



## 2SA1259/2SC3145

### 60V/5A for High-Speed Drivers Applications

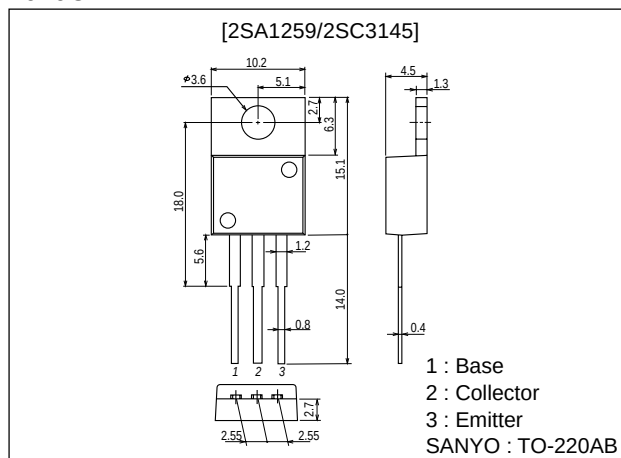
#### Features

- High  $f_T$ .
- High switching speed.
- Wide ASO.

#### Package Dimensions

unit:mm

2010C



( ) : 2SA1259

#### Specifications

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

| Parameter                    | Symbol    | Conditions             | Ratings     | Unit             |
|------------------------------|-----------|------------------------|-------------|------------------|
| Collector-to-Base Voltage    | $V_{CB0}$ |                        | (-)70       | V                |
| Collector-to-Emitter Voltage | $V_{CE0}$ |                        | (-)60       | V                |
| Emitter-to-Base Voltage      | $V_{EB0}$ |                        | (-)5        | V                |
| Collector Current            | $I_C$     |                        | (-)5        | A                |
| Collector Current Pulse      | $I_{CP}$  |                        | (-)8        | A                |
| Collector Dissipation        | $P_C$     |                        | 1.75        | W                |
|                              |           | $T_c=25^\circ\text{C}$ | 30          | W                |
| Junction Temperature         | $T_j$     |                        | 150         | $^\circ\text{C}$ |
| Storage Temperature          | $T_{stg}$ |                        | -55 to +150 | $^\circ\text{C}$ |

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

| Parameter                               | Symbol        | Conditions                                | Ratings |               |        | Unit |
|-----------------------------------------|---------------|-------------------------------------------|---------|---------------|--------|------|
|                                         |               |                                           | min     | typ           | max    |      |
| Collector Cutoff Current                | $I_{CBO}$     | $V_{CB}=(-)40\text{V}, I_E=0$             |         |               | (-)0.1 | mA   |
| Emitter Cutoff Current                  | $I_{EBO}$     | $V_{EB}=(-)5\text{V}, I_C=0$              |         |               | (-)3   | mA   |
| DC Current Gain                         | $h_{FE}$      | $V_{CE}=(-)2\text{V}, I_C=(-)2.5\text{A}$ | 2000    | 5000          |        |      |
| Gain-Bandwidth Product                  | $f_T$         | $V_{CE}=(-)5\text{V}, I_C=(-)2.5\text{A}$ |         | 200           |        | MHz  |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)2.5\text{A}, I_B=(-)5\text{mA}$   |         | (-1.0)<br>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 Company**

