |         |      | 2.0 | V             |

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**SANYO Electric Co., Ltd. Semiconductor Business Headquarters**

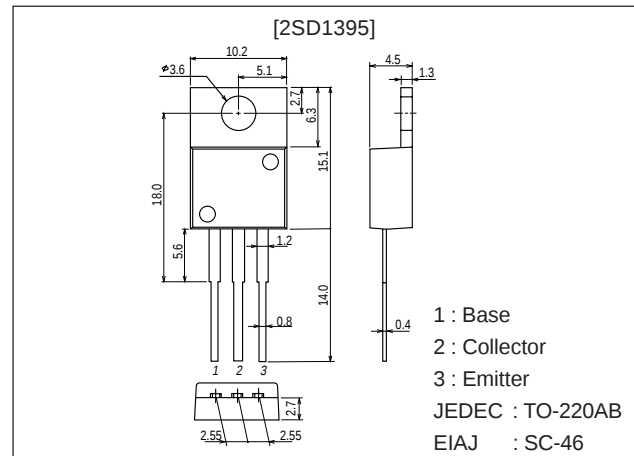
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

21599TH (KT)/91096TS (KOTO) 8-5330/D251MH/5257KI/7223KI, MT No.1221-1/3

**Package Dimensions**

unit:mm

2010C

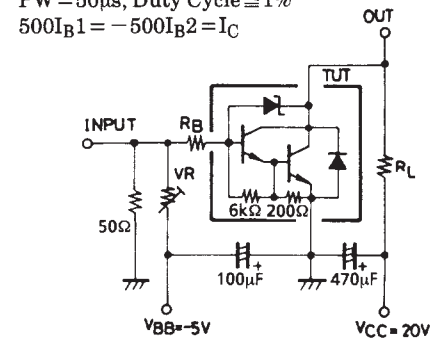


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| Parameter                              | Symbol        | Conditions                                 | Ratings |     |     | Unit    |
|----------------------------------------|---------------|--------------------------------------------|---------|-----|-----|---------|
|                                        |               |                                            | min     | typ | max |         |
| Collector-to-Base Breakdown Voltage    | $V_{(BR)CBO}$ | $I_C=5mA, I_E=0$                           | 50      | 60  | 70  | V       |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=50mA, R_{BE}=\infty$                  | 50      | 60  | 70  | V       |
| Inductive Load Handling Capability     | Es/b          | $L=100mH, R_{BE}=100\Omega$                | 50      |     |     | mJ      |
| Rise Time                              | $t_{on}$      | $V_{CC}=20V, I_C=3.0A, I_{B1}=-I_{B2}=6mA$ |         | 0.6 |     | $\mu s$ |
| Strage Time                            | $t_{stg}$     | $V_{CC}=20V, I_C=3.0A, I_{B1}=-I_{B2}=6mA$ |         | 4.0 |     | $\mu s$ |
| Fall Time                              | $t_f$         | $V_{CC}=20V, I_C=3.0A, I_{B1}=-I_{B2}=6mA$ |         | 1.5 |     | $\mu s$ |

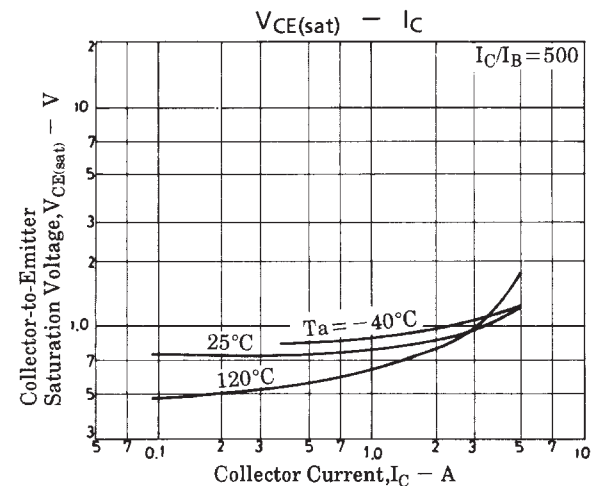
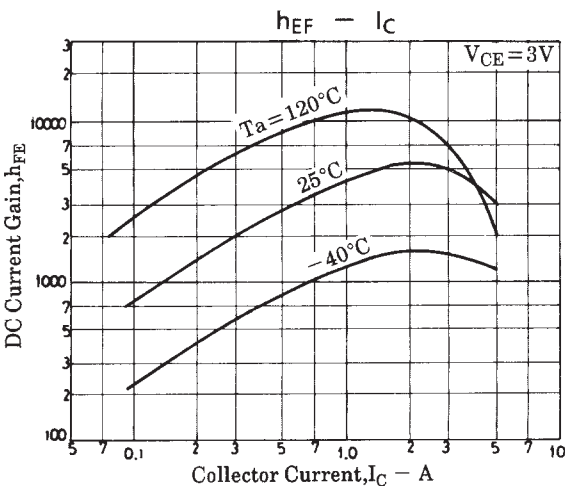
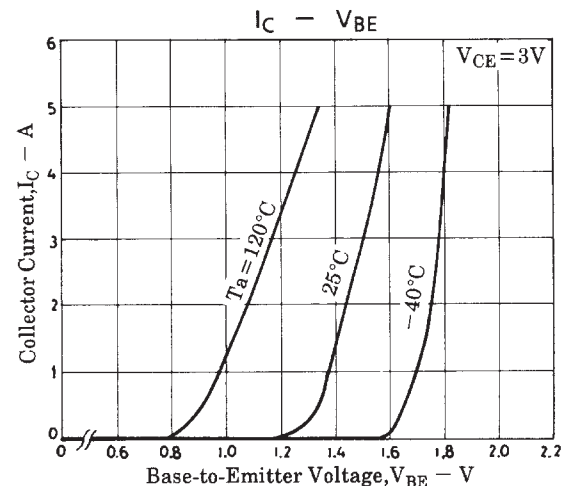
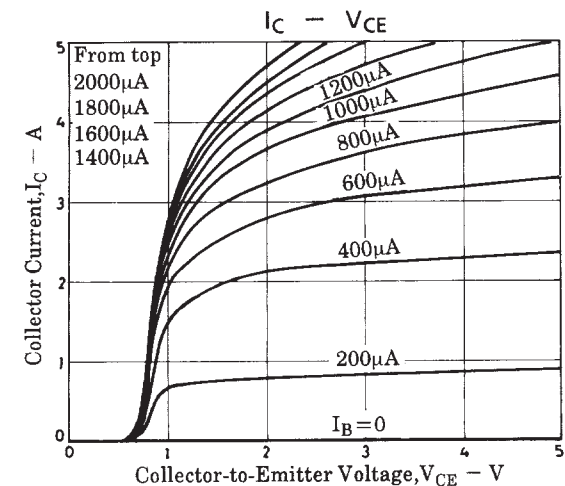
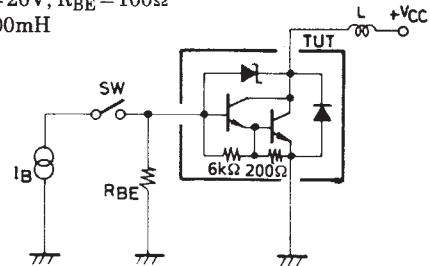
Specified Test Circuit

