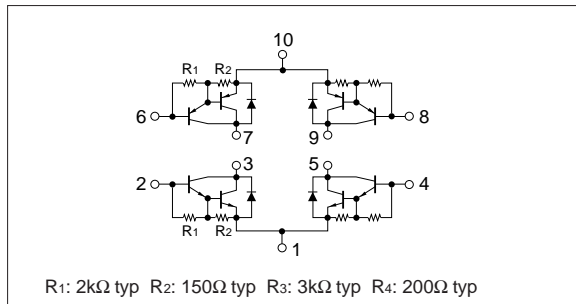


## Absolute maximum ratings

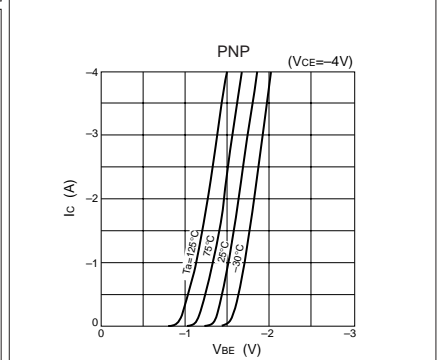
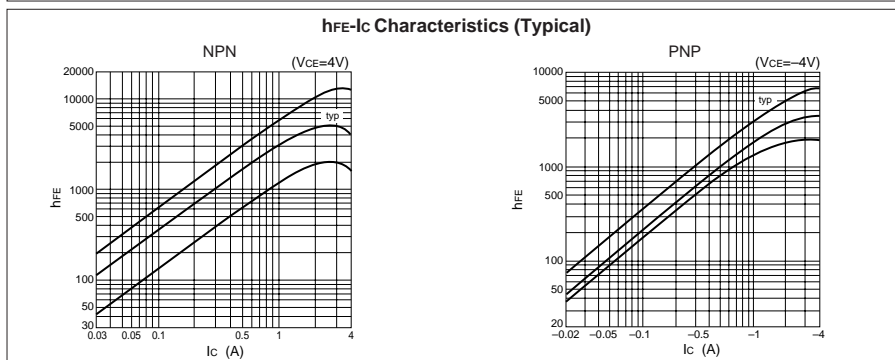
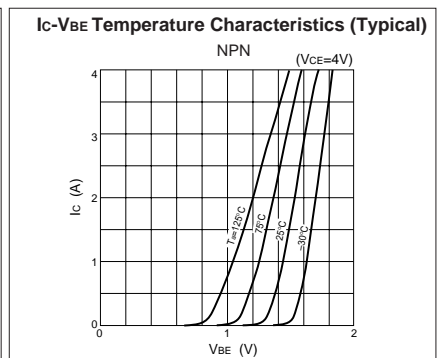
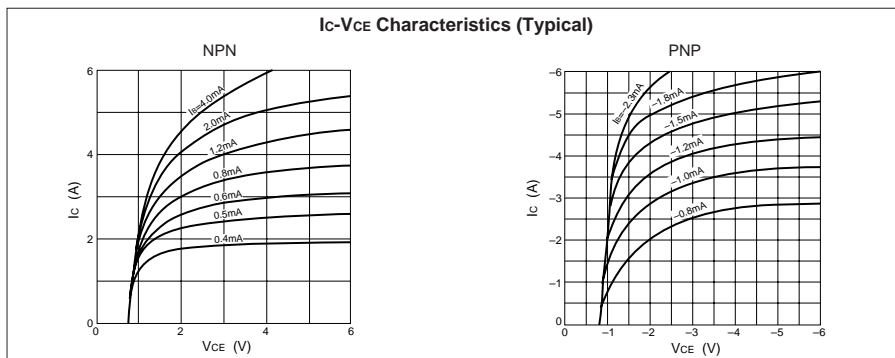
( $T_a=25^\circ\text{C}$ )

| Symbol    | Specification                     |                                    | Unit             |
|-----------|-----------------------------------|------------------------------------|------------------|
|           | NPN                               | PNP                                |                  |
| $V_{CBO}$ | 80                                | -60                                | V                |
| $V_{CEO}$ | 60                                | -60                                | V                |
| $V_{EBO}$ | 6                                 | -6                                 | V                |
| $I_c$     | 4                                 | -4                                 | A                |
| $I_{CP}$  | 8 (PW $\leq$ 10ms, Du $\leq$ 50%) | -8 (PW $\leq$ 10ms, Du $\leq$ 50%) | A                |
| $P_T$     | 4 ( $T_a=25^\circ\text{C}$ )      |                                    | W                |
|           | 20 ( $T_c=25^\circ\text{C}$ )     |                                    |                  |
| $T_j$     | 150                               |                                    | $^\circ\text{C}$ |
| $T_{stg}$ | -40 to +150                       |                                    | $^\circ\text{C}$ |

## Equivalent circuit diagram



## Characteristic curves



## Electrical characteristics

( $T_a=25^\circ\text{C}$ )

| Symbol               | NPN           |     |     |               |   | PNP           |     |      |               |   |
|----------------------|---------------|-----|-----|---------------|---|---------------|-----|------|---------------|---|
|                      | Specification |     |     | Unit          | Conditions  | Specification |     |      | Unit          | Conditions  |
|                      | min           | typ | max |               |   | min           | typ | max  |               |   |
| $I_{CBO}$            |               |     | 100 | $\mu\text{A}$ | $V_{CB}=80\text{V}$   |               |     | -100 | $\mu\text{A}$ | $V_{CB}=-60\text{V}$  |
| $I_{EBO}$            |               |     | 10  | $\text{mA}$   | $V_{EB}=6\text{V}$  |               |     | -10  | $\text{mA}$   | $V_{EB}=-6\text{V}$   |
| $V_{CEO}$            | 60            |     |     | $\text{V}$    | $I_C=10\text{mA}$   | -60           |     |      | $\text{V}$    | $I_C=-10\text{mA}$  |
| hFE                  | 1000          |     |     |               | $V_{CE}=4\text{V}, I_C=3\text{A}$   | 1000          |     |      |               | $V_{CE}=-4\text{V}, I_C=-3\text{A}$   |
| $V_{CE}(\text{sat})$ |               |     | 2.0 | $\text{V}$    | $I_C=3\text{A}, I_B=10\text{mA}$  |               |     | -2.0 | $\text{V}$    | $I_C=-2\text{A}, I_B=-10\text{mA}$  |
| $t_{on}$             |               | 1.0 |     | $\mu\text{s}$ | $V_{CC} \div 30\text{V},$<br>$I_C=3\text{A},$<br>$I_{B1}=-I_{B2}=10\text{mA}$ |               | 0.4 |      | $\mu\text{s}$ | $V_{CC} \div 30\text{V},$<br>$I_C=-3\text{A},$<br>$I_{B1}=-I_{B2}=-10\text{mA}$ |
| $t_{stg}$            |               | 4.0 |     | $\mu\text{s}$ |   |               | 0.8 |      | $\mu\text{s}$ |   |
| $t_f$                |               | 1.5 |     | $\mu\text{s}$ |   |               | 0.6 |      | $\mu\text{s}$ |   |

## Characteristic curves