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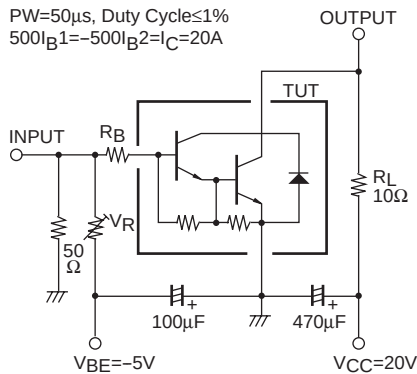
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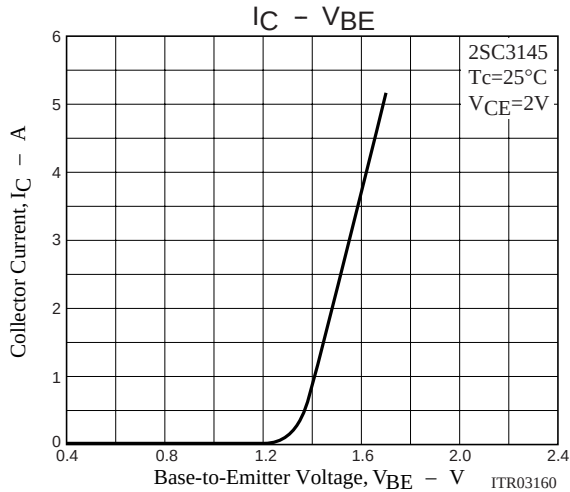
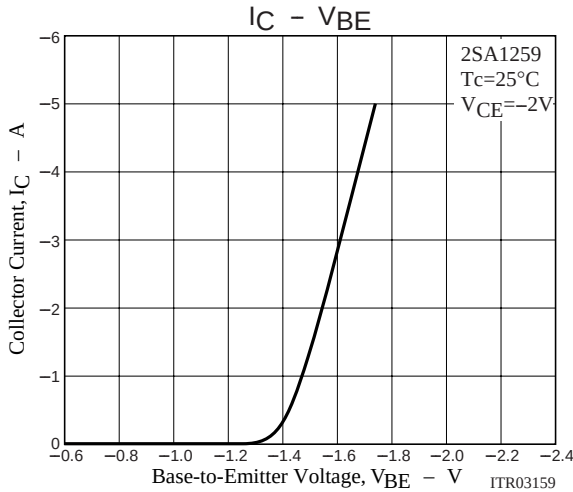
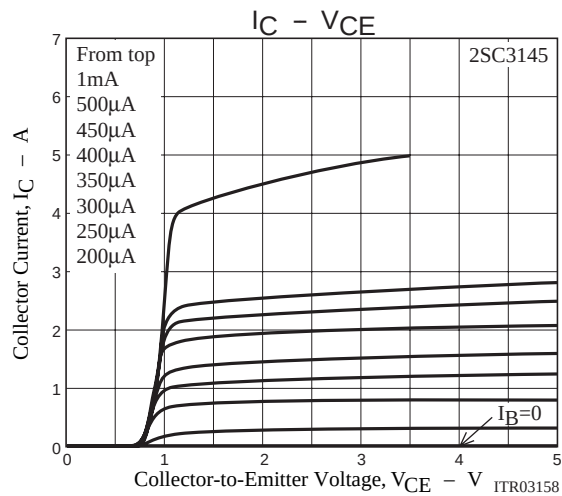
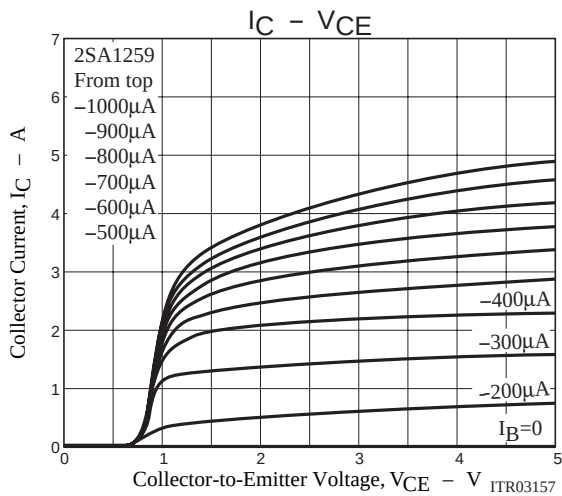
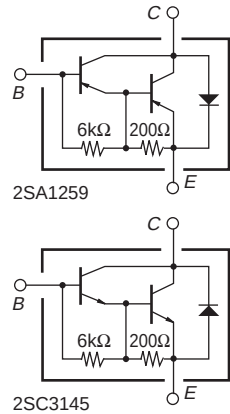
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| Parameter                              | Symbol        | Conditions                   | Ratings  |              |     | Unit    |
|----------------------------------------|---------------|------------------------------|----------|--------------|-----|---------|
|                                        |               |                              | min      | typ          | max |         |
| Collector-to-Base Breakdown Voltage    | $V_{(BR)CBO}$ | $I_C=(-)5mA, I_E=0$          | $(- )70$ |              |     | V       |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=(-)50mA, R_{BE}=\infty$ | $(- )60$ |              |     | V       |
| Rise Time                              | $t_{on}$      | See specified Test Circuit   |          | 0.3          |     | $\mu s$ |
| Storage Time                           | $t_{stg}$     | See specified Test Circuit   |          | (1.3)<br>1.2 |     | $\mu s$ |
| Fall Time                              | $t_f$         | See specified Test Circuit   |          | 0.2          |     | $\mu s$ |