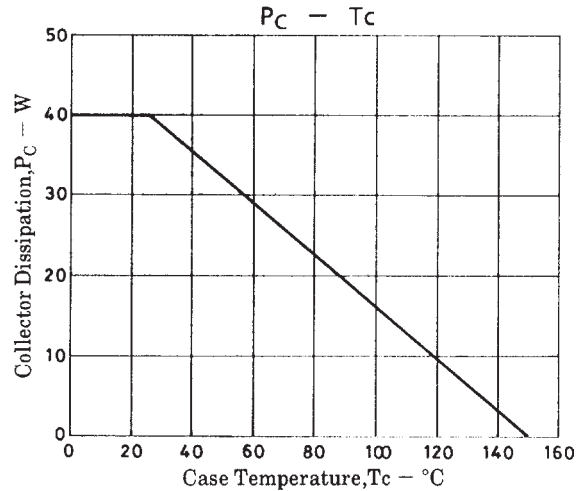
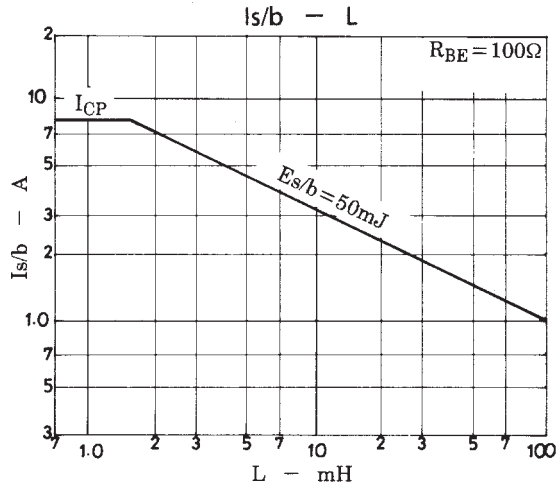
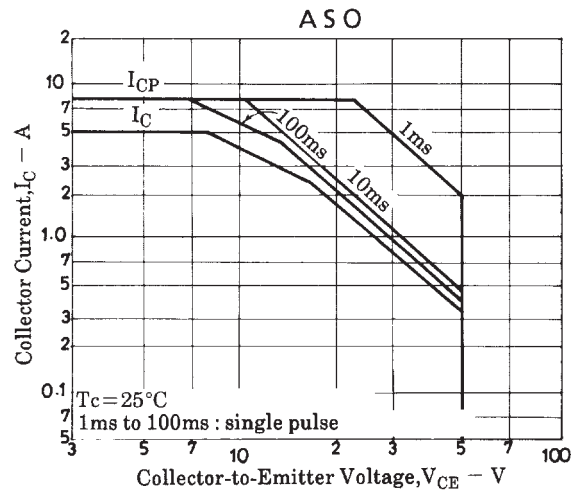
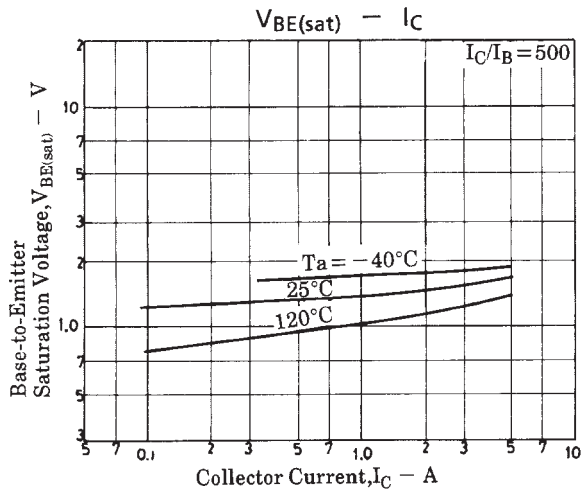
PW = 50 $\mu$ s, Duty Cycle  $\leq$  1%  
500I<sub>B1</sub> = -500I<sub>B2</sub> = I<sub>C</sub>



Es/b Test Circuit

V<sub>CC</sub> = 20V, R<sub>BE</sub> = 100Ω  
L = 100mH





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