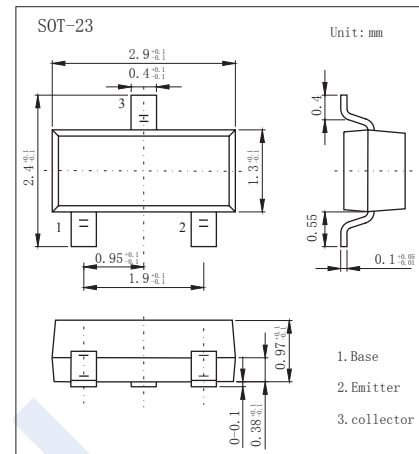


## PNP Transistors

## 2SA2058

## ■ Features

- High DC current gain:  $h_{FE} = 200$  to  $500$  ( $I_C = -0.2$  A)
- Low collector-emitter saturation voltage:  
 $V_{CE(sat)} = -0.19$  V (max)
- High-speed switching:  $t_f = 25$  ns (typ.)

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

| Parameter                                              | Symbol    | Rating     | Unit             |
|--------------------------------------------------------|-----------|------------|------------------|
| Collector - Base Voltage                               | $V_{CB0}$ | -20        | V                |
| Collector - Emitter Voltage                            | $V_{CE0}$ | -10        |                  |
| Emitter - Base Voltage                                 | $V_{EB0}$ | -7         |                  |
| Collector Current - Continuous                         | $I_C$     | -1.5       | A                |
| Collector Current - Pulse                              | $I_{CP}$  | -2.5       |                  |
| Base Current                                           | $I_B$     | -150       | mA               |
| Collector Power Dissipation<br>$t=10\text{s}$ (Note.1) | $P_C$     | 500        | mW               |
|                                                        |           | 750        |                  |
| Junction Temperature                                   | $T_J$     | 150        | $^\circ\text{C}$ |
| Storage Temperature range                              | $T_{stg}$ | -55 to 150 |                  |

Note.1: Mounted on an FR4 board (glass epoxy, 1.6 mm thick, Cu area:  $645\text{ mm}^2$ )

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

| Parameter                            | Symbol        | Test Conditions                                                                                                          | Min | Typ | Max   | Unit          |
|--------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------|-----|-----|-------|---------------|
| Collector- base breakdown voltage    | $V_{CB0}$     | $I_C = -100\text{ }\mu\text{A}$ , $I_E = 0$                                                                              | -20 |     |       | V             |
| Collector- emitter breakdown voltage | $V_{CE0}$     | $I_C = -10\text{ mA}$ , $I_B = 0$                                                                                        | -10 |     |       |               |
| Emitter - base breakdown voltage     | $V_{EB0}$     | $I_E = -100\text{ }\mu\text{A}$ , $I_C = 0$                                                                              | -7  |     |       |               |
| Collector-base cut-off current       | $I_{CBO}$     | $V_{CB} = -20\text{ V}$ , $I_E = 0$                                                                                      |     |     | -0.1  | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB} = -7\text{ V}$ , $I_C = 0$                                                                                       |     |     | -0.1  |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -600\text{ mA}$ , $I_B = -20\text{ mA}$                                                                           |     |     | -0.19 | V             |
| Base - emitter saturation voltage    | $V_{BE(sat)}$ | $I_C = -600\text{ mA}$ , $I_B = -20\text{ mA}$                                                                           |     |     | -1.1  |               |
| DC current gain                      | $h_{FE}$      | $V_{CE} = -2\text{ V}$ , $I_C = -200\text{ mA}$                                                                          | 200 |     | 500   |               |
|                                      |               | $V_{CE} = -2\text{ V}$ , $I_C = -600\text{ mA}$                                                                          | 125 |     |       |               |
| Rise Time                            | $t_r$         | See Figure 1 circuit diagram.<br>$V_{CC} = -6\text{ V}$ , $R_L = 10\text{ }\Omega$<br>$-I_{B1} = I_{B2} = -20\text{ mA}$ |     | 50  |       | ns            |
| Storage Time                         | $t_{stg}$     |                                                                                                                          |     | 115 |       |               |
| Fall Time                            | $t_f$         |                                                                                                                          |     | 25  |       |               |
| Collector output capacitance         | $C_{ob}$      | $V_{CB} = -10\text{ V}$ , $I_E = 0$ , $f = 1\text{ MHz}$                                                                 |     | 12  |       | pF            |