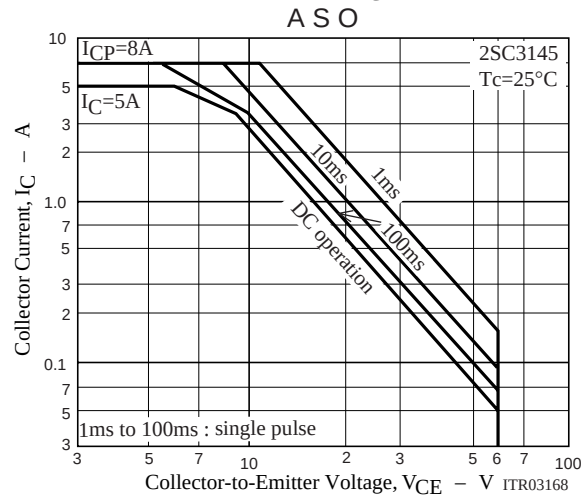
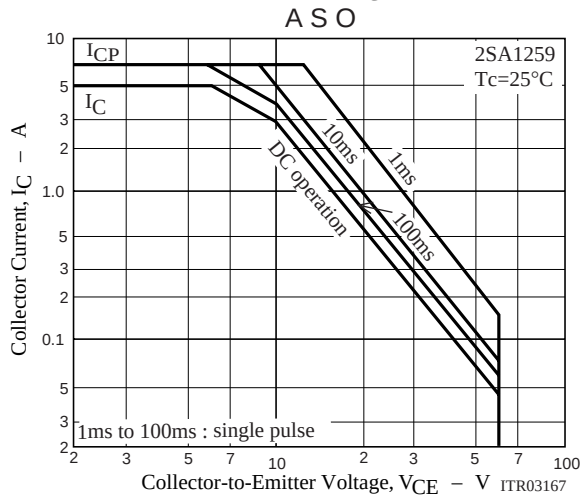
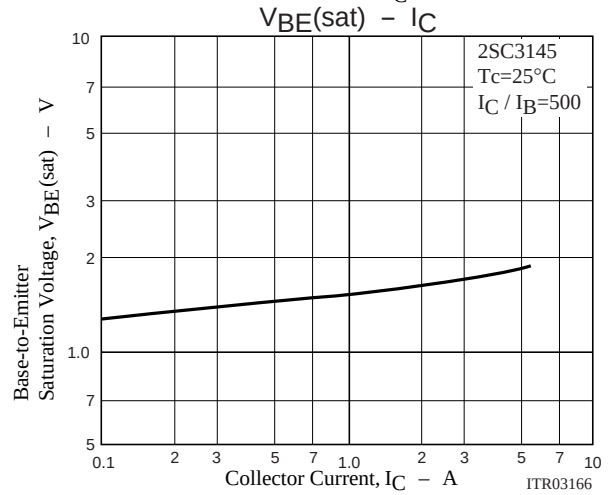
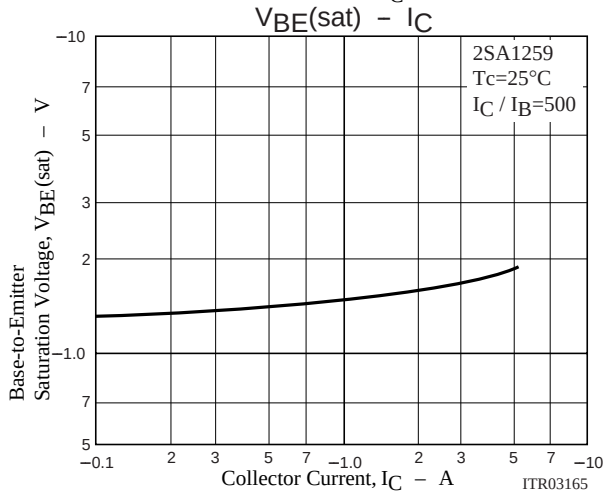
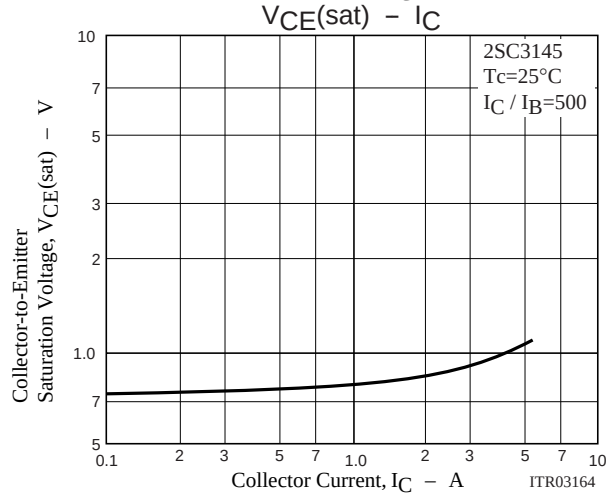
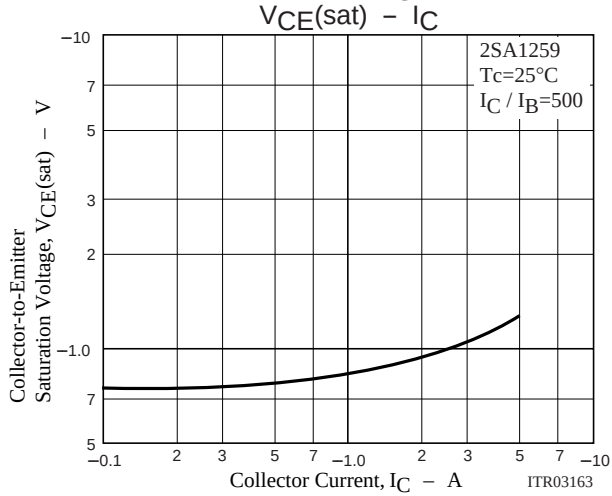
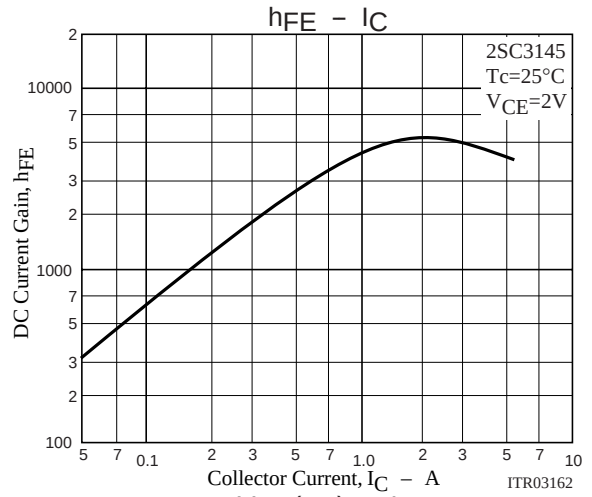
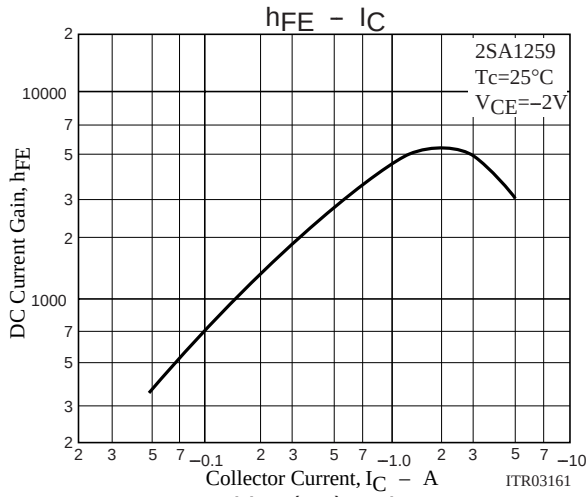
Specified Test Circuit (for PNP, the polarity is reversed)



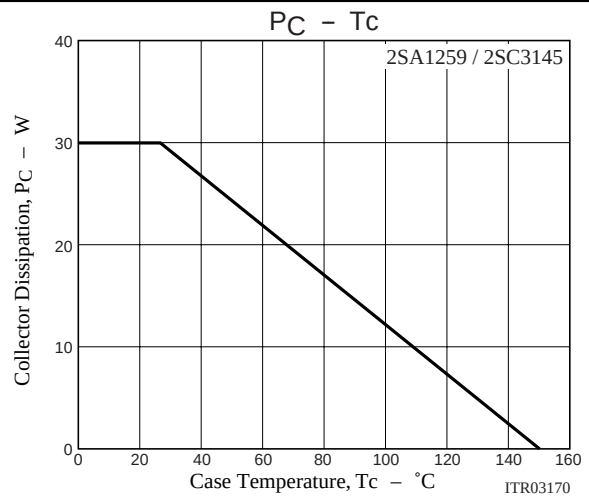
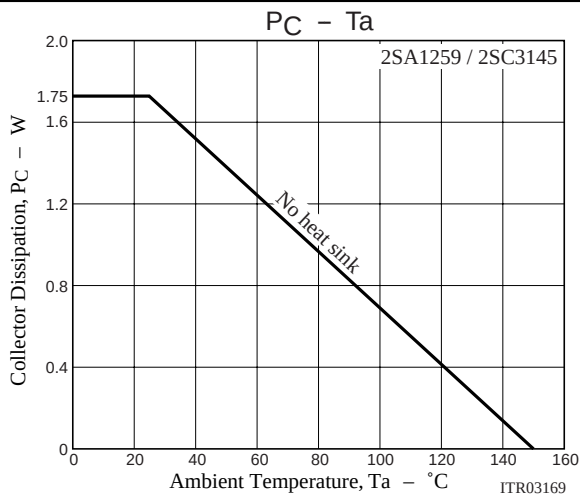
Electrical Connection



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