## ■ Marking

|         |    |
|---------|----|
| Marking | WM |
|---------|----|

## PNP Transistors

## 2SA2058

## ■ Typical Characteristics

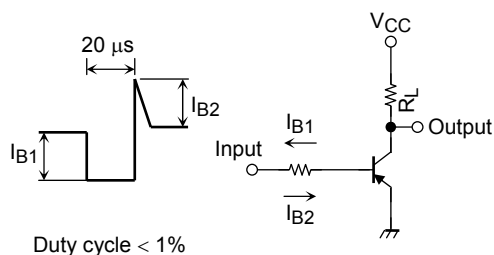
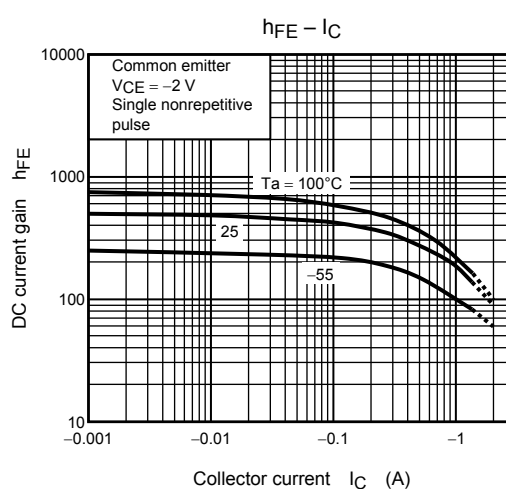
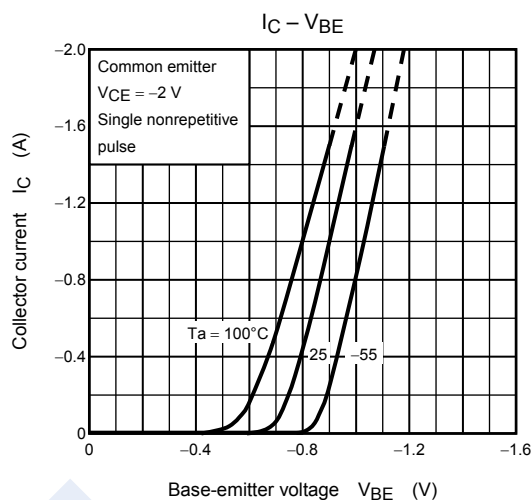
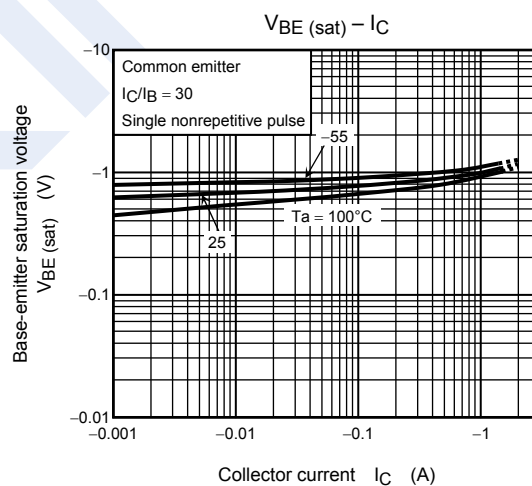
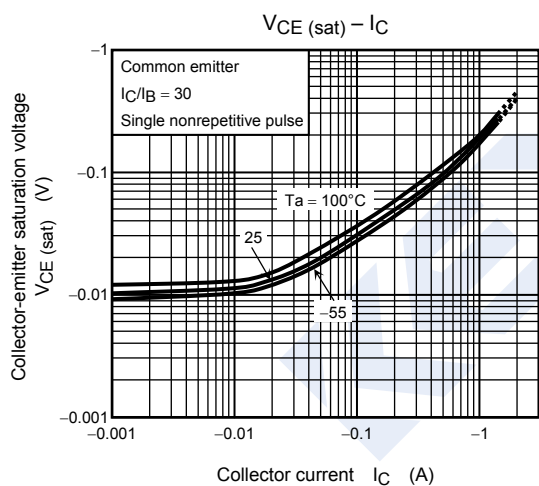
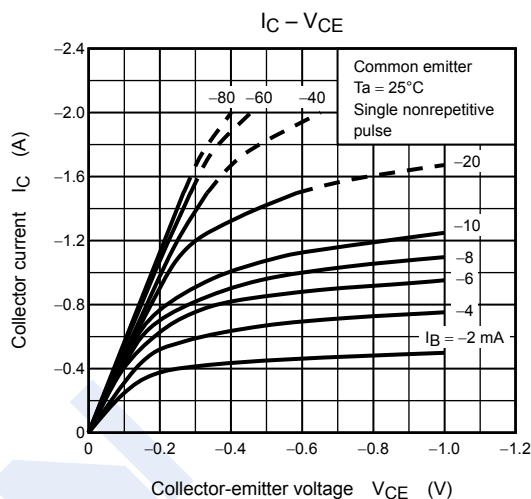


Figure 1 Switching Time Test Circuit &amp; Timing Chart



## PNP Transistors

## 2SA2058

## ■ Typical Characteristics